

# The Research Series

In this issue of the research series, we have addressed the topic that worries potential (and established) academics the most – funding. We have two articles from the biggest grant making agencies in the UK. John Williams is head of clinical activities at the Wellcome Trust. He has succinctly spelt out the range of grants available to clinicians at every stage of their career, from undergraduate to international researcher. In doing so, he has given us a road map to follow if we wish to travel towards academic independence and beyond.

Our second article is written by David Cox, deputy director of the Research Faculty at the National Institute of Health Research (NIHR).

The NIHR is only three years old, but it has already had an enormous impact on researchers and research alike. David has mapped out a framework for NIHR activity, which stretches from establishing an infrastructure for research in the NHS to the mentoring of trainees. Along the way he has explained the NIHR's philosophy and detailed what they look for in those all important grant applications! I hope that these articles go some way towards allaying your fears and provide you with the information you need to pursue or continue your academic aspirations. ♦

Boyd Ghosh, Series Editor.



## Boyd Ghosh

is currently carrying out research for a PhD in Cambridge, investigating biomarkers and social cognition in progressive supranuclear palsy. He is the current secretary for the ABNT.

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### Interested in finding research fellows and collaborators?

The ABNT is collating information to create an interactive research networking database on the ABN website. This will include cross-referenced lists of Academic Neurologists, research groups and research posts available in the UK. If you would like to find out more, or ensure that your group is represented, please contact the ABNT Research Rep, Beth Mallam: bethmallam@doctors.org.uk

## Researchers Find Some Wellcome Support



### Dr John Williams

Dr John Williams trained initially as a neuroscientist at the National Institute for Medical Research, London. Postdoctoral training followed at Stanford and Duke. In 1998 he changed direction and embarked on a career in science administration when he joined the Wellcome Trust. He has held a number of roles within the organisation. He is currently Head of Clinical Activities and Head of Neuroscience and Mental Health.

The Wellcome trust is a large charitable organisation founded by Sir Henry Wellcome to advance medical research. As part of this goal, we seek to encourage clinicians to carry out medical research. We endeavour to provide schemes at every stage of a clinician's career to facilitate this (Figure 1).

### Medical students

We believe that it is never too early to encourage an enquiring mind. We provide elective grants to enable students to carry out research at recognised research centres. Students apply through their medical school and if successful are given funding for no less than four weeks.

### Graduate students

At any stage of their career, from medical student to newly qualified CCST, Wellcome aims to encourage and support clinicians to carry out research towards a PhD. This is usually achieved in one of two ways. Clinicians can apply for a personal research fellowship, where a grant is allocated to them for their research at a particular centre. This is the usual method of funding which most people are familiar with. The best vehicle for this is as part of an academic clinical fellowship, academic foundation programme or an MB/PhD programme.<sup>1,2</sup> These programmes provide the researchers with time and funding so that they can develop their research question before applying for a research training fellowship.

The second method involves applying directly to a Wellcome research centre for a 3-4 year PhD programme. One of the problems of personal fellowships is that they often rely on a chance encounter between a keen student and a suitable supervisor. In a Wellcome research programme, students work at an internationally recognised centre and will have the assurance that they have the very best opportunities for their research. Students are deliberately recruited in cohorts to foster a team spirit. Successful applicants select their supervisor themselves and are encouraged to think "outside the box" when deciding their field of research. While different centres vary, most have a slightly lengthened course between three and four years and some have an initial "immersion" experience to provide students with as much exposure to different fields as possible early on.

In both scenarios, we look for people who have established at an early stage that they have an enquiring mind and have the potential to carry out research. We would be looking for people who have carried out research in special study modules or electives and gained distinctions and prizes during their degree. They would normally have graduated with honours and obtained prestigious jobs with academic institutions during their career.

### Post doctoral level

There are competing priorities for clinicians at this stage. They must develop their clinical skills, in

order to obtain their specialist qualifications, but at the same time remain competitive in their chosen field of research. We have a number of schemes to help researchers manage these different priorities.

For those who have carried out an MB/PhD, there is the MB/PhD post-doctoral programme. This gives the opportunity to have a graduated entry to clinical work. Fellows are funded for 100% research for a year or two and then typically 50% and 25% in subsequent years. Funding is sometimes available to pay for a research assistant to continue with research while the clinician is receiving their clinical training.

Researchers in specialist clinical training would usually apply for a clinical lecturer post. This is an NIHR funded post, described by Chris Butler in the last issue. It allows applicants to develop ideas for the next stage of their research and to acquire pilot data for their next substantial application for funds. These posts do not usually carry any money for consumables. Wellcome, through the Academy of Medical Sciences, provides grants for £30,000 to help with research costs.

### Clinician scientist

The clinician scientist stage is a concept developed from a report by Sir John Savill<sup>3</sup> for the academy of medical sciences. This report highlighted the difficulty faced by clinicians trying to gain clinical and research independence. Clinician scientist awards, which are available through a range of different funders, enable fellows to carry out up to 40% clinical work in order for them to qualify for their CCST. The award available from Wellcome is for a period of five years and includes funds for research assistants and larger items of equipment. Applicants for this stage should have already shown promise in their early research career, with at least one substantial first-authored paper in an influential journal. These awards are designed to enable clinicians to complete their higher clinical training to CCST. If clinicians only have a year to go before completion of CCST, then we have a truncated version called an intermediate fellowship. This is for a period of up to four years.

### Post clinician scientist

Researchers who have graduated through the clinician scientist stage have received the very best training and will have achieved independence in both clinical and academic fields. They are usually highly sought after for tenured posts in academic departments or substantive NHS posts with ring-fenced research time. However academics who are not tenured or in NHS posts can apply for senior research fellowships. These are highly prestigious personal fellowships for five years with funds allocated for research expenses and assistants. These fellowships can be renewed for a further five years on the understanding that the department funds 50% of the applicants salary.

Academic clinicians can also apply for project or programme grants. A project grant is aimed at those at clinician scientist stage and higher and can be sought by an individual or a group of researchers. They are intend-

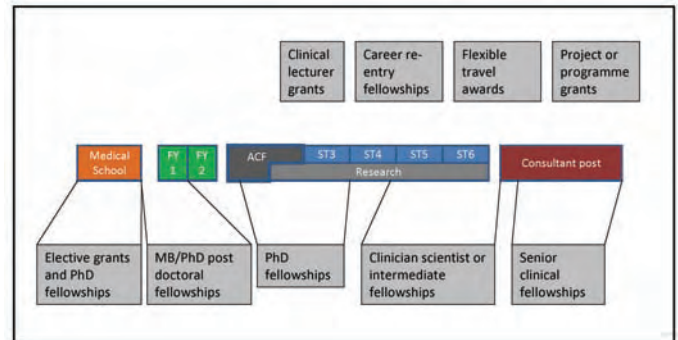


Figure 1: A summary of grants available throughout a clinician's career. Fellowships for particular stages are detailed below and grants available at a number of different points are shown above. FY is foundation year; ACF academic clinical fellowship; ST specialist trainee. Details of all the awards are in the article or at <http://www.wellcome.ac.uk/Funding/Biomedical-science/index.htm>

ed to facilitate investigation in a particular area. The larger programme grant is intended to provide independence to the academic. It enables them to pursue lines of enquiry as they occur without needing to frequently apply for more funds and is therefore intended for only the most experienced individuals with a strong track record of research success.

### Other grants

To enable researchers who have taken a career break of a few years to return to an academic career, Wellcome provide career re-entry fellowships. This is tenable for two to four years and includes funds for training and research consumables.

Flexible travel awards are available to clinicians to obtain experience or skills in fields outside their own. This may be in an emerging aspect of their own field or an interdisciplinary subject. Funds cover travel and research consumables as well as course fees if appropriate. ♦

### References and further reading

1. Dr Mark Walport "Medically- and dentally-qualified academic staff: Recommendations for training the researchers and educators of the future" Report of the Academic Careers Subcommittee of Modernising Medical Careers and the UK Clinical Research Collaboration March 2005 available at [http://www.nihrtcc.nhs.uk/intetacatrain/index\\_html/copy\\_of\\_Medically\\_and\\_Dentally-qualified\\_Academic\\_Staff\\_Report.pdf](http://www.nihrtcc.nhs.uk/intetacatrain/index_html/copy_of_Medically_and_Dentally-qualified_Academic_Staff_Report.pdf)
2. Dr Geraint Fuller "Doing research in the post MMC world" ACNR 2009;9(4):33-4 available at [http://www.acnr.co.uk/SO09/ACNRSO09\\_research.pdf](http://www.acnr.co.uk/SO09/ACNRSO09_research.pdf)
3. Sir John Savill. "The Tenured Track Clinician Scientist: a new career pathway to promote recruitment into academic medicine" March 2000 published by the Academy of medical sciences. A summary is available at <http://www.academicmedicine.ac.uk/careersacademicmedicine/clinicianscientists.aspx>

Details of grants are available at the Wellcome Trust website on <http://www.wellcome.ac.uk/Funding/Biomedical-science/index.htm>

# Embedding Research in the NHS Culture



### Dr David Cox

is Deputy Director – Research Faculty, in the Research & Development Directorate of the Department of Health. He joined the Department in October 2008 after working in a variety of research management roles at the MRC. Before that he spent a decade as a neuroscientist.

### The historical perspective

The National Institute for Health Research (NIHR) was established in April 2006 to carry forward the vision, mission and goals outlined in the Government's health research strategy for England: Best Research for Best Health.<sup>1</sup> NIHR's remit is to create a health research system in which the NHS supports outstanding individuals, working in world class facilities, conducting leading edge research focused on the needs of patients and the public.

In order to achieve this, the Institute has developed a health research system that is integrated with the nation's health system, and is based on four main work elements (Figure 1):

1. NIHR Faculty: supporting the individuals carrying out and participating in research
2. NIHR Research: funding research that aims to improve NHS health and social care services
3. NIHR Infrastructure: providing the support and facilities for a thriving research environment
4. NIHR Systems: working with partners to

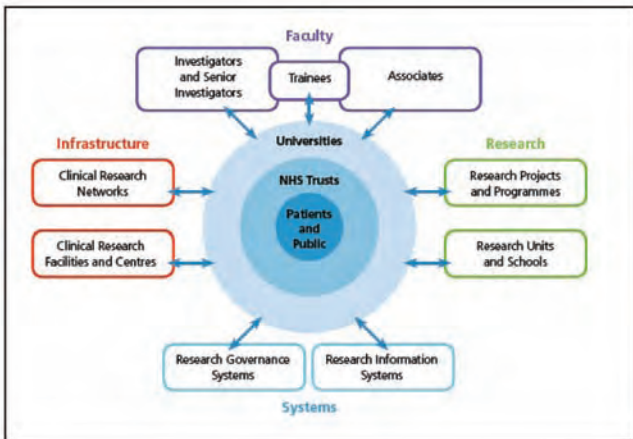


Figure 1: The four main work strands of the National Institute for Health Research (NIHR).

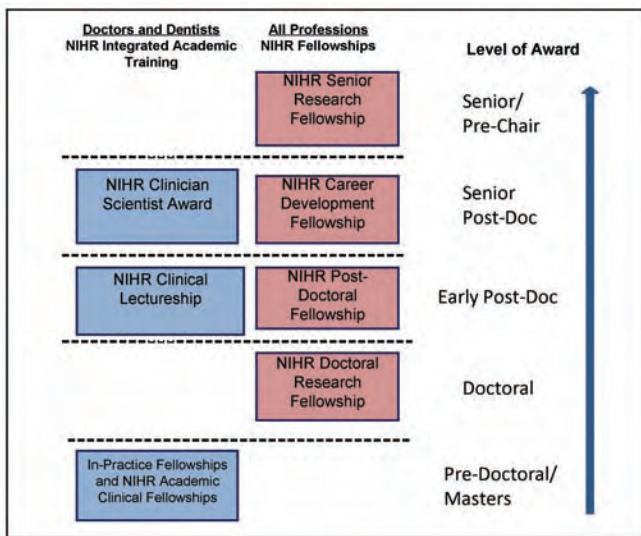


Figure 2: NIHR Research Career Pathways.

strengthen research governance, and to streamline the procedures underpinning research. NIHR infrastructure and systems facilitate research and research led outcomes in the UK. They work in the background to ensure that research is streamlined and efficient. For example,

1. NIHR was a leading organisation behind the inception of the Integrated Research Application System (IRAS) which is a one-stop portal for providing the information needed to secure ethical and other approvals for research.
2. The NIHR Clinical Research Networks are facilitating the participation of patients and health professionals in clinical trials, in part through allocation of funding for service support for research; and
3. The NIHR coordinated system for gaining NHS permissions (NIHR CSP) facilitates multicentre trials by reducing duplication in the NHS review process.

We believe that Infrastructure and Systems are pivotal to the research community in the UK. However, this article concentrates on the aspects of NIHR which are of more direct concern to individual researchers in Neurology, namely NIHR Faculty and Research.

**NIHR Faculty**

The aim of the NIHR Faculty is to create a vibrant community of outstanding individuals exchanging ideas about research and innovation that will improve health and well-being. All members of the research community whose salary is supported, at least in part, by the

NIHR or Department of Health Policy Research Programme (PRP) and who are employed or are students in the NHS or a UK University, are eligible to join the NIHR Faculty.

The Faculty is made up of three main categories of members: Trainees, who undertake research training and career development funded by NIHR; Associates who support research programmes led by others; and Investigators who are independent researchers conducting NIHR research programmes. Investigators are eligible to apply for the position of NIHR Senior Investigator. This is a prestigious position, achieved through tough competitions that are run annually. Each award is accompanied by a \$15,000 personal discretionary research fund. Senior investigators form an NIHR college, which provides leadership to the NIHR Faculty.

The Faculty aims to support members in several ways:

1. Funding training and career development
2. Implementing research capacity building programmes
3. Offering mentoring and outreach support for NIHR Trainees
4. Supporting the development of present and future leaders of clinical and applied health research
5. Running events such as conferences, meetings and summer schools
6. Sponsoring collaborative working through the NIHR Portal
7. Working with partners to create better information about career paths and opportunities.

The NIHR has been developing research career pathways and building research capacity across the health care professions. Each year, the NIHR allocates and fully funds 250 Academic Clinical Fellowships (ACFs) and 100 Clinical Lectureships (CLs) within the integrated academic training pathway for doctors and dentists. We have been working with the Chief Nursing Officer and the Chief Scientific Officer to create a similar clinical academic pathway for those seeking to combine research and clinical careers in nursing, midwifery, the allied health professions, and healthcare science.

We also have a series of personal training awards, open to all health professions, that cover the whole range of career stages from doctoral training to senior fellowship. The NIHR's schemes of most interest to neurologists are set out on Figure 2.

Neurologists will typically enter on a research career path through NIHR in two ways. Firstly, they can apply through a Deanery for an ACF, which enables trainees to combine pre-doctoral research training in protected time, with continuing specialty training. Many ACFs will then go on to a 3 year Doctoral Research Fellowship (which might be supported by a number of research funders and is called by some a Clinical Research Training Fellowship) before returning to another joint research/clinical training post at post-doctoral, CL level. The most promising researchers then go on to a Clinician Scientist Award. The ACF and CL posts have already been discussed in detail by Geraint Fuller and Chris Butler in previous issues of ACNR. However, award of an ACF should put the individual neurologist into a strong position when applying for a personal doctoral fellowship, either through NIHR or another grant making body.

NIHR Fellowship Scheme (These are Personal Awards and apply to ALL professions)			
Name of award	Level	Who for (all professions)	Brief details at 2009
Doctoral Research Fellowship	Doctoral	To register or already registered for PhD for less than 12 months	3 yr FT salary or PT(75%,60% 4 or 5 yr) + research costs. Also training and development costs
Postdoctoral Research Fellowship	Early Post-Doc	Less than 3 years Post Doctoral experience	3 yr FT salary or PT(75%,60% 4 or 5 yr) + research costs. Also training and development costs
Career Development Fellowship	Senior Post-Doc	Less than 7 years Post Doctoral experience	3 yr FT salary or PT(75%,60% 4 or 5 yr) + research costs. Also training and development costs
Senior Research Fellowship	Pre-chair	With strong research track record	5yr FT salary or PT (75%,60%) + research costs. Also training and development costs
NIHR Integrated Academic Training (Integrating clinical training with research)			
Name of award	Level	Who for (Doctors, Dentists)	Brief details at 2009
Academic Clinical Fellowship	Pre-Doctoral	For Doctors + Dentists in speciality training	25% time spent in research salary costs. Max 3 yrs (or 4 for GP's)
Clinical Lectureship	Post-Doctoral	For those in speciality training, and qualified GPs, after gaining PhD	50% time spent in research. Max 4 years. Ends at CCT
Clinician Scientist	Senior Post-Doctoral	Registrars/GP/Dentists with PhD and reasonable research track record	5 years FT salary plus research costs (can be PT 75% or 60%)

Figure 3: NIHR research funding applicable to Neurologists.

**Box 1: Characteristics of successful grant applications:**

- Proposals will be more successful if they address important research areas for the NHS, producing results likely to generate significant (and quantifiable) benefit for NHS patients within 3-5 years of the end of the funding period.
- Proposals should have clearly articulated, relevant and engaging aims and objectives, each addressed by research strands whose methods are described in sufficient detail to enable the Selection Panel to judge their quality and feasibility.
- Proposals should be presented in a logical and coherent way, using appropriate sub-headings and keeping the use of jargon, abbreviations and acronyms to a minimum.
- Proposals should outline appropriate arrangements for patient and public involvement in research design, participation and evaluation stages.
- Proposals should clearly and realistically identify the major scientific, technical or organisational challenges associated with any research and outline how these challenges can be addressed.
- Proposals need to offer excellent value for money, where the requested resources are clearly justified and commensurate with the type and scale of the work proposed.
- Research team members should offer the necessary breadth and depth in all the methodological expertise required to deliver the proposed programme of work.
- For programme grants, research teams should have an excellent track record in applied health research, as indicated by publication output, previous research funding, and impact on health service practice and policy.

**Common reasons for unsuccessful applications:**

- They contain work that does not meet NIHR's stated definitions of applied health research or fail to demonstrate patient benefit within the relatively near future.
- A lack of appropriate multidisciplinary involvement in the research team, particularly the failure to include relevant experts in statistics, health economics, health service research etc. as applicants or, at the very least, named collaborators.
- Some lack sufficient depth of detail of the research methods, making it impossible to judge whether the proposed research is appropriately designed and feasible.

Alternatively, doctors or other health professionals with prior research experience who wish to concentrate on research can follow the personal fellowship route. This starts at the Doctoral Research Fellowship but can be entered at any stage (see figure 3). These fellowships cover salary and research costs. They are designed to allow career progression for trainees through increasing levels of independence until they are established as independent investigators. Fellowship proposals are investigator-led and there is no upper limit set for research costs, although the interviewing board scrutinises costs closely.

NIHR does not just offer financial support. Each year, the NIHR runs a major conference for NIHR trainees. These and other events are focused on different groups of members within the Faculty and, depending on the audience, cover research, training and more general policy issues. Faculty Trainees on the integrated academic training pathway are also offered mentoring, which is coordinated through the Academy of Medical Sciences and is a key part of our support for trainees. This will be discussed in more detail in the next issue of ACNR by the Academy themselves.

**NIHR Research**

NIHR funds a wide range of research via a number of different programmes. These are all listed in detail on the NIHR website given at the end. However, we have detailed some of those most relevant for neurologists involved in research.

Programme Grants for Applied Research are prestigious awards of up to £2m over a period of three to five years, directed towards leading researchers with impressive track-records of achievement in applied health research. Each programme funds a series of related projects, which form a coherent theme in an area of priority or need for the NHS.

The Research for Patient Benefit (RfPB) Programme is a national programme for high quality investigator-led research addressing issues of importance to the NHS. It funds research into everyday practice in the health service. Health service staff identify and develop proposals with appropriate academic input. All proposals must show evidence from systematic reviews to ensure patient safety and value for money.

The Invention for Innovation (i4i) Programme helps accelerate take-up of proven new treatments and devices by the NHS. The programme incorporates the Challenge Fund for Innovation, which promotes and accelerates knowledge transfer and innovation between the NIHR and the NHS.

The Research for Innovation, Speculation and Creativity (RISC)

Programme provides small, discrete grants for new speculative and radical health research proposals that could lead to a step change in the care and management of patients. RISC awards are intended particularly for speculative, novel proposals that are unlikely to gain support via traditional peer review processes.

The Health Technology Assessment (HTA) programme funds research to provide healthcare professionals, NHS managers, public and patients with the latest information on costs, effectiveness and impact of new developments in health technology. It commissions investigator-led clinical trials investigating issues of direct relevance to clinical practice in the NHS; primary research on the effectiveness of new technology through Technology Assessment Reviews for the National Institute for Health and Clinical Excellence (NICE); and clinical trials of importance to the NHS coordinated by the newly established NIHR Clinical Research Networks.

All applications are rigorously peer reviewed. NIHR only funds high quality peer-reviewed research clearly focused on creating benefit for patients in the NHS and those receiving social care services. Applications for research funding are more likely to be successful if they can demonstrate clear patient benefit, lead to efficiencies within the NHS, and involve patients and the public in the design and evaluation stages. Box 1 outlines key criteria for successful applications and common failings.

The NIHR has achieved a great deal in three years, as our latest progress report shows. The systems we have put in place are not just for academics working in university research departments. We are keen to support NHS clinicians – specialist consultants, hospital doctors, nurses, GPs and other health professionals. It is a key part of NIHR's remit to embed research as part of the NHS culture and ethos. Only then will we see continuous improvement in clinical practice – new solutions, better treatments, and ultimately healthier and happier patients. ♦

**Further Information**

1. Best research for best health – a new national health research strategy. Published by the department of health January 2006 available at: [www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4127127](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4127127)

Information about fellowships is available at: [www.nihrtcc.nhs.uk/](http://www.nihrtcc.nhs.uk/)  
More information about NIHR and its work can be found at [www.nihr.ac.uk](http://www.nihr.ac.uk)