

2017 UK-Wide Survey of Clinical and Health Research Fellowships

November 2017





Prepared by the Medical Research Council on behalf of:



With additional data provided by:

Health Education England
NHS Education for Scotland
Northern Ireland Medical and Dental Training Agency
Wales Deanery

Prepared by:

Julia Dickinson, Programme Manager for Clinical Careers Strategy, MRC
Jennifer Scott, Senior Information Analyst, MRC
Phillip Edwards, Information Analyst, MRC
Secretariat to the Survey Working Group and Steering Group: Peter Tang, Data Analyst, Medical Schools Council

Contents

1. Executive Summary	5
2. Introduction	9
3. Methods	13
4. Support across career stages	19
Pre-doctoral awards	21
Doctoral awards	22
Initial post-doctoral level and the establishment of a research career	22
Established and senior research positions	22
Diversity data	23
5. Overview of research funded	27
UKCRC HRCS Research Activity	28
UKCRC HRCS Health Category	30
6. Support for medically qualified fellows	32
Transition to Independence: a potential bottleneck in the career pathway	34
Medically qualified fellows across the four nations	36
Fellowship awards by medical specialty	47
Distribution of the seniority of awards by medical specialty	53
UKCRC HRCS Research Activities and Health Categories by medical specialty.	54
Diversity data by specialty	57
7. Support for nurses, midwives, dentists, allied health professionals, veterinarians and other healthcare professionals	58
Dental fellows	60
Nursing/midwifery, allied health professions and other health professions	60
Veterinarians	61
Distribution by geographic location	62
UKCRC HRCS Research Activities and Health Categories across professions	65

8. Conclusions and recommendations	69
9. Appendices	72
Appendix 1: Schemes included in the 2017 UK-Wide Survey of Clinical and Health Research Fellowships by funder and the career stage supported	73
Appendix 2: Schemes included in the OSCHR UK-wide Survey of Health Research Fellowships 2009 by funder and career stage supported	76
Appendix 3. Fellowship award levels 2014-2017	78
Appendix 4: Categorisation of medical and surgical specialties in this survey	79
Appendix 5: Research funders involved in this research	80
Appendix 6. Survey Steering Group and Working Group membership	83



1. Executive Summary

1. Executive Summary

About this survey

This survey provides an overview of current UK-wide investments to grow and sustain the capabilities and capacity for clinical, health services and public health research.

A strong clinical academic workforce is critical to the delivery of many aspects of the Life Sciences Industrial Strategy¹ and meeting the Government's industrial strategy challenges², with clinical academics performing a pivotal role in the translation of research into changes in clinical practice and improved patient benefit.

Led by the Medical Research Council on behalf of 13 funders³, the Medical, Dental and Veterinary Schools Councils and Association of Medical Research Charities, data on clinical and health research fellowships awards active in March 2017 have been compiled and analysed.

Each of the funders participating in this survey has an important role in supporting the development of the UK's clinical academics. The funders provide a range of mechanisms across career stages from pre-doctoral fellowships through to senior academic appointments to support those training and working as clinical academics. Details of awards made via these schemes were gathered for this survey⁴.

The survey includes data on fellowship holders who are medically qualified, dentists, nurses or midwives, allied health professionals, other health professionals, and non-health professionals holding fellowship awards of relevance to health research. Veterinarians holding fellowships have also been identified.

The data collected in this report focus on personal research fellowships, designed to support the career progression of excellent individuals. The survey therefore **excludes** intramural and infrastructure support and project/programme grants.

This survey builds on the data gathered by the OSCHR UK-wide Survey of Health Research Fellowships 2009⁵, which undertook a similar exercise and provides a baseline for comparison.

Key findings

The survey identified 2840 fellowships across all career stages from pre-doctoral to senior academic appointments. In the 2009 survey 1660 fellowships were identified. The majority of the increase in 2017 is due to increased numbers of pre-doctoral Academic Clinical Fellowship posts supported by NIHR. The overwhelming majority of those identified were medical graduates (76%).

All links in this report were accessed and live in October 2017

1. Life sciences: industrial strategy. A report to government from the life sciences sector.
<https://www.gov.uk/government/publications/life-sciences-industrial-strategy>
2. Industrial Strategy Challenge Fund,
<https://www.gov.uk/government/collections/industrial-strategy-challenge-fund-joint-research-and-innovation>
3. Funders participating in the 2017 survey: Academy of Medical Sciences; Action Medical Research; Alzheimer's Research UK; British Heart Foundation; Cancer Research UK; Chief Scientist Office (Scotland); Health and Care Research Wales; Health & Social Care R&D, Northern Ireland; Higher Education Funding Council for England; Medical Research Council; National Institute for Health Research (including schemes supported jointly by Health Education England and NIHR); Stroke Association; Wellcome. Additional data were also supplied by NHS Education for Scotland, the Northern Ireland Medical and Dental Training Agency, and the Wales Deanery.
4. See Appendix 1 for details of the schemes included in this survey
5. OSCHR UK-wide Survey of Health Research Fellowships 2009,
<https://www.mrc.ac.uk/publications/browse/oschr-uk-wide-survey-of-health-research-fellowships-2009/>

Support for early career stages

The number of pre-doctoral and doctoral awards supported by the funders partnering this survey has markedly increased since the 2009 survey, with broadened access to early career research experience across the professions.

The total number of awards supporting the initial post-doctoral career stage has nearly doubled since 2009 demonstrating an improved breadth of routes available post-PhD.

Support for the transition to an independent research career

There has been a decline of over 13% in the number of awards supporting fellows to establish an independent research career. In 2009 198 live awards were identified, compared to 172 in 2017. This is a critical and precarious career stage and this decline represents an increasing bottleneck in the pathway to a senior clinical academic position, especially in view of the increased support for earlier career stages.

During this period there has been a decline in the number of clinical academic staff employed by UK medical schools and an increase in vacancy rates⁶, especially at Reader / Senior lecturer grades, indicating the supply of clinical academics for these senior positions is insufficient.

In the past three years 125 new awards have been made to support fellows to establish research independence, compared to 117 in the three years prior to the 2009 survey, indicating that recent award rates have been stable. The application numbers for these schemes also appear to be stable, but not increasing.

The number of senior fellowship awards supporting established researchers and senior academic appointments has decreased by nearly 30% since 2009, primarily due to the planned ending in 2011 of the HEFCE-funded Clinical Senior Lectureship Awards scheme.

Diversity of the clinical academic population

The percentage of female fellows declines with increasing seniority of award. Data are limited but are compatible with findings in other surveys⁷. Improved monitoring is required to ensure current and future initiatives to increase inclusivity have an impact. The data demonstrate the need for initiatives to develop inclusive and intelligent career models, and to fully implement the guidance provided by the document “UK clinical academic training in medicine and dentistry: principles and obligations”⁸.

The data available across the partnering funders on the age, ethnicity and nationality of fellows were very limited. As a result, it is difficult to draw conclusions about the detailed demographics of the current population of fellows, though the data provide the most comprehensive baseline currently possible for future comparison.

6. The 2017 Survey of Medical Clinical Academic Staffing Levels, <https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf>

7. See, for example, the Academy of Medical Sciences, Representation of women within the Academy's Fellowship, February 2013, <https://acmedsci.ac.uk/file-download/35277-136118550861.pdf>

8. UK clinical academic training in medicine and dentistry: principles and obligations, <https://www.mrc.ac.uk/documents/pdf/clinical-principles-and-obligations-report/>

Support across professions

Pre-doctoral and doctoral-level support for dentists, nurses/midwives, dentists and allied health professionals has increased, however the number of post-doctoral and senior fellowships held by these professionals is low, indicating a potential shortage of academic leadership and uncertainty over next steps for individuals in training in these disciplines.

The number of dentists holding fellowships has increased three-fold, from 23 identified in the 2009 survey to 75 in 2017, reflecting increased investment by NIHR; the increase is however confined to early career stages, with no dentists identified holding an award more senior than an initial post-doctoral fellowship.

The number of academic General Practitioners has markedly increased (though remains low in comparison to the overall population of GPs). Medical specialties with a high proportion of research fellowship holders include Cardiology, Oncology and Surgery. Some specialties related to areas critical to the UK research base such as Clinical Pharmacology and Therapeutics, Pathology and Public Health have relatively low numbers of trainees awarded research fellowships.

Issues and recommendations

Core data collection was complicated. The completeness, format, ease of access and type of data held by funders varied considerably. We recommend that partners come together to agree core data that should be routinely collected to better inform future UK-wide planning including a greater understanding of patterns and trends in the UK clinical workforce. Data collection and reporting should be made more automatic and ideally reported annually, for instance linking to existing data sets such as the UK Medical Education Database.

Supporting more informed decision making, ensuring clinical academic research is viewed as an attractive career choice. There are no data that explain why and how different clinical career paths are chosen. We need to undertake formal research to better understand how aspiring clinical academics think about their future, when and how key decision points are reached and what evidence or opinion is sought to inform them. This research should place particular emphasis on understanding how we might better support increased diversity and inclusion in clinical careers including, but not limited to gender, BME, speciality, and sector. Partners should then collectively review and restructure their approaches to most effectively support key career stages.

Enhanced partnerships – funding and policy. A four-nation approach to strategic planning for clinical research careers should be adopted across Departments and funders in the UK to help deliver the vision set out in the Government's Life Sciences Industrial Strategy. This should include agreement on short term and long term indicators of success.



2. Introduction

2. Introduction

Clinical academics occupy a unique position – linking clinical practice and research. A strong clinical academic workforce is critical to the delivery of many aspects of the Life Sciences Industrial Strategy⁹ and meeting the Government's industrial strategy challenges¹⁰, with clinical academics performing a pivotal role in the translation of research into changes in clinical practice and improved patient benefit.

Fellowships are a critical mechanism to support early-career clinical academics who are the next generation of clinical and health research leaders. Studies have highlighted the importance of clinical academics in not only advancing the understanding of disease and development of treatments, but also in implementing innovations in healthcare and improving patient outcomes¹¹.

Fellowships: awards supporting the salary of the recipient (the fellow), usually for between 1 and 5 years. Most fellowships pay for 100% of the fellow's contracted working time to enable a consolidated period to focus on research activities.

Clinical academics: qualified clinical and healthcare professionals whose careers combine both clinical practice and research. They work across university and NHS employment, usually employed by a university with an honorary contract with the NHS, or vice versa.

In this survey we use the term to include medics, dentists, nurses and midwives, veterinarians, allied health professionals (e.g. physiotherapists, speech therapists), and other healthcare professionals (e.g. pharmacists, medical physicists) who are undertaking research.

A small number of non-healthcare professionals have also been included in this survey. They are not clinical academics as they do not hold a clinical qualification, but they are undertaking research in areas of particular importance to the UK skills and research-base, such as informatics or health economics.

Each of the funders participating in this survey has an important role in supporting the development of the UK's clinical academics. The funders provide a range of fellowship mechanisms to support outstanding individuals to progress their research careers. Details of awards made through these schemes were gathered for this survey¹². In total, between them the 13 partners plan to commit over £190m in the current financial year to support the schemes included in this survey.

This survey uses the term clinical academic to mean not only those undertaking research who are medically qualified, but all professions with patient-facing responsibilities. While the majority of the fellows identified in this survey are medics (76%), this survey also provides information on fellows qualified as dentists, nurses and midwives, allied health professionals, other health care professionals, veterinarians, and non-healthcare professionals holding awards of specific health services or public health relevance.

9. Life sciences: industrial strategy. A report to government from the life sciences sector, <https://www.gov.uk/government/publications/life-sciences-industrial-strategy>

10. Industrial Strategy Challenge Fund, <https://www.gov.uk/government/collections/industrial-strategy-challenge-fund-joint-research-and-innovation>

11. See, for example, High hospital research participation and improved colorectal cancer survival outcomes: a population-based study, Amy Downing et al, Gut, 2016, <http://gut.bmj.com/content/gutjnl/early/2016/10/14/gutjnl-2015-311308.full.pdf> and Research Activity and the Association with Mortality, Baris A. Ozdemir et al, PLOS One, 2015, <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0118253>

12. See Appendix 1 for details of the schemes included in this survey

Integrated academic training paths have been introduced across the UK since 2006 for medical professionals¹³ and non-medical professionals¹⁴ to combine clinical training with research experience, however, aspiring clinical academics still face a range of challenges, including securing funding, organisational support, and managing personal commitments while balancing the clinical and research aspects of their careers, as well as experiencing delayed salary progression due to taking time away from their clinical training pathway¹⁵.

Changes to the current medical training landscape include the implementation of the Shape of Training Review¹⁶ recommendations on reforms to the structure of postgraduate medical education and training across the UK, and the implementation of the new Junior Doctors contract in 2016¹⁷. In other professions the importance of academic capacity and capability to drive health research and innovation, and the need to embed research opportunities within professional training and career pathways is increasingly recognised¹⁸.

Given the current landscape, the funders partnering this survey recognise the importance of co-ordinated evidence and strategic planning regarding support of early-career clinical academics. Despite the challenges inherent in producing a UK-wide overview given the wide range of stakeholders, they considered it timely to refresh the OSCHR UK-wide Survey of Health Research Fellowships 2009¹⁹ to provide a comprehensive map of current clinical and health research fellowships.

This survey provides an overview of 13 funders²⁰ investments to grow and sustain the capabilities and capacity for clinical, health services and public health research.

The survey has focused on **fellowship** awards for two reasons:

- fellowships represent specific human capital priorities and investment by funders – prestigious, competitively awarded funds for excellent individuals
- to follow the methodology of the OSCHR 2009 survey to facilitate direct comparison and the identification of emerging trends in the intervening period.

This survey provides an evidence base that facilitates assessment of the future impact of training and employment changes on early clinical academic careers, identifies changes in the fellowships landscape since 2009, and highlights the extent of investment in this cadre of researchers who can lack visibility and recognition in both clinical and academic environments even while forming the critical bridge between them.

-
13. BMA, Academic training programmes in the UK, <https://www.bma.org.uk/advice/career/applying-for-training/academic-training>
 14. ICA HEE/NIHR Integrated Clinical Academic Programme for non-medical healthcare professions, <https://www.nihr.ac.uk/funding-and-support/funding-for-training-and-career-development/training-programmes/nihr-hee-ica-programme/>
 15. A Cross-Funder Review of Early-Career Clinical Academics: Enablers and Barriers to Progression, A Review led by the Medical Research Council in collaboration with the Academy of Medical Sciences, British Heart Foundation, Cancer Research UK, National Institute for Health Research and Wellcome Trust, November 2015, <https://www.mrc.ac.uk/documents/pdf/review-of-early-career-clinical-academics/>
 16. Shape of Training: Securing the future of excellent patient care. Led by Professor David Greenaway, https://www.shapeoftraining.co.uk/static/documents/content/Shape_of_training_FINAL_Report.pdf_53977887.pdf
 17. NHS Employers, <http://www.nhsemployers.org/your-workforce/pay-and-reward/medical-staff/doctors-and-dentists-in-training>
 18. Veterinary Schools Council Strategic Plan 2016–2020, <http://www.vetschoolscouncil.ac.uk/wp-content/uploads/2016/10/VSC-Strategic-Plan-2016-2020.pdf>; Shape of caring Review: Raising the Bar, 2015 <https://hee.nhs.uk/our-work/developing-our-workforce/nursing/shape-caring-review>
 19. <https://www.mrc.ac.uk/publications/browse/oschr-uk-wide-survey-of-health-research-fellowships-2009>; 12 funders contributed data to the 2009 survey: NIHR, Chief Scientist Office (Scotland), Welsh Office of R&D, Health & Social Care R&D Northern Ireland, MRC, Wellcome Trust, BHF, CRUK, Academy of Medical Sciences, HEFCE, ARUK (then Arthritis Research Campaign) and ESRC. A list of the fellowship schemes included in the 2009 survey is in Appendix 2.
 20. Funders participating in the 2017 survey: Academy of Medical Sciences; Action Medical Research; Alzheimer’s Research UK; British Heart Foundation; Cancer Research UK; Chief Scientist Office (Scotland); Health and Care Research Wales; Health & Social Care R&D, Northern Ireland; Higher Education Funding Council for England; Medical Research Council; National Institute for Health Research (including schemes supported jointly by Health Education England and NIHR); Stroke Association; Wellcome. Additional data were also supplied by NHS Education for Scotland, the Northern Ireland Medical and Dental Training Agency, and the Wales Deanery. A list of the fellowship schemes included in the 2017 survey is in Appendix 1.

The data provide a picture on current UK-wide investments to grow and sustain the capabilities and capacity for clinical, health services and public health research, and the recommendations made in Section 8 will underpin discussion and further analysis by the partners involved in developing coordinated strategic planning for future support.

It is anticipated that this survey will be of wide interest to all stakeholders in clinical academic training, including research funders, research organisations, NHS Trusts and the Royal Colleges.



3. Methods

3. Methods

Data collected

This survey has taken a 'snapshot' of fellowship funding 'live' in March 2017 across England, Wales, Scotland and Northern Ireland to identify health professionals supported by different funders, together with information on their area of expertise, location, and career stage²¹.

The data include individuals awarded clinical and health research fellowships who are medically qualified, dentists, nurses and midwives, veterinarians, allied health professionals and other health professionals²², and non-health professionals with fellowships in health services or public health research²³.

Information on gender, nationality, age and ethnicity has been collected where available.

Each funder has compiled the relevant data on their awards to share in a standardised format for analysis, and this survey therefore offers a reliable overview of the fellowship awards supported by the partnering organisations.

In addition, the Medical Schools Council holds the data returned for the Survey of Medical Clinical Academic Staffing Levels 2017²⁴, which complements this survey and is discussed later in this section.

Career stages: The fellowship awards included in this survey have been assigned to six career stages

- 1: Pre-doctoral:** awards supporting initial research experience, e.g. Masters courses, or NIHR ACFs which support clinical trainees to combine specialty training with research experience.
- 2: Doctoral:** awards supporting the fellow to undertake a PhD or equivalent higher research degree, e.g. Clinical Research Training Fellowship, Doctoral Research Fellowship, Clinical PhD programme.
- 3. Initial post-doctoral:** awards supporting research immediately or shortly after the fellow has obtained a PhD (or equivalent). In general these awards support the fellow's salary, but no additional staff, e.g. NIHR Clinical Lectureships, Wellcome's Clinical Research Career Development Fellowship stage 1, MRC Skills Development Fellowships.
- 4: To establish a research career:** awards supporting the transition to research independence, including support for additional salaries besides the fellow's (e.g. for technicians and/or research assistants) to enable the fellow to form their first research team, e.g. Clinician Scientist Fellowships, Intermediate Clinical Fellowships, Wellcome's Clinical Research Career Development Fellowship stage 2.
- 5: Established independent researcher:** awards for established independent researchers transitioning to becoming internationally recognised leaders in their fields and more widely. e.g. Senior Clinical Fellowships, Principal Research Fellowships.
- 6: Senior Academic appointment:** awards supporting established senior academics, e.g. Research Professorships, Personal Chairs

21. To complement the 'live snapshot', data have also been collected on the numbers of fellowship awards made over the last three years by the funders via the schemes included in this survey, to give an overview of recent award levels. See Appendix 3 for further details.

22. As defined by 'Eligible professions for the HEE/NIHR Integrated Clinical Academic Programme', <https://www.nihr.ac.uk/funding-and-support/documents/ICA/TCC-ICA-Eligible-Professions-and-Registration-Bodies.pdf> To mirror the 2009 methodology, Clinical Psychologists were coded as AHPs. The other professions listed are examples of those coded as 'Other health care professionals'.

23. The non-health professionals identified include those awarded fellowships via schemes targeted at increasing capacity in skills areas relating to public health, biostatistics and health economics, and those awarded applied health research fellowship via schemes open to both clinicians and non-clinicians, which include a number of NIHR's schemes. This is aligned to the definitions used for the 2009 OSCHR survey data.

24. The 2017 Survey of Medical Clinical Academic Staffing Levels, <https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf>

Inclusion & exclusion

The data collected in this report focus on personal research fellowships, designed to support the career progression of excellent individuals. The survey therefore **excludes** intra-mural support and project/programme grants, and also smaller level seed awards or bursaries which aim primarily to support travel and/or consumables and do not necessarily support the fellow's salary. The data collection also excluded details of Academic Foundation Programmes²⁵.

The rationale, as for the 2009 survey, was (a) fellowships represent a strategic response to human capital needs (although not capturing the entire picture); and (b) pragmatically, to extract occupation data in a standard manner from project/programme grant and intramural support across funders was beyond our timescale and resources.

The data include personal awards such as clinical research training fellowships, clinician scientist fellowships and senior fellowships and equivalent awards in public health research, biostatistics, health economics, methodology development and other capacity building fellowships²⁶. The fellowships data otherwise exclude non-clinical fellowships (e.g. Career Development Awards and Senior Non-Clinical Scientist awards). Part-time fellowships were included, but not distinguished from full-time.

The data also include Academic Clinical Fellowships (ACFs), In-Practice Fellowships (IPFs), Clinical Lectureships (CLs), and Senior Clinical Lectureship Awards (SCLAs)²⁷ in England. The ACF, IPF and CL fellowships are 'enabling' fellowships that aim to increase the fellow's academic experience and help improve the fellow's competitiveness when applying for more senior fellowships (though are not a pre-requisite for any scheme). These awards include a substantial clinical practice component, and constitute the integrated academic training pathway that enables a balance of clinical and academic training commitments.

Scotland, Wales and Northern Ireland have similar schemes supporting ACF and CL type posts. The data for these schemes could not be added to the main data set due to compatibility issues, though are summarised in Section 6.

25. The Foundation Programme, <http://www.foundationprogramme.nhs.uk/pages/home>

26. See Appendix 1 for details of the schemes included in this survey.

27. For further details see <https://www.nihr.ac.uk/funding-and-support/funding-for-training-and-career-development/training-programmes/integrated-academic-training-programme/> and <http://www.hefce.ac.uk/rsrch/clinical/>

Funding across the four nations

Fellowships from most of the funders partnering this survey can be held at institutions across the UK. This includes awards from the Academy of Medical Sciences, Alzheimer's Research UK, British Heart Foundation, Cancer Research UK, Medical Research Council, Wellcome, Stroke Association, and Action Medical Research

Each UK nation has its own government department that oversees health and care research:

- **Health and Care Research Wales (HCRW)**, funded and overseen by the Welsh Government's Research and Development Division.
- **Chief Scientist Office (CSO)**, part of the Scottish Government's Health Directorates.
- The R&D division of the **Health and Social Care Public Health Agency (HSC PHA)** in Northern Ireland.
- The Department of Health (DH) in England funds health and care research through the **National Institute for Health Research (NIHR)**.

Each of these bodies offer fellowships which have been included in this survey (see Appendix 1 for details)

NIHR's schemes include:

- Academic Clinical Fellowship (a pre-doctoral award combining clinical training with 25% time protected for research) and
- Clinical Lectureships (a post-doctoral award with 50% time protected for research).

Some of the data in this report are analysed both including and excluding these schemes to more clearly understand their impact.

NHS Education Scotland, the **Wales Deanery** and **Northern Ireland Medical and Dental Training Agency** support similar schemes, but the methodology used for the survey does not permit their inclusion in the main data set. They are discussed in Section 6.

There is considerable overlap in the opportunities and training pathways across the four nations, and trainees are mobile between them. Detailed analysis of that mobility is beyond the scope of this survey.

Complementarity with the Annual Surveys of Medical and Dental Clinical Academic Staffing Levels

The Medical Schools Council's (MSC) annual survey of medical clinical academic staffing levels captures anonymised data on clinical academic posts at publicly funded UK medical schools²⁸. Details are collected about posts using the following grades:

- Professor
- Reader/Senior Lecturer
- Lecturer (including NIHR clinical lectureships and other 'in program' clinical trainees)
- Researcher
- Other

A wide range of pre-doctoral and post-doctoral posts are coded as 'Researcher' and 'Other', and not all medical schools return data for these grades.

28. The 2017 Survey of Medical Clinical Academic Staffing Levels, <https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf> For the purposes of the Medical Schools Council survey, a clinical academic is defined as someone who; a) has full registration with the General Medical Council; and b) holds a substantive contract of employment with the university; and c) holds an honorary clinical contract with the NHS or a formal A+B contract; or d) for public health academics, holds an honorary contract with a nominated body i.e. Public Health England or a Local Authority.

In terms of overlap with this survey, the following should be noted about the 2017 Medical Clinical Academic Staffing Levels survey dataset:

- Only medically qualified post holders employed by the 34 publicly funded UK medical schools are surveyed.
- ACFs are usually employed by an NHS Trust, and will therefore generally be excluded from the staffing data collected.
- NIHR CLs are usually employed by a University, however they may remain employees of an NHS Trust. In the former case they will be reported with the Lecturer data returns, though in the latter case will not.
- The other fellows identified in this survey's dataset may have been returned within the Researcher or Other grades, though more senior fellows may also have been coded amongst the first three grades.

The MSC survey excludes posts that are coded as 'Researcher' and 'Other' from the main analyses, and focuses on the first three senior grades. In total, data for 3041.2 FTE posts were returned for these three senior grades in 2017, and 2012.1 FTE posts for Researcher and Other. Of the 2840 fellows in the dataset for this survey (see Section 4 for further details) 2149 were medically qualified, comprising 877 ACFs not expected to be in the MSC dataset, and 1272 holding a range of other fellowships, of whom the majority are expected to be included in the MSC dataset under Researcher or Lecturer.

Similarly, the Dental Schools Council (DSC) undertakes an annual survey of dental clinical academic staffing levels²⁹. Of the 32 doctoral and post-doctoral dental fellows identified fellows in the dataset for this survey (see Section 4 for further details) there is again expected to be overlap with the 594.3 FTE dental clinical academics identified in the DSC 2017 survey.

Both the MSC and DSC datasets and this survey gathered anonymised data, and do not provide the granularity to enable a detailed analysis of the overlap of the surveys' populations, however nor is it anticipated that this would provide significant further insight into the trends identified by each survey.

Further discussion of the findings of the survey of medical clinical academic staffing levels in relation to this survey's dataset are included in Section 6.

Data coding

The funders participating in the study had, in most cases, coded their fellowship data at the time of application or award as part of their standard research award management process, though some fields for some funders had to be coded especially for this survey by referring back to the original application and applicant CVs.

The UKCRC Health Research Classification System (HRCS)³⁰ codes are routinely used by most funders to classify awards made through a majority of their schemes, and therefore in line with standard coding practice multiple codes were included where relevant to fully describe the research activity and / or health category of an award. Where awards have more than one code, the relevant percentage of the award has been assigned to each code. This contrasts with the 2009 where a single health category and the primary research activity was used for each fellowship.

The specialty list used to code the fellowships identified by this survey was derived from the one used by the Medical Schools Council, with further specialties added to give a fuller, but manageable, list and to mirror the 2009 report (see Appendix 4 for further details).

29. Survey of Dental Clinical Academic Staffing Levels 2017 <http://www.dentalschoolscouncil.ac.uk/wp-content/uploads/2017/07/Survey-Dental-Clinical-Academic-Staffing-Levels-2017.pdf> .

30. UKCRC Health Research Classification System, <http://www.hrcsonline.net/>.

Limitations of the data

The structure and scope of this survey have been designed to produce information which can be directly compared with the 2009 OSCHR UK-wide Survey of Health Research Fellowships.

As noted in the 2009 survey, the data provide only a partial picture of the landscape due to limitations of resource and availability of compatible data sources. Particular limitations to note regarding the data presented are:

- Infrastructure and other large investments have been excluded from the survey³¹. Many have a significant role in training and addressing specific identified capacity needs, for instance in areas such as public health and informatics.
- Not all of the data fields are systematically captured by each of the partner organisations for each of the schemes. In particular, only some funders were able to provide information about gender, age, and ethnicity, and some data fields (such as HRCS codes) are not routinely captured for some schemes (e.g. ACFs and CLs).
- Other funders not included in the survey also support fellowships. For instance, it was not possible to capture the fellowships supported by all of AMRC's members, or fellowships supported by institutional (university or NHS) funds.
- There is the potential to double count an individual if they were recorded as holding more than one live award in March 2017. This is unlikely as each scheme aims to support a particular career stage, and holding multiple awards to support the same stage is not permitted. However, there is the potential that if an individual were for instance progressing from an ACF to a CRTF they could have been counted twice, but this is unlikely and does not impact on the conclusions of this survey. The methodology does not permit identification of the fellows to remove any duplicates.
- In the 2009 survey fellowships relevant to health services research and public health research were identified. While all equivalent schemes supporting fellows have again been included, they have not been specifically coded³² as it was not feasible to reproduce the 2009 methodology across the 2017 data in a systematic way that would be informative.
- Data on ACF and CL posts supported by the NIHR have been included in the data set, while data for similar schemes in Wales, Northern Ireland and Scotland could not be included. This is discussed further within Section 6, with an overview of the opportunities in each of the nations.

31. Including, but not limited to: the CRICK, NIHR Biomedical Research Centres (BRCs), Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), Patient Safety Translational Research Centres (PSTRCs), Global Health Units and the NIHR School for Public Health Research, the European Bioinformatics Institute, the Farr Institute, the MRC Biostatistics Unit, the MRC/CSO Social and Public Health Sciences Unit, and the UKCRC Public Health Research Centres of Excellence.

32. In 2009 health services research (HSR) and public health research fellowships were coded as Informatics, Economics, Health Psychology, Social Science, Statistics and Other HSR/PHR). A large number of the non-healthcare professionals identified had been awarded fellowships via schemes focused on these areas.



4. Support across career stages

4. Support across career stages

The survey returned data on a total of 2840 fellowships³³. The professions of fellowship award holders and the career stage of the fellowships are summarised in Table 1 and Figure 1, along with the data from the OSCHR UK-wide Survey of Health Research Fellowships 2009³⁴ for comparison.

The schemes included in the 2017 and 2009 surveys by funder and career stage are detailed in Appendices 1 and 2.

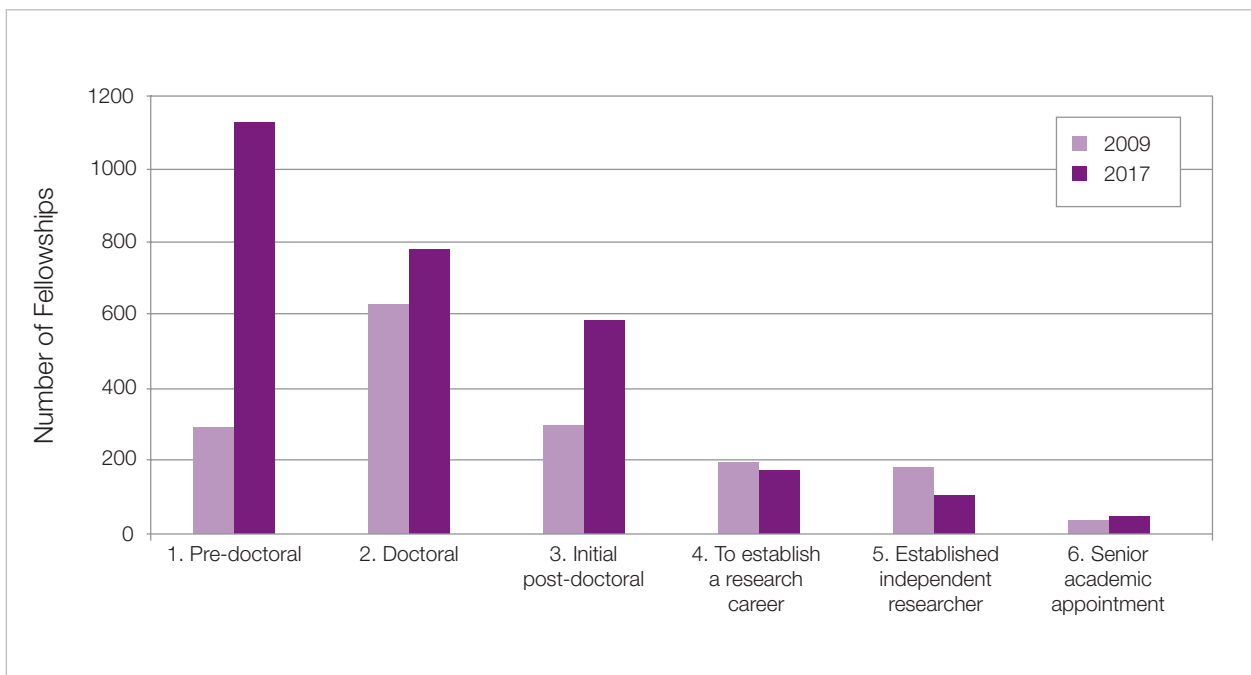
Table 1: Fellows identified in the 2009 and 2017 surveys by profession and career stage

Profession	1. Pre-doctoral		2. Doctoral		3. Initial post-doctoral		4. To establish a research career		5. Established independent researcher		6. Senior academic appointment		2009 Grand Total	2017 Grand Total	overall % change from 2009
	2009	2017	2009	2017	2009	2017	2009	2017	2009	2017	2009	2017			
Allied health professional	0	88	19	51	4	22	1	10	0	14	0	2	24	187	87%
Dentist	8	43	3	9	5	23	6	0	1	0	0	0	23	75	69%
Medically-qualified	291	877	444	578	225	427	173	137	178	83	32	47	1343	2149	38%
Not a health professional	0	63	124	50	43	79	11	12	3	3	5	1	186	208	11%
Nurse/Midwife	0	53	22	36	12	12	1	1	2	3	0	0	37	105	65%
Other healthcare professional	0	8	22	25	12	15	6	5	5	3	2	3	47	59	20%
Veterinarian		0		8		3		3		0		0		14	100%
Not collected	0	2	0	30	0	6	0	4	0	1	0	0	0	43	NA
Grand Total	299	1134	634	787	301	587	198	172	189	107	39	53	1660	2840	42%

33. For comparison, the GMC reports 59,250 doctors in training in the UK in 2015; The state of medical education and practice in the UK 2016, http://www.gmc-uk.org/static/documents/content/SOMEPEP_2016_Full_Report_Lo_Res.pdf_68139324.pdf; the HESA 2015/16 data report 48,795 UK-based academic staff within the Medicine, dentistry and health research cost centre, <https://www.hesa.ac.uk/data-and-analysis/staff/cost-centres>; the Medical Schools Council Survey of Medical Clinical Academic Staffing Levels 2017 reported 3041.2 FTE lecturer, senior lecturer/reader and professor grade clinical academics, <https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf>. The clinical and health research fellowship holders reported in this survey will have partial overlap with these populations, though none offer a direct comparison. One of the funders supports fellowships in the Republic of Ireland and the UK, and one initial post-doctoral fellow hosted in Galway is included in the dataset.

34. OSCHR UK-wide Survey of Health Research Fellowships 2009, <https://www.mrc.ac.uk/publications/browse/oschr-uk-wide-survey-of-health-research-fellowships-2009/>

Figure 1: Fellows identified in the 2009 and 2017 surveys by career stage



Pre-doctoral awards

The number of pre-doctoral awards has markedly increased from 299 in 2009 to a total of 1134 in 2017.

The vast majority of pre-doctoral awards are supported by NIHR and include NIHR Academic Clinical Fellowships³⁵ (ACFs – 878 identified in total), NIHR Research Methods Masters Studentships (63) and HEE/NIHR Masters in Clinical Research (149)³⁶.

Evidence of the impact of the NIHR ACF scheme has been demonstrated by past ACF holders’ success in securing further research funding, though this is not considered the only positive outcome for an ACF; as described in a recent analysis of the scheme’s impact³⁷ “ACFs who do not continue onto a formal clinical academic training path and decide to return to clinical posts do so with a greater understanding of research and new skills from their ACF experience”.

It should be noted that an ACF (or equivalent post) is not the only route to an academic career and many successful candidates across the partners’ doctoral schemes have not held an ACF post.

35. For further details about the NIHR Integrated Academic Training Programme for Doctors and Dentists see: <http://www.nihr.ac.uk/funding/integrated-academic-trainingprogramme.htm> and for the ICA HEE/NIHR Integrated Clinical Academic Programme for non-medical healthcare professions see <https://www.nihr.ac.uk/funding-and-support/funding-for-training-and-career-development/training-programmes/nihr-hee-ica-programme/>

36. The methodology used identified only 6 pre-doctoral fellowships outside England: The Public Health Agency in Northern Ireland identified 4 awards within its General Practice Academic Research Training (GPART) scheme, and 2 Clinical Trials fellowships in Scotland are funded by CRUK (who also support a further 14 awards via these schemes in England), and none in Wales. The Scottish Clinical Research Excellence Development Scheme (SCREDS) and the Wales Clinical Academic Track (WCAT) provide run-through clinical academic training programmes to support from the pre-doctoral to initial post-doctoral career stages, and Northern Ireland Medical and Dental Training Agency (NIMDTA) offer ACF and Clinical Lectureship posts equivalent to NIHR’s but which have not been captured in this survey. Further details about these schemes are included in Section 6.

37. What impact has the NIHR Academic Clinical Fellowship (ACF) scheme had on clinical academic careers in England over the last 10 years? A retrospective study, S. Clough et al, BMJ, 2017, <http://bmjopen.bmj.com/content/7/6/e015722>

Doctoral awards

The number of doctoral-level awards has increased from 634 to 787 (an increase of 24%). The number of doctoral awards has increased for every profession except for the non-healthcare professionals identified by this survey.

The non-healthcare professionals identified decreased from 124 to 50. A number of small, targeted schemes identified in the 2009 survey have been discontinued. A wide range of routes remain available to support non-healthcare professionals (e.g. doctoral training programmes), however these are not included in the survey methodology used. Of those identified in the 2017 data, the majority (38 of the 50) were supported through the NIHR's doctoral training fellowship scheme.

The widened access to doctoral training across professions since 2009 is encouraging, though with the exception of medics, the numbers across the professions remain relatively low and to ensure continued progress in building capacity it will be critical to develop career pathways that reduce barriers to entering an academic career and accessing doctoral-level fellowship support.

Initial post-doctoral level and the establishment of a research career

The total number of awards supporting the initial post-doctoral career stage has nearly doubled from 301 in 2009 to 587 in 2017, as shown in Table 1. The number of awards to support the initial post-doctoral career stage have increased across all professions except for nurses/midwives, where they have remained level.

A large proportion of the awards identified are NIHR Clinical Lectureship posts (359).

However more substantial awards aiming to support the establishment of an independent research career (usually including support not only for the fellow's salary but also other staff as they establish their first research team), have decreased from 198 in 2009 to 172 in 2017. Awards at this level have increased markedly for AHPs, though remain level and low for nurses/midwives, and have decreased for dentists and medics.

The number of medically qualified professionals holding a fellowship to establish their research career and transition to independence has decreased by approximately a fifth since 2009. These changes are explored further in Section 6.

The 2009 survey highlighted a potential future shortage of intermediate fellowships. The transition to becoming an independent researcher remains a critical and precarious career step for which fellowship support has been identified as a key enabler³⁸; that support at this level has decreased, in an environment where support for early career stages has markedly increased, is a major concern.

Established and senior research positions

The number of awards supporting established researchers has decreased overall from 187 fellows in 2009 to 107 in 2017. While the number of AHPs supported at this stage has increased (the majority supported by Senior Clinical Lectureship Awards (SCLA)³⁹) the overall number of awards is low and static since 2009 for all other professions, with the exception of medically qualified fellows, where the number supported has decreased. In the 2009 survey data 115 Clinical Senior Lectureship Awards (CSLA)³⁹ were identified, including 112 medically qualified post holders. The CSLA scheme was a time-limited contribution from HEFCE towards posts that were 50% funded by the NHS to support new clinical lecturers, with commitment from the host organisations to further support each individual. A steering group agreed other posts and fellowships were available at this level to support clinicians on an academically-focused career track and therefore the CSLA scheme was discontinued. The SCLA scheme included in this survey data specifically supports non-medical staff and 10 awards were identified.

38. A Cross-Funder Review of Early-Career Clinical Academics: Enablers and Barriers to Progression, A Review led by the Medical Research Council in collaboration with the Academy of Medical Sciences, British Heart Foundation, Cancer Research UK, National Institute for Health Research and Wellcome Trust; November 2015 <https://www.mrc.ac.uk/documents/pdf/review-of-early-career-clinical-academics/>

39. HEFCE initially administered the SCLA scheme. The scheme has passed to HEE/NIHR and forms part of the ICA HEE/NIHR Integrated Clinical Academic Programme for non-medical healthcare professions. For further information about the SCLA and CSLA schemes see <http://www.hefce.ac.uk/rsrch/clinical/>

The number of senior research positions identified in this survey has increased for medically qualified professionals (32 in 2009 to 47 in 2017) but remains low for other professions.

Diversity data

Data on age, gender, ethnicity and nationality of fellowship award holders were collected as part of this exercise. They were not gathered in the 2009 survey, so there is no prior baseline information for this section.

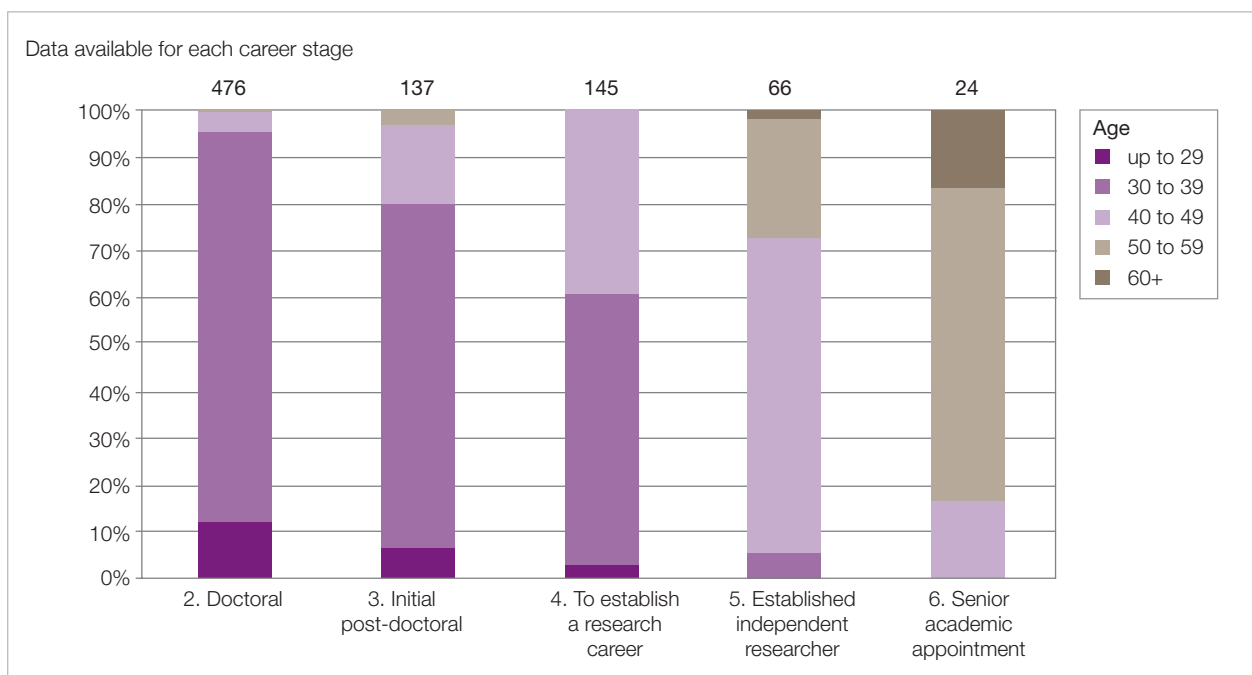
The data are incomplete but provide an indication of where inclusivity issues may lie, and provide a comparison for future studies. Some funders were unable to provide any information for this section⁴⁰, some only partial information⁴¹. Even for those funders that routinely record most or all of these fields⁴², in many cases the applicants chose not to specify these data.

The following plots are therefore based on subsets of the whole data set, and the results may be biased by the funders and schemes which were able to provide data compared to those that were not should any differences exist between schemes.

Career stage by age

Figure 2 shows the age of fellows by career stage. Overall information was available for 30.6% of awards (868); significant exclusions from the data include the ACF and CL schemes, resulting in limited data for pre-doctoral awards (20, 1.8% of the pre-doctoral awards identified by this survey, excluded from Figure 2 due to the low proportion of data available) and initial post-doctoral awards (137, 23.3% of the awards identified). The remaining career stages have data on age available for between 45 and 84% of the awards identified in Table 1.

Figure 2: Fellows' age by career stage of fellowship award



40. No data were included from the Stroke Association and Higher Education Funding Council for England.

41. Alzheimer's Research UK, Chief Scientist Office (Scotland), Health & Social Care R&D Northern Ireland, Health and Care Research Wales and Cancer Research UK contributed data only on gender. No data on age, ethnicity or nationality were available.

42. Academy of Medical Sciences, Action Medical Research, British Heart Foundation, Medical Research Council, National Institute for health Research, and Wellcome. Most of the data presented in this section are from these six funders. The National Institute for Health Research provided data for most schemes, excluding those such as ACF and CLs where appointments are made by the employing institution. Due to the method of data collection for application data, NIHR's data are based on awards made in the past 3 years rather than actual live awards; the population for which diversity data are provided will extensively overlap the live awards identified, and there is no reason to expect this data are not representative of the live fellowship population.

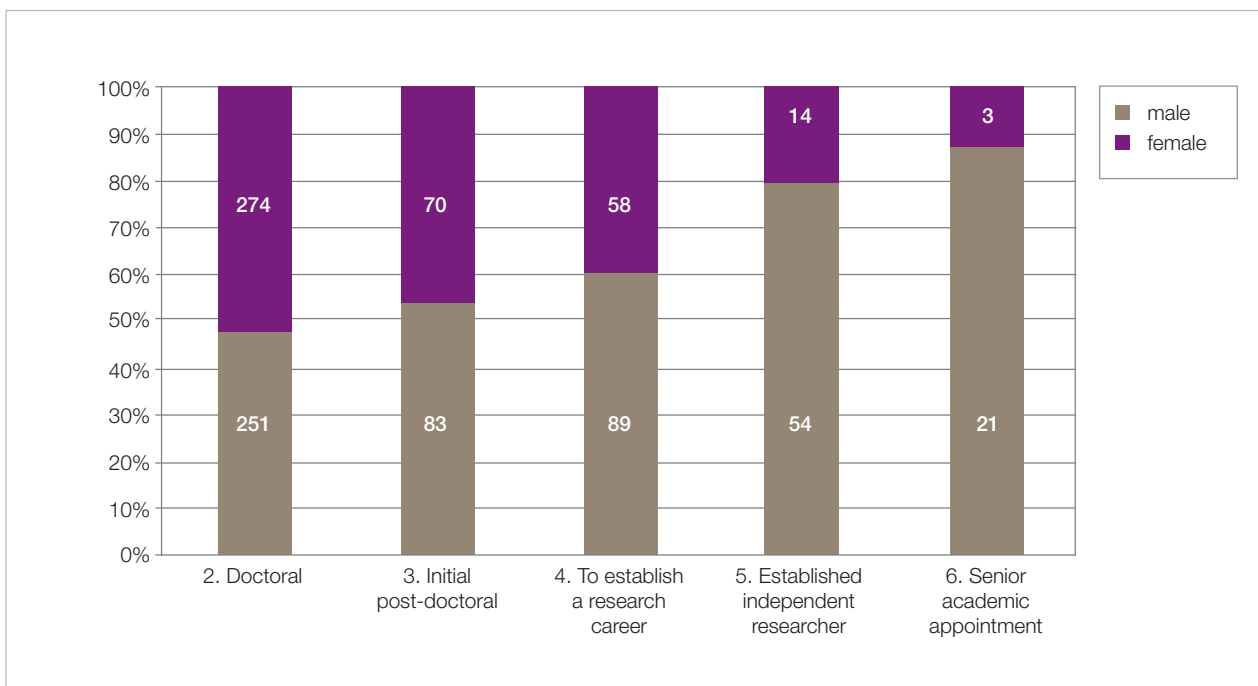
The increasing age across career stages is expected. As data for all professions included in the survey have been compiled this may mask trends across different professional pathways, however the relatively low number of non-medical fellows identified means it is not possible to robustly analyse the data by profession.

The large majority of fellows across the career stages from doctoral to established independent researcher are 30-49. The data for the initial post-doctoral and establishing a research career stages demonstrate that many fellows are trying to navigate critical career transitions while simultaneously managing the completion of their specialty training, and for many increasing family commitments.

Career stage by gender

Figure 3 shows the gender of fellows across the career stages. Overall gender information was available for 33.0% of awards (936); with limited data for pre-doctoral awards (19, 1.7% of the pre-doctoral awards identified by this survey, excluded from the plot due to the low proportion) and initial post-doctoral awards (153, 26.1% of the awards identified). The remaining career stages have data available for between 45 and 85% of the awards identified in Table 1.

Figure 3: Fellows' gender by career stage of fellowship award



NIHR ACF and CL posts are appointed locally with data on those appointments collated. This meant it was not possible to identify gender data specific to the awards identified as live in March, but overall data for the ACF and CL schemes shows in the last 3 years that 55% of ACF posts and 63% of CL posts have been awarded to men⁴³.

43. From data provided via personal correspondence with NIHR

Across the career stages the proportion of female clinical academics declines. The decrease in the number of women holding fellowships to support them as established independent researchers or in senior academic appointments is particularly marked.

Data on gender were not gathered as part of the 2009 survey and therefore trends cannot be drawn from comparison with that dataset. The data above are for all professions, though comparison may be made with the 2017 MSC clinical academic staffing survey, which reports that 28.6% of medical clinical academics in senior grades are female, though only 17.9% of the most senior grade in the survey (Professors) are women. The proportion of female medical clinical academics has only slowly increased since 2009, when these figures were 25% and 14%, respectively⁴⁴.

The Academy of Medical Sciences undertook a review of the representation of women within the Academy's Fellowship in 2013⁴⁵. Data gathered as part of that review investigated the proportion of applications made by and award rate to female applicants between 2007 and 2011 to a sample of funders, and showed 52% of junior clinical fellowships (doctoral) were awarded to women, 37% of intermediate fellowships (to establish a research career), and 12% of senior fellowships (established independent researcher). This indicates that little progress has been made in recent years in retaining female clinical academics and facilitating their progression to senior leadership roles, and that barriers remain to be addressed; it is not simply a case of waiting for increased intake earlier in the career pathway to progress as it does not appear that attrition of female clinical academics through the career stages is declining.

The NIHR review 'Ten Years on: Adapting and Evolving to New Challenges in Developing Tomorrow's Health Research Leaders'⁴⁶ also notes the decline in the percentage of female clinical academics beyond the initial post-doctoral career stage and commits to establishing a cross-funder approach to address gender issues that builds on evidence and understanding through a systematic review.

44. Staffing Levels of Medical Clinical Academics in UK Medical Schools (July 2010)
<https://www.medschools.ac.uk/our-work/publications?Category=2265>

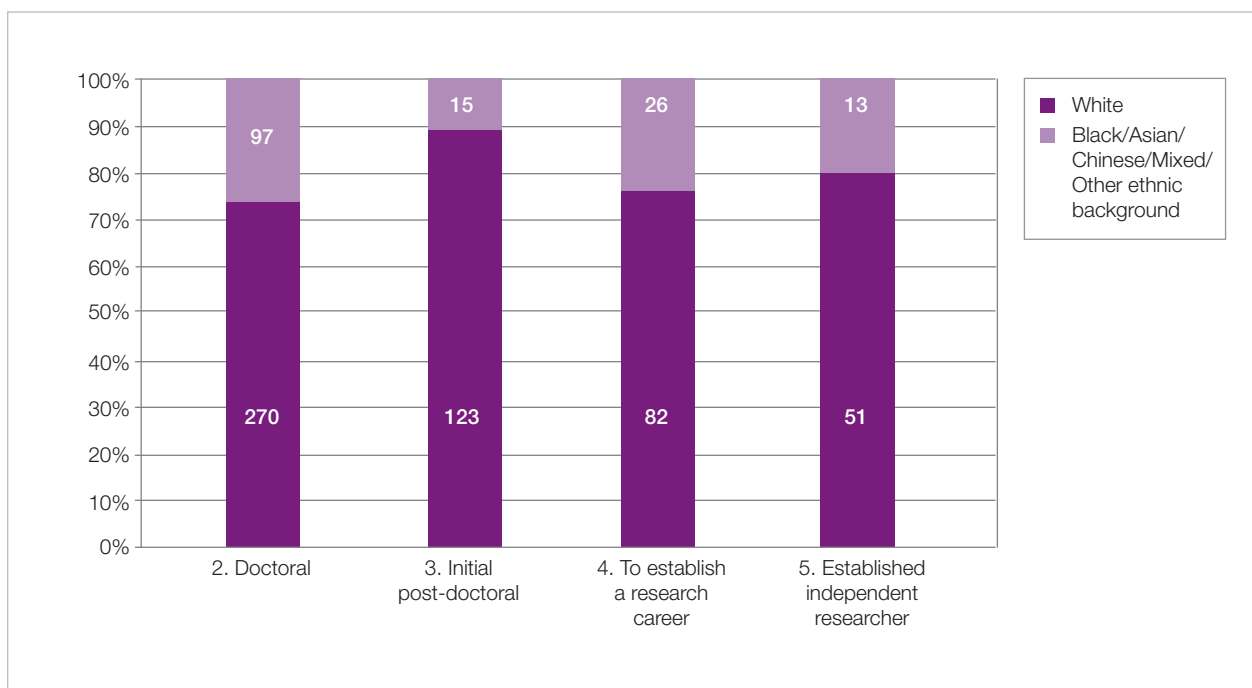
45. Academy of Medical Sciences, Representation of women within the Academy's Fellowship, February 2013
<https://acmedsci.ac.uk/file-download/35277-136118550861.pdf>

46. NIHR, Ten Years on: Adapting and Evolving to New Challenges in Developing Tomorrow's Health Research Leaders,
<http://www.nihr.ac.uk/srot>

Career stage by ethnicity

Figure 4 shows fellows' ethnicity across the career stages. Overall ethnicity information was available for 24.5% of awards (700); significant exclusions from the data include NIHR's ACF and CL schemes, resulting in limited data for pre-doctoral awards (21, 1.9% of the pre-doctoral awards identified by this survey, not plotted in Figure 4) and initial post-doctoral awards (138, 23.5% of the awards identified). Data on only 2 senior academic appointments were available (3.8%, also excluded from Figure 4.). The remaining career stages have data available for between 47 and 63% of the awards identified in Table 1.

Figure 4: Fellows' ethnicity by career stage of fellowship award



The data available are limited, and it is not possible to draw conclusions across the career stages. Most previous surveys have not included ethnicity data and it is therefore not possible to comment on trends. Although there are caveats regarding the breadth of data this survey has compiled, it forms the most complete picture currently possible for the fellowship schemes surveyed, and can serve as a benchmark for future surveys.

Nationality data

Data on nationality were available from only three of the partnering funders. It was recorded for a total of only 685 applicants, of whom 51 preferred not to disclose their nationality and of those who did the majority (528) were British.



5. Overview of research funded

5. Overview of research funded

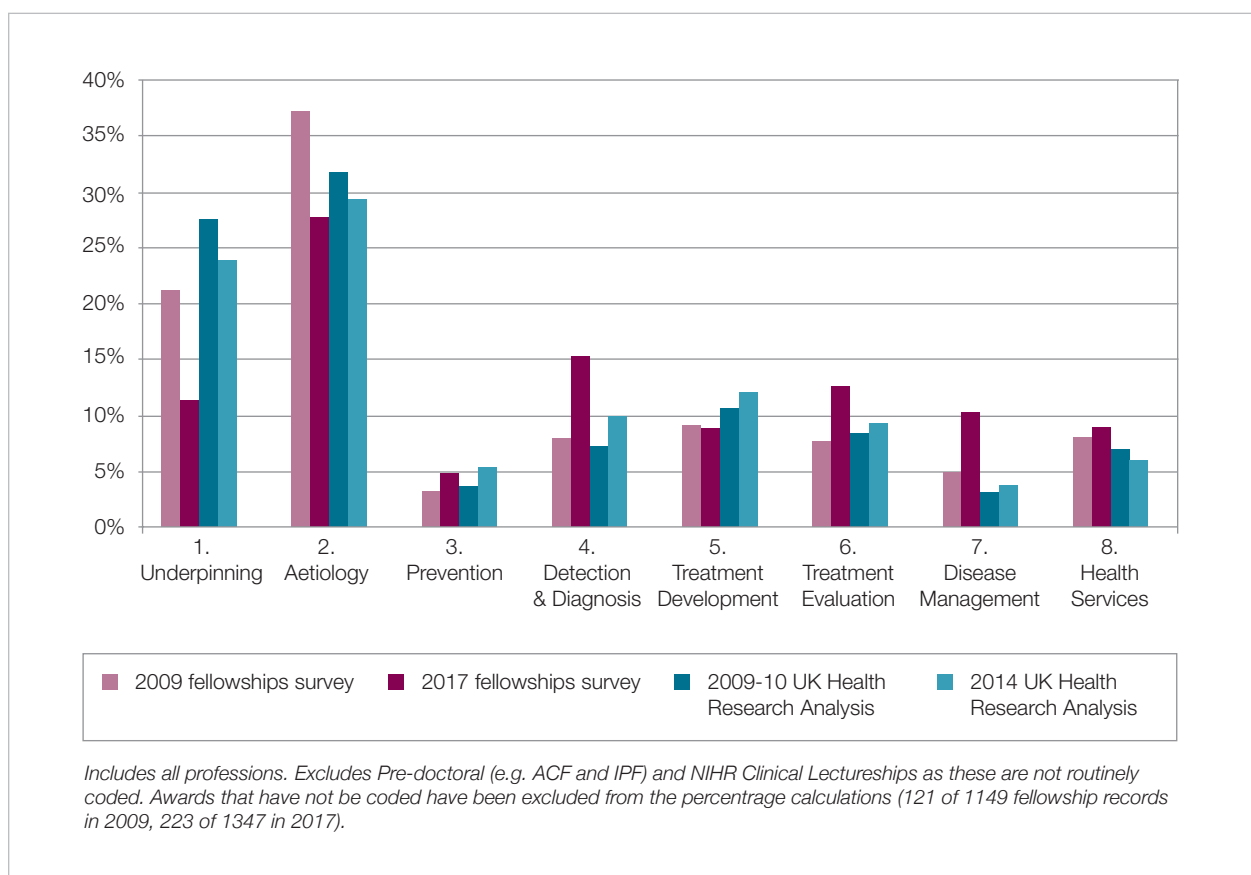
The vast majority of awards are routinely coded by the funders using the UKCRC Health Research Classification System⁴⁷ to describe research activity and health category of the fellowship project.

Pre-doctoral awards (including IPFs and ACFs) and NIHR Clinical Lectureships are not routinely coded due to the data available from these programmes, and these schemes are therefore excluded from the data presented in this section.

UKCRC HRCS Research Activity

Figure 5 shows the proportion of the fellowships identified undertaking research relevant to each Research Activity, with the 2009 survey data plotted for comparison. The proportion of 12 funders' full portfolios of research investment by Research Activity, published in the UK Health Research Analysis 2014⁴⁸, is plotted for comparison.

Figure 5: The proportion of awards by UKCRC HRCS Research Activity in the 2009 and 2017 surveys, and compared to the 2009-10 and 2014 UK Health Research Analyses



47. UKCRC Health Research Classification System, <http://www.hrcsonline.net/>. Projects are coded with the minimum number of research activity and health category codes required to fully describe the research undertaken. Some will therefore have more than one code, and will be counted proportionally against each code.

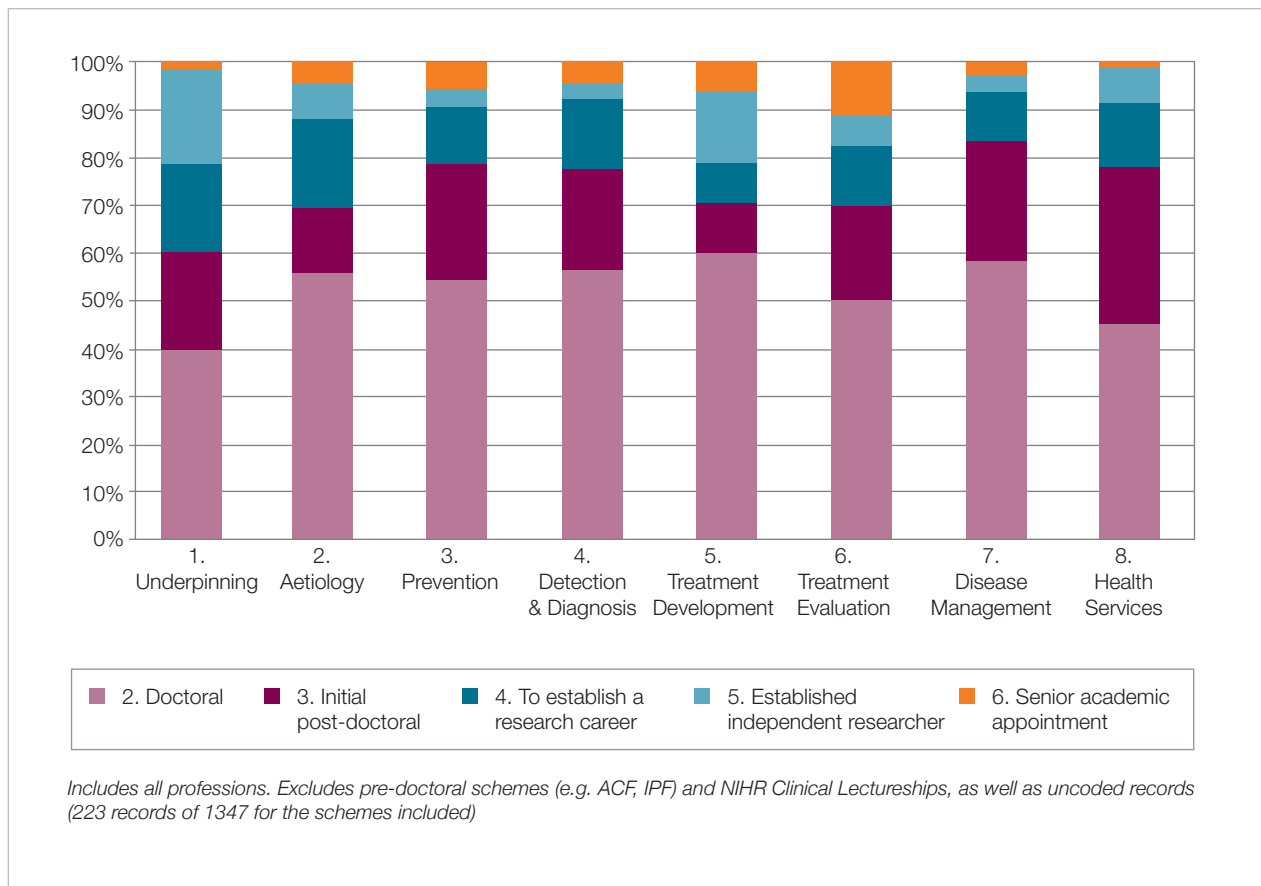
48. <http://www.hrcsonline.net/pages/uk-health-research-analysis-2014> The data plotted are based on the 12 Health Research Analysis Forum (HRAF) funders' portfolios: Arthritis Research UK; Arts and Humanities Research Council; Biotechnology and Biological Sciences Research Council; British Heart Foundation; Cancer Research UK; Chief Scientist Office, Scotland; Department of Health, England; Division for Social Care and Health Research, Welsh Government; Engineering and Physical Sciences Research Council; Economic and Social Sciences Research Council; Health and Social Care Research and Development Division, Northern Ireland; Innovate UK; Medical Research Council; Wellcome Trust.

Overall the fellowship projects supported have moved towards more applied research, with research focusing on detection and diagnostics showing a marked increase, from 8% of fellowships in 2009, to 15% in 2017. The proportion of fellowships undertaking research into prevention⁴⁹ and health services has remained stable since 2009, increasing from 3% to 5% and 8% to 9%, respectively, and with the number of fellowships increasing from 34 to 54 and 83 to 101, respectively. The trends towards more applied research reflect in part the increased fellowship support provided by NIHR, and largely mirror the wider trends in UK health relevant research investment in the UK Health Research Analysis data, also plotted.

A strong research base continues to be supported in Underpinning and Aetiological research, accounting for 39% of fellowships held in 2017, and 53% of the funders' portfolios of investment in 2014, though the proportion of clinical fellowships supported in both categories has decreased since 2009, as has the overall number of fellowships supported across these 2 categories (from 601 fellowships identified in 2009, to 440 in 2017).

Figure 6 shows the HRCS research categories of the fellowships in this survey by career stage. Pre-doctoral awards and NIHR Clinical Lectureships have been excluded as the vast majority are not coded with HRCS classifications. The figure shows a distribution of early career and senior academic posts across the research activities, indicating the trend towards more applied research is not driven by the interests of early career researchers in particular, but that a range of career levels are engaged across the range of research activities.

Figure 6: Proportion of research by UKCRC HRCS Research Activity

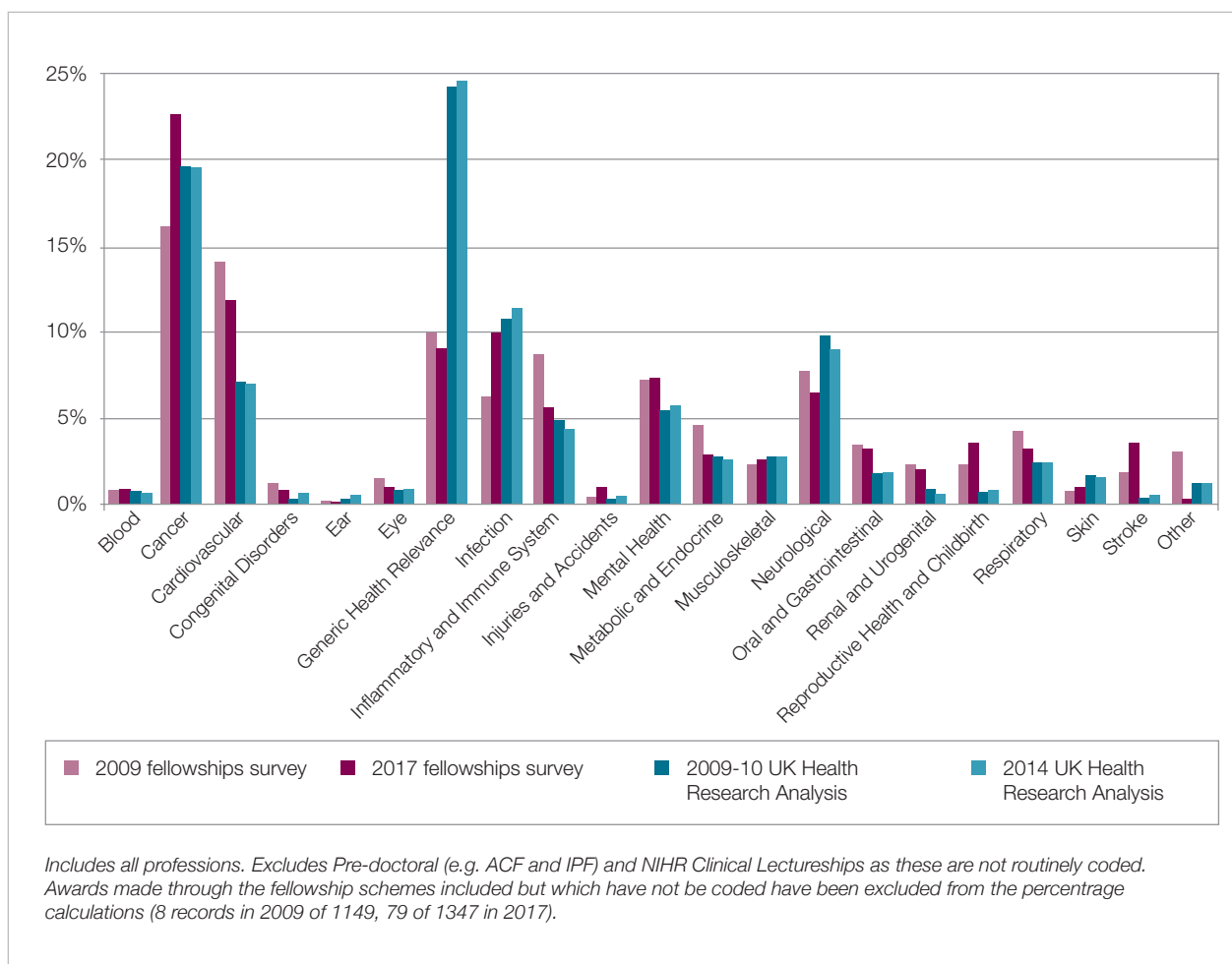


49. Following the HRCS guidance, Prevention is specifically coded as prevention of disease onset, with work directed at prevention of relapse/reoccurrence of an existing or previous condition coded within Research Activity 4.

UKCRC HRCS Health Category

Figure 7 shows the proportion of the fellowships identified undertaking research focused on each Health Category⁵⁰, with the 2009 survey data and UK Health Research Analysis 2014⁵¹ Health Research Analysis Forum⁵² (HRAF) funders' portfolios of research investment plotted for comparison.

Figure 7: The proportion of awards by UKCRC HRCS Health Category in the 2009 and 2017 surveys, and compared to the 2009-10 and 2014 UK Health Research Analyses.



The proportion of fellowships undertaking research relevant to cancer has shown a marked increase since 2009, as has research relevant to infection, stroke and reproductive health and childbirth. The proportion of fellowships undertaking research relevant to the categories inflammatory and immune system, neurological, cardiovascular, respiratory, and metabolic and endocrine have shown small decreases.

In both portfolios cancer, infection and neurological research are strongly supported. Fellowships relevant to Generic Health Relevance form a much smaller proportion of the portfolio than that of the UK Health Research Analysis, as the latter reflects large investments such as UK Biobank, the Farr Institute, and cohort studies which have generic health relevance.

50. UKCRC Health Research Classification System, <http://www.hrcsonline.net/>

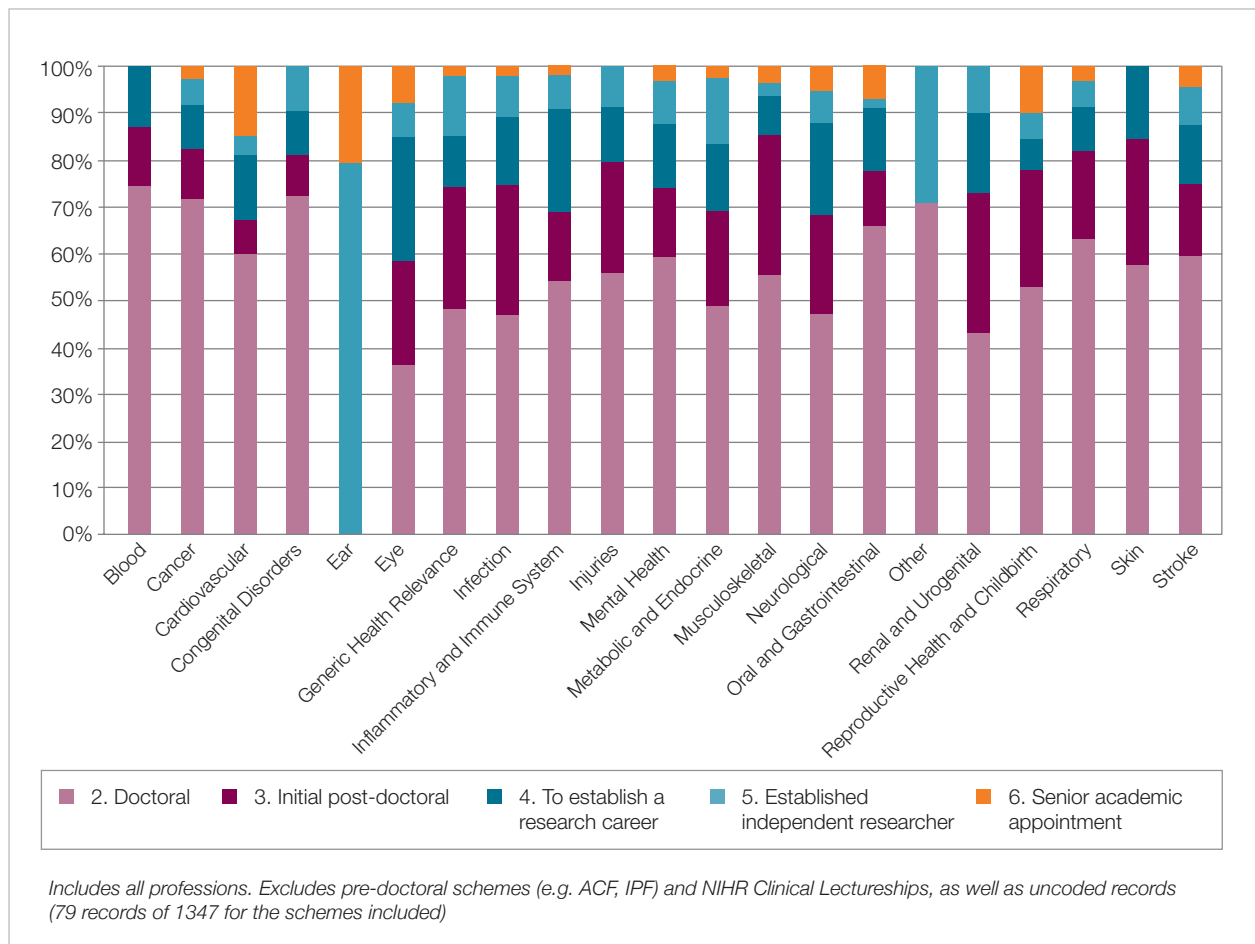
51. UK Health Research Analysis 2014, <http://www.hrcsonline.net/pages/uk-health-research-analysis-2014>

52. The 12 HRAF funders are: Arthritis Research UK; Arts and Humanities Research Council; Biotechnology and Biological Sciences Research Council; British Heart Foundation; Cancer Research UK; Chief Scientist Office, Scotland; Department of Health, England; Division for Social Care and Health Research, Welsh Government; Engineering and Physical Sciences Research Council; Economic and Social Sciences Research Council; Health and Social Care Research and Development Division, Northern Ireland; Innovate UK; Medical Research Council; Wellcome Trust.

Trends identified in the UK Health Research Analysis since the 2009/10 exercise showed there were only small shifts in the balance of research across the health categories, with the largest changes being only just over half a percent (+0.57% Infection, -0.51% Inflammatory and Immune System). The proportion of research relevant to cancer (the largest change in this survey, growing from 16% of the portfolio in 2009 to 23% in 2017) very slightly decreased by -0.07%.

Figure 8 shows information on the HRCS Health Categories of fellowships by career stage.

Figure 8: Proportion of research by UKCRC HRCS Health Category



Most health categories have fellows across a range of career stages working on relevant research. Particularly notable categories where this is not the case include Blood, Injuries and Accidents, and Skin, where no fellowships to support established researchers or senior appointments were identified, and Ear where no more junior awards were identified. These four categories had the lowest number of fellows identified, ranging from 2.5 to 13 awards in each. The mean number of awards per category is 61.5.



6. Support for medically qualified fellows

6. Support for medically qualified fellows

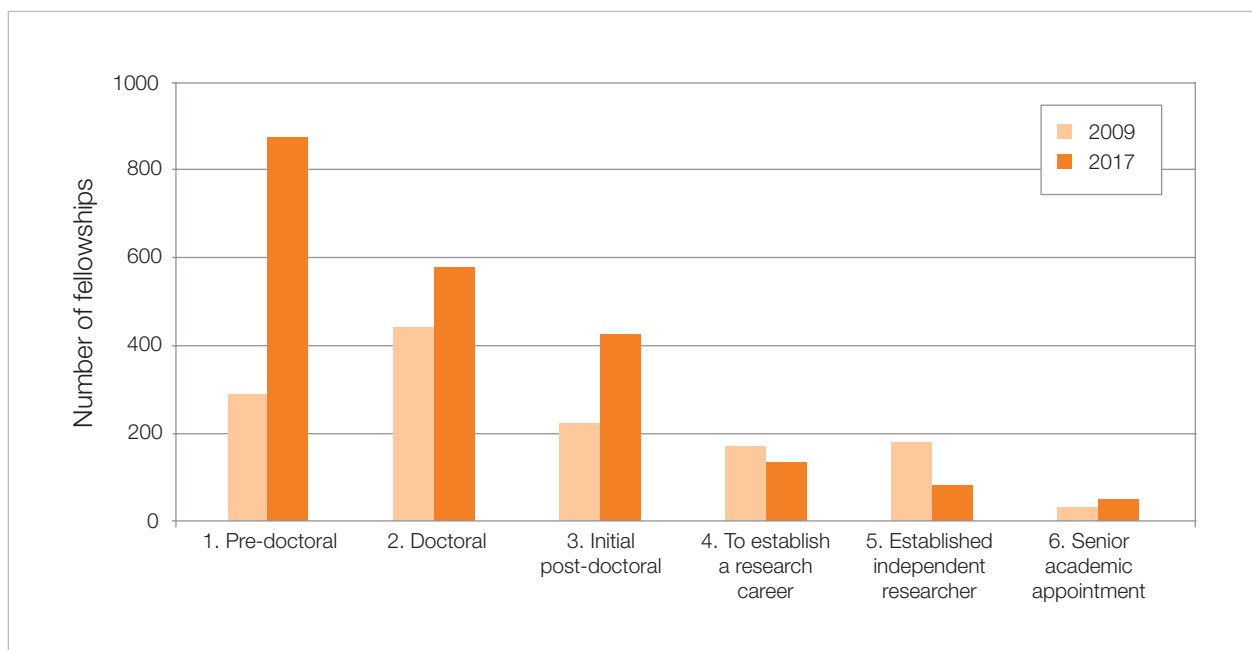
Table 2 and Figure 9 summarise the information from Table 1 for medically qualified fellows. This section describes the data for those fellows identified who are medically qualified; the data for other professions are discussed in Section 7.

The schemes included in the 2017 and 2009 surveys by funder and career stage are detailed in Appendices 1 and 2.

Table 2: Medically qualified fellows by career stage in 2009 and 2017

	1. Pre-doctoral	2. Doctoral	3. Initial post-doctoral	4. To establish a research career	5. Established independent researcher	6. Senior academic appointment	Grand Total
2009	291	444	225	173	178	32	1343
2017	877	578	427	137	83	47	2149

Figure 9: Medically qualified fellows by career stage in 2009 and 2017



The numbers of pre-doctoral, doctoral and initial post-doctoral awards held by medically qualified fellows have increased markedly since the 2009 survey, however awards to establish an independent research career have decreased by over 20%.

Awards to established independent medically qualified researchers have also decreased by an even larger proportion (53%) due to the time-limited the Clinical Senior Lectureship Awards (CSLA)⁵³ ending, which supported 112 established independent medically qualified fellows in the 2009 survey. Awards supporting senior academic appointments have increased slightly since 2009.

53. For further details see <http://www.hefce.ac.uk/rsrch/clinical/>

Transition to Independence: a potential bottleneck in the career pathway

The number of awards supporting fellows to establish an independent research career have decreased from 173 in 2009 to 137 in 2017 (a decrease of over 20%). This decrease of 36 has been shared across a number of the funders; any one funder's data would not indicate an issue at this career stage, however the combined dataset indicates an increasing bottleneck at this point of the pathway, which had already been identified as a potential issue in the 2009 survey.

In general, initial post-doctoral fellowships will support the fellow's salary and limited consumables but no staff in addition to the fellow. Awards to support the establishment of a research career are more substantial awards, which include support for additional staff to enable the fellow to form their first research team.

This is a critical career stage; those successful in gaining a fellowship to establish an independent research career progress at a high rate to holding senior academic positions and securing significant further research funding⁵⁴. Those holding initial post-doctoral awards, e.g. a Clinical Lectureship post, are still clinical academics 'in the making', who may still choose a purely clinical career path or to have limited research engagement, especially if barriers to pursuing an academic career are present.

Since 2009, some schemes previously focused on supporting the transition to research independence have broadened their aims to increase support in the initial post-doctoral stage, to better support the transitions between a PhD and research independence. The 2009 survey identified only 18 initial post-doctoral fellowships excluding NIHR Clinical Lectureships, while the 2017 survey identified 107, supported by a number of funders. However, it is important to note that the relevant funders aim to maintain or increase support for the transition to independence stage, so budgetary decreases do not explain the decrease in awardees, especially given the relatively late point at which these changes were introduced in terms of the period since the 2009 survey⁵⁵.

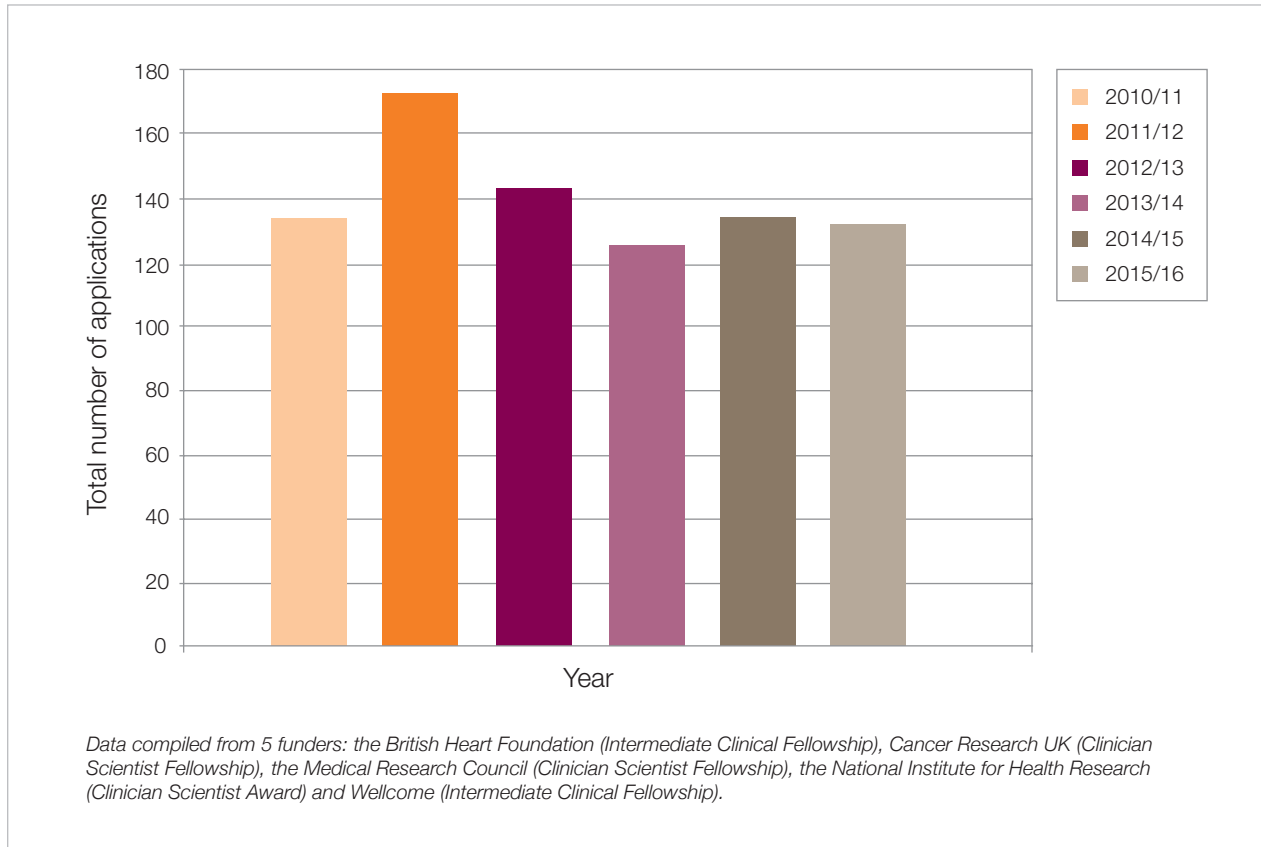
The combined application data over the past six years for five of the larger funders in this survey are shown in Figure 10, which shows that the number of applications for awards to establish an independence research career have not increased⁵⁶. Award rates for these schemes have remained relatively stable over this period, with success rates in the range of 20% to 26%, with the variation between years displaying no clear trend.

54. A Cross-Funder Review of Early-Career Clinical Academics: Enablers and Barriers to Progression, A Review led by the Medical Research Council in collaboration with the Academy of Medical Sciences, British Heart Foundation, Cancer Research UK, National Institute for Health Research and Wellcome Trust; November 2015, <https://www.mrc.ac.uk/documents/pdf/review-of-early-career-clinical-academics/>

55. e.g. The Clinician Scientist Fellowship from CRUK and the Intermediate Clinical Fellowship from Wellcome. Between 2009 and 2016 Wellcome offered a range of 3 initial post-doctoral fellowship schemes in addition to the Intermediate Clinical fellowship scheme which aimed to support the establishment of an independent research career; since 2016 these schemes have been replaced with a longer and more flexible offering, the Clinical Research Career Development Fellowship scheme, which can be used to support both career stages. <https://wellcome.ac.uk/funding/clinical-research-career-development-fellowships>. CRUK's Clinician Scientist Fellowship (CSF) previously supported the transition to research independence (previously the scheme had levels CSF-1 and CSF-2, both coded as supporting the establishment of an independent research career in the 2009 survey). Since 2016 the CSF scheme now supports the initial post-doctoral period, and the Advanced CSF the transition to independence <http://www.cancerresearchuk.org/funding-for-researchers/our-funding-schemes>.

56. Data collated from private correspondence. Further details on award rates is presented in Appendix 3.

Figure 10: Applications by year for fellowships to establish an independent research career



From the data available it is not possible to comment on the underlying reasons that the application rate has not risen in line with the increased investment at earlier career stages, though it is concerning to note that this has occurred in parallel with a decrease in the number of clinical academic staff employed by UK medical schools, in particular at the reader/senior lecturer level: posts many of these fellows would be expected to progress to⁵⁷.

The Medical Schools Council's annual Survey of Medical Clinical Academic Staffing Levels⁵⁸ reports details on staff currently employed and vacancies in publicly-funded UK medical schools, using the grades Professor, Reader/Senior Lecturer and Lecturer (including NIHR Clinical Lectureships). The trends across these grades since 2009 are summarised in Table 3.

57. A Cross-Funder Review of Early-Career Clinical Academics: Enablers and Barriers to Progression, A Review led by the Medical Research Council in collaboration with the Academy of Medical Sciences, British Heart Foundation, Cancer Research UK, National Institute for Health Research and Wellcome Trust; November 2015 <https://www.mrc.ac.uk/documents/pdf/review-of-early-career-clinical-academics/>
 58. 2017 Survey of Medical Clinical Academic Staffing Levels <https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf> and previous years' reports also available on the Medical Schools Council's website. It should be noted The MSC survey generally analyses FTE, while this survey did not distinguish between part-time and full-time posts and analyses headcount so figures are not directly comparable.

Table 3: Medical clinical academic staffing levels

	FTE in July 2009	FTE in July 2016	Change in FTE	Change in vacancy rates reported between 2009 and 2016
Professor	1333	1352	+1.4%	-3.5%
Reader/Senior lecturer	1294	1115	-13.8%	+71.9%
Lecturer	478	574	+20.1%	-3.5%

The decrease in the number of Reader/Senior Lecturer staff has been accompanied by an increase in the vacancies reported at the grade, indicating that changes in funding for these posts do not underpin this trend (it should be noted that most Reader/Senior Lecturer posts are funded by the NHS or universities, not by the partners of this survey). The data from this survey suggest there may be an insufficient number of individuals obtaining a fellowship to establish an independent research career and to then progress to the reader/senior lecturer positions available.

The 2017 survey of Medical Clinical Academic Staffing Levels also notes that 28% of clinical academic staff (952) were reported to be over the age of 55. Table 2 shows that there are only 564 medically qualified fellows holding either an initial post-doctoral fellowship or a fellowship to establish an independent research career. The current shortage of mid-career posts to support the future needs of UK clinical academia will only become more acute as this cadre of senior academics retires if we do not address this critical need at the transition to independence.

Medically qualified fellows across the four nations

Although most of the funders partnering this survey offer fellowships across the UK, there are differences in the opportunities supported by the health departments, and it is therefore useful to consider the picture in each nation.

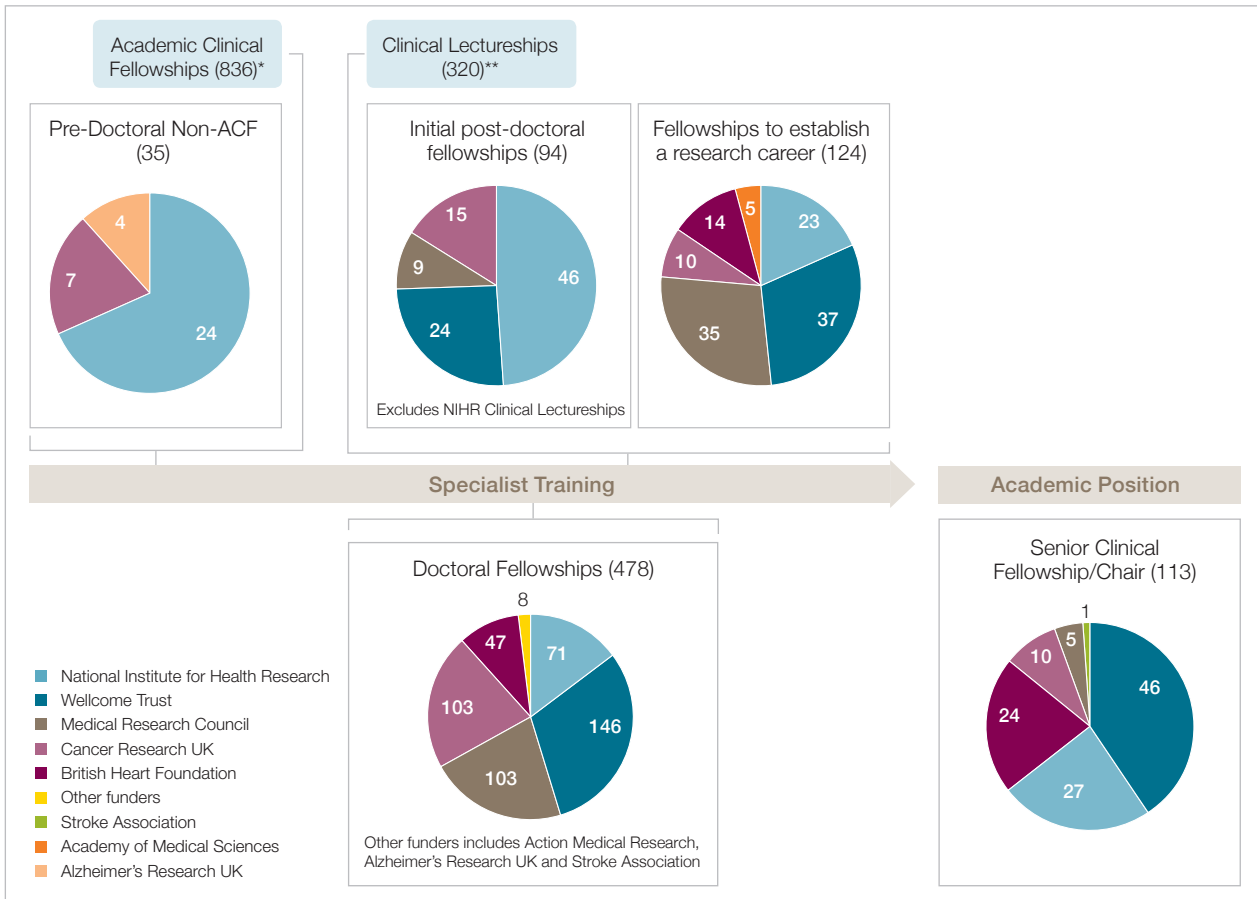
It should be noted that there is considerable overlap in the opportunities and training pathways across the four nations, and trainees are mobile between them, though detailed analysis of that mobility is beyond the scope of this survey.

Medically qualified clinical fellows in England

Figure 11 illustrates how the fellowships identified in this survey map on to the integrated clinical academic career pathway. To provide an overview of how NIHR's schemes map onto the number of awards across the career stages, data for medically qualified fellowship holders within England are plotted in this figure⁵⁹.

59. The diagram shows fellowships to medically qualified doctors in England only, and excludes large numbers of fellows identified in other professions, and excludes fellowships in Wales, Northern Ireland, and Scotland. * 780 ACFs are funded by NIHR and 56 are NIHR-recognised locally funded posts. ** 285 Clinical Lectureship posts are funded by NIHR, and 35 are NIHR-recognised locally funded posts. Locally funded posts are set up by the IAT partnership (HEE, HEI and NHS organisations) involved. Partnerships can request NIHR recognition if they demonstrate that the post has been set and is managed to be exactly the same as an equivalent NIHR post. Once approved the post holder becomes an NIHR trainee. Note this figure provides a snapshot of live awards in March 2017. As discussed in Appendix 3, the duration of the awards varies so proportional award rates across schemes or career stages cannot be inferred from this Figure.

Figure 11: Medically qualified fellows in England by career stage and funder



NIHR introduced the Integrated Academic Training (IAT) pathway in 2005 and many schemes were still expanding at the time of the 2009 survey. This is reflected in the increase in ACFs (from 281 in 2009 to 836 in 2017) and Clinical Lectureship posts (207 in 2009 to 320 in 2017).

In 2009 355 doctoral fellowships⁶⁰ supporting medically qualified fellows were identified in England; in the 2017 survey there were 478, representing a 35% increase. In 2009 NIHR supported just under 5% of the doctoral fellowships identified, compared to 15% in 2017.

The number of Senior Fellowships and Chairs⁶¹ has increased from 94 in 2009 to 113 in 2017, with Wellcome, BHF and NIHR increasing the numbers supported and MRC and CRUK showing slight decreases. As described in Section 4, the 2009 survey included an additional 112 medically qualified HEFCE Clinical Senior Lectureship Award holders. This was a time-limited contribution from HEFCE towards posts that were 50% funded by the NHS to support new clinical senior lecturers, which has since been discontinued.

60. The term Doctoral Fellowship has been used to describe all awards aiming to support the fellow in undertaking a PhD, i.e. all awards coded as career stage 2: doctoral. See Appendix 1 for details.

61. This includes all awards coded as career stage 5: Established independent researcher and 6: Senior academic appointment. See Appendix 1 for details.

Medically qualified clinical fellows in Scotland, Wales and Northern Ireland

Data on the fellowships supported by the Chief Scientist Office in Scotland, Health and Care Research Wales and Public Health Agency Northern Ireland are included in this survey. 38 fellowships awarded by these funders to medically qualified fellows were identified through the survey's methodology and are included in the dataset analysed⁶².

It is important to note that this is not a true reflection of the provision of opportunities across the nations as a number of schemes offer opportunities but the data available are not compatible with this survey's methodology. These schemes include the Scottish Clinical Research Excellence Development Scheme (SCREDS), the Wales Clinical Academic Track (WCAT), and Northern Ireland Medical and Dental Training Agency (NIMDTA) schemes⁶³ described in more detail below.

The Scottish Clinical Research Excellence Development Scheme

The 2016 Annual Report on the SCRED scheme⁶⁴ reports that 94 Clinical Lecturers and 162 Clinical Fellows were supported at the time of the data collection.

Clinical Lecturers are in-programme posts (pre- or post-PhD), funded by NHS Education for Scotland or by universities. Clinical Fellows are undertaking a PhD or equivalent, funded by external sources such as the doctoral schemes included in this survey.

- The 94 Clinical Lectureships reported are not included in this survey and represent additional capacity building within the UK from the pre-doctoral (1) to initial post-doctoral stages (3).
- 75 doctoral awards in Scotland were identified in this survey; it is expected that these awards will overlap significantly with the 162 Clinical Fellows identified in the SCREDS annual report. A detailed analysis of this overlap is not possible.

Queen's University Belfast and Northern Ireland Medical and Dental Training Agency

Queen's University Belfast and the postgraduate clinical deanery, Northern Ireland Medical and Dental Training Agency (NIMDTA), jointly operate a clinical academic training programme in Northern Ireland.

Up to eight clinical trainees are supported at any one time, as either pre-doctoral Academic Clinical Fellows (ACF) or post-doctoral Academic Clinical Lecturers (ACL). The ACF and ACL posts are open to clinical trainees in medicine and dentistry⁶⁵. An ACF post is 2 years' duration (75% clinical training / 25% protected academic time) and an ACL post is 2-3 years' duration (50% clinical training / 50% protected academic time).

62. The CSO has also appointed 5 NES/CSO Postdoctoral Clinical Lectureships, offering 50% protected research time, since the survey data were gathered (not included in the dataset) <http://www.cso.scot.nhs.uk/personal-awards-initiative/cso-nes-scl/>

63. BMA, <https://www.bma.org.uk/advice/career/applying-for-training/academic-training>

64. SCREDS annual report 2015/2016, [http://www.scotmt.scot.nhs.uk/specialty/scottish-academic-training-\(screds\).aspx](http://www.scotmt.scot.nhs.uk/specialty/scottish-academic-training-(screds).aspx)

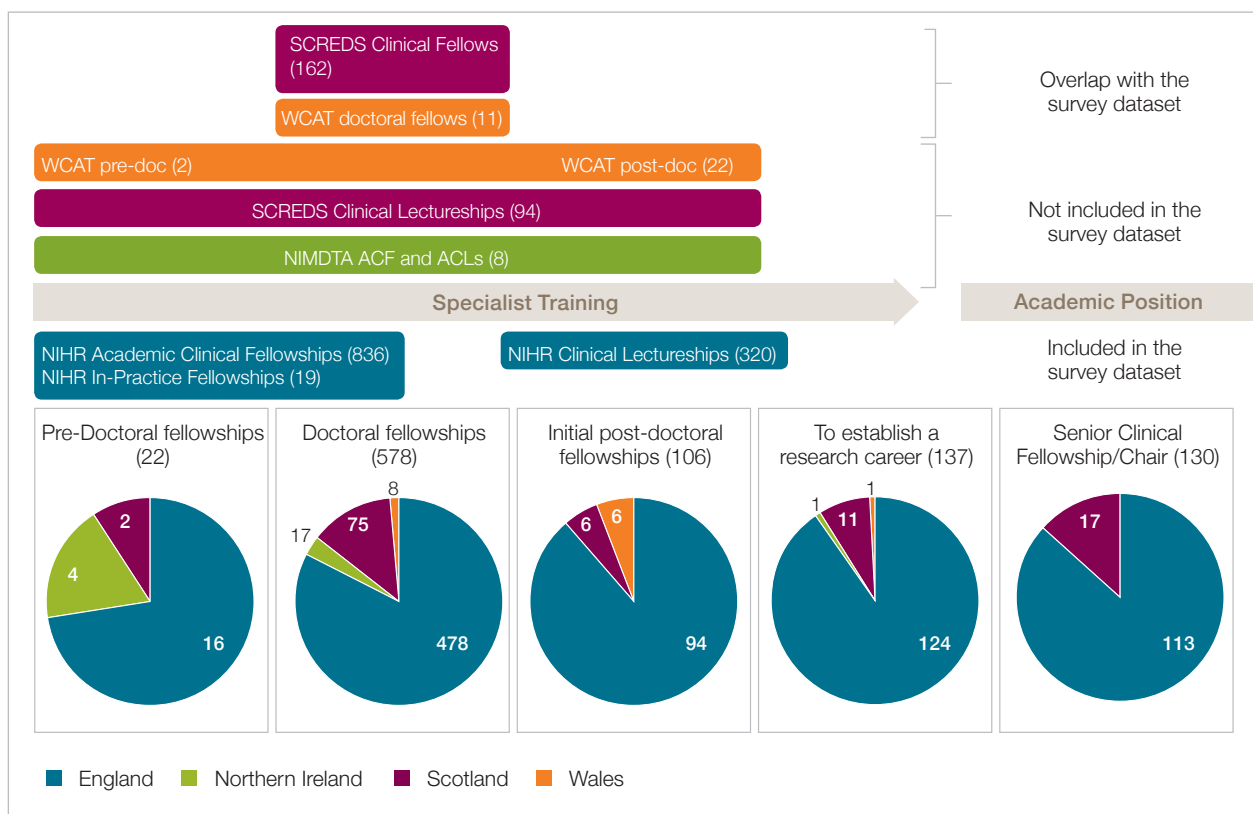
65. From personal correspondence. Details of the scheme available from Northern Ireland Medical and Dental Training Agency, <http://www.nimmdta.gov.uk/recruitment/academic-recruitment/>

The Wales Clinical Academic Track

The Wales Clinical Academic Track⁶⁶ closely mirrors the SCRED scheme, providing training from entry through to CCT, with 0.2 WTE protected academic time during training and includes a 3-year PhD training fellowship, which may be funded by the WCAT scheme or an external funder. The scheme launched in 2009 and to date has supported 44 trainees, with 35 live posts in 2017⁶⁷. Of those 35, 2 are pre-PhD, 11 undertaking a PhD (as for the SCREDS fellows, it is expected the 8 research training fellowships in Wales identified in this survey will overlap with these 11 trainees but it is not possible to confirm the individuals for whom this is the case) and 22 are post-doctoral.

Figure 12 summarises the support discussed in this section for medically qualified fellows across the 4 nations⁶⁸.

Figure 12: Support for medically qualified fellows identified in this survey and an overview of other support mechanisms across the four nations not captured by the survey's methodology



66. Wales Deanery / Deoniaeth Cymru <https://www.walesdeanery.org/specialty-training/academic-medicine/wcat>

67. Recruitment is for August starts each year. The figures do not reflect the August 2017 intake.

68. One additional initial post-doctoral fellow in the dataset based in Galway, Republic of Ireland, is supported by one of the funders.

Distribution by geographic location

The geographic distribution of medically qualified fellows identified by the survey and changes in the distribution since 2009 are shown in Figures 13 a-d. In the plots below, NIHR's Academic Clinical Fellowships (ACF), In-Practice Fellowships (IPF) and Clinical Lectureships (CL) have been excluded. Their distribution is described later in the section, to demonstrate more clearly the impact of these schemes on the distribution of fellows.

Figure 13a: Location of medically qualified fellows by region and career stage, excluding NIHR ACF, IPF and CL awards

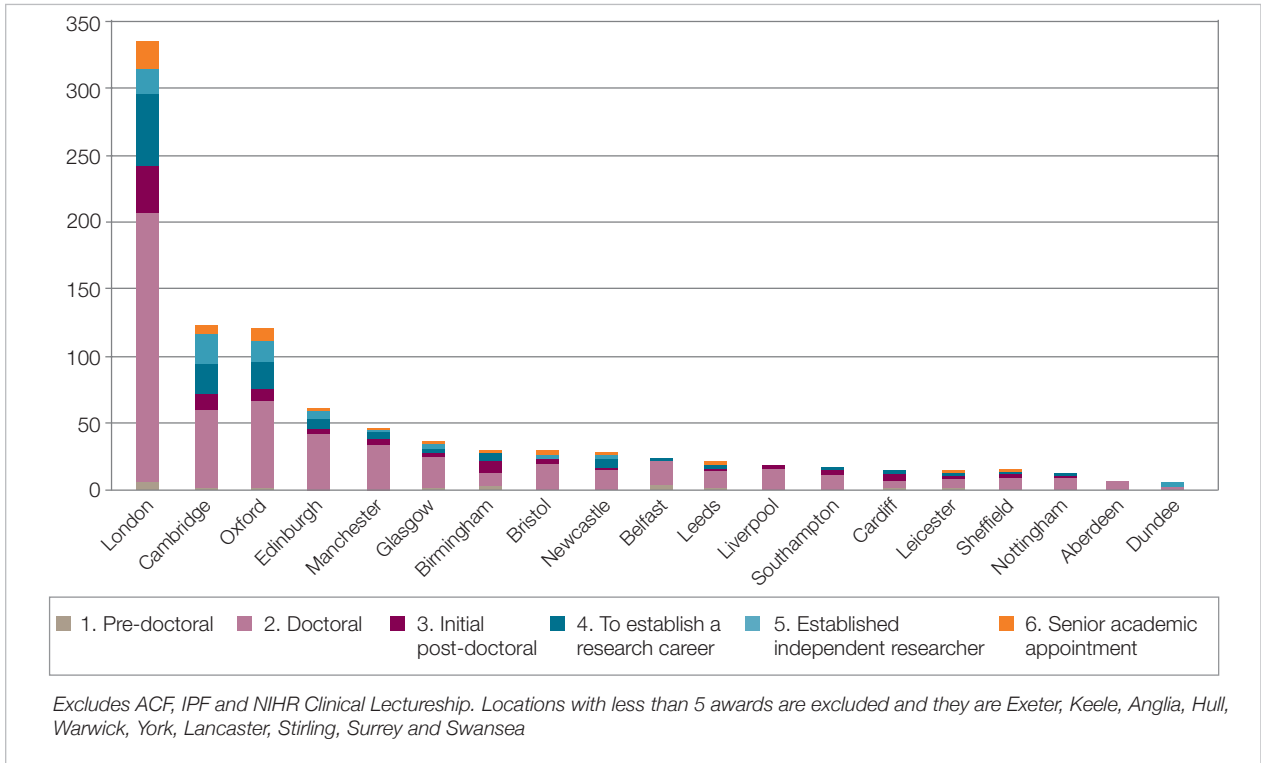


Figure 13b: Location of medically qualified fellows by region and career stage outside the golden triangle excluding NIHR ACF, IPF and CL awards.

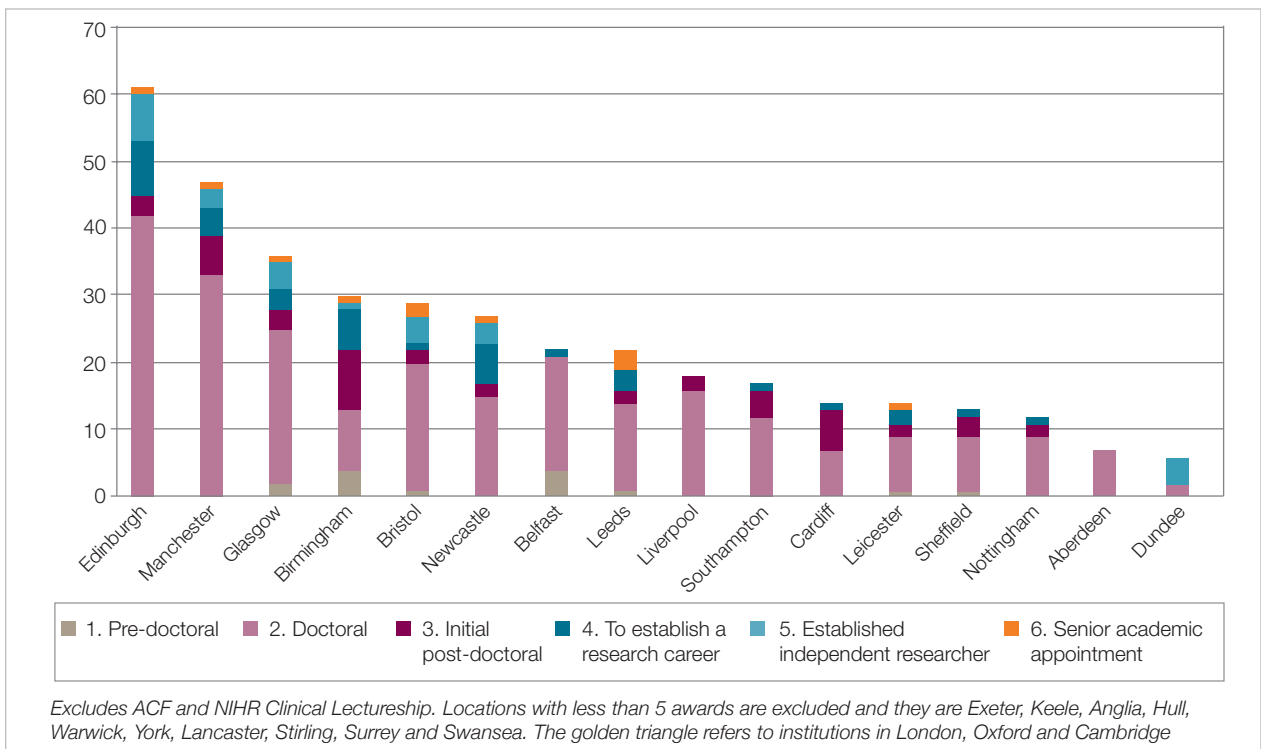


Figure 13c: The proportion of fellowships hosted by region in 2009 and 2017

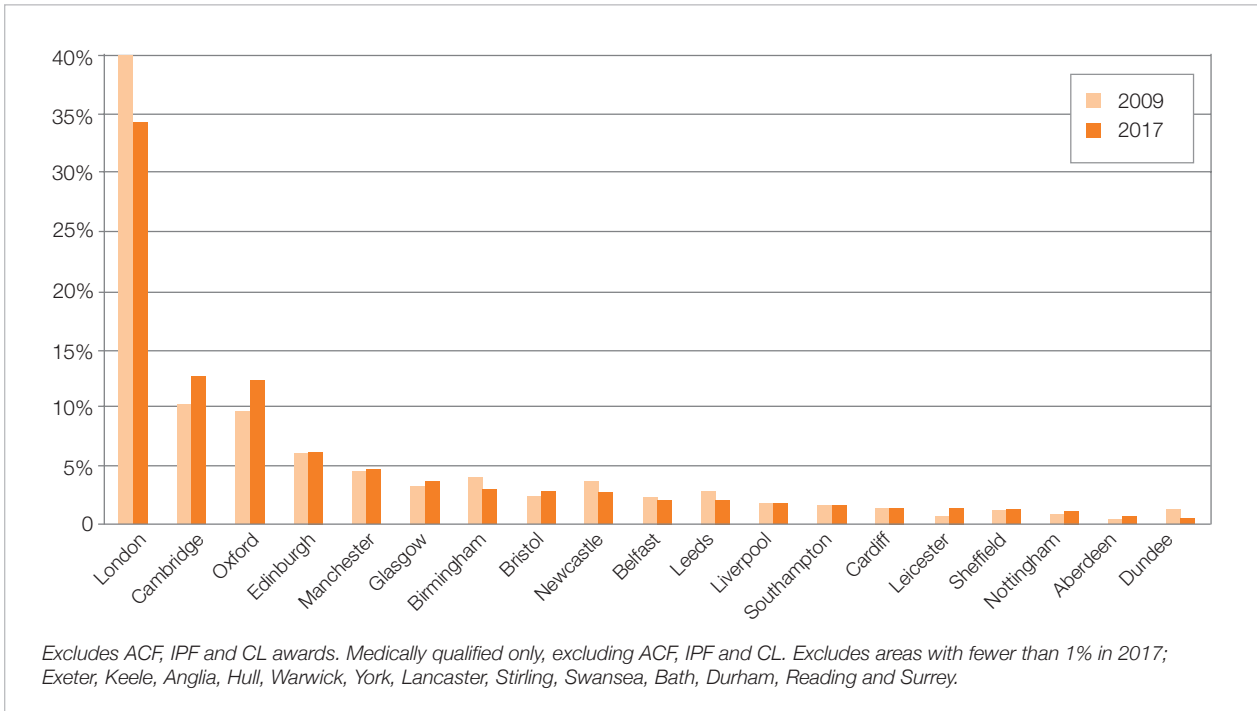
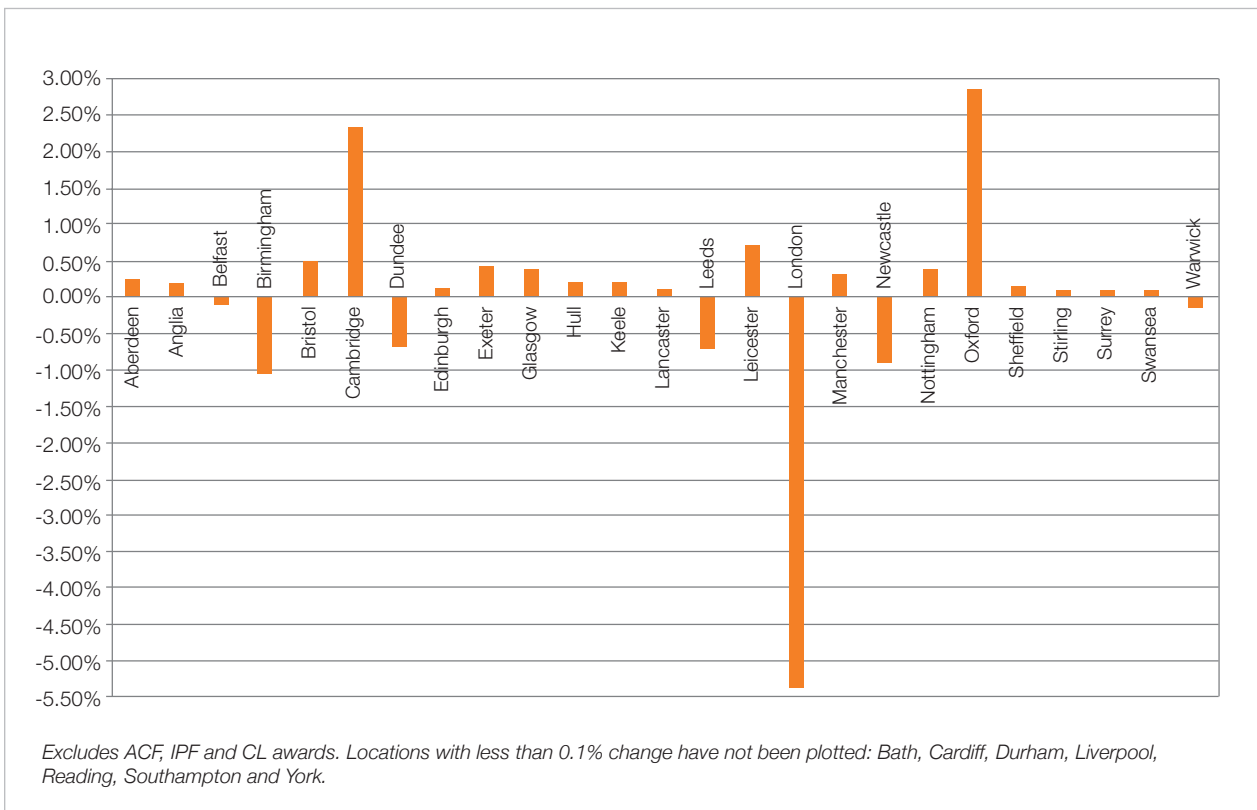


Figure 13d: Percentage change in the proportion of fellowships by location between 2009 and 2017



As in 2009, the largest concentration of fellows is in London, followed by Oxford and Cambridge which host a similar number of fellows. The proportion of fellows in London has decreased by over 5%, and the proportion in Cambridge and Oxford has increased. Overall there has been relatively little change in the distribution across organisations.

Across the ten cities with the highest numbers of fellows, nine are the same as in 2009. Only Southampton has moved into this group (from 13th to 8th) while Belfast was 10th and is now 12th.

Data from the 2017 Survey of Medical Clinical Academic Staffing Levels⁶⁹ show that 960 clinical academics are employed within London, 31.6% of all posts reported at Professor, Senior Lecturer/Reader and Lecturer grades. Within England the medical schools outside London employing the highest number of clinical academics are Cambridge (174, 5.7%), Birmingham (140, 4.6%), Manchester (133, 4.4%), Nottingham (128, 4.2%), Newcastle (105, 3.5%) and Oxford (102, 3.6%).

The survey data suggest London hosts a slightly higher proportion of fellowships relative to the proportion of clinical academics employed (34.4%), with Cambridge and Oxford hosting 12.6% and 12.3% of the fellows identified in this survey, respectively, followed by Manchester (4.2%), Birmingham (3.2%), Newcastle and Bristol (2.9% each).

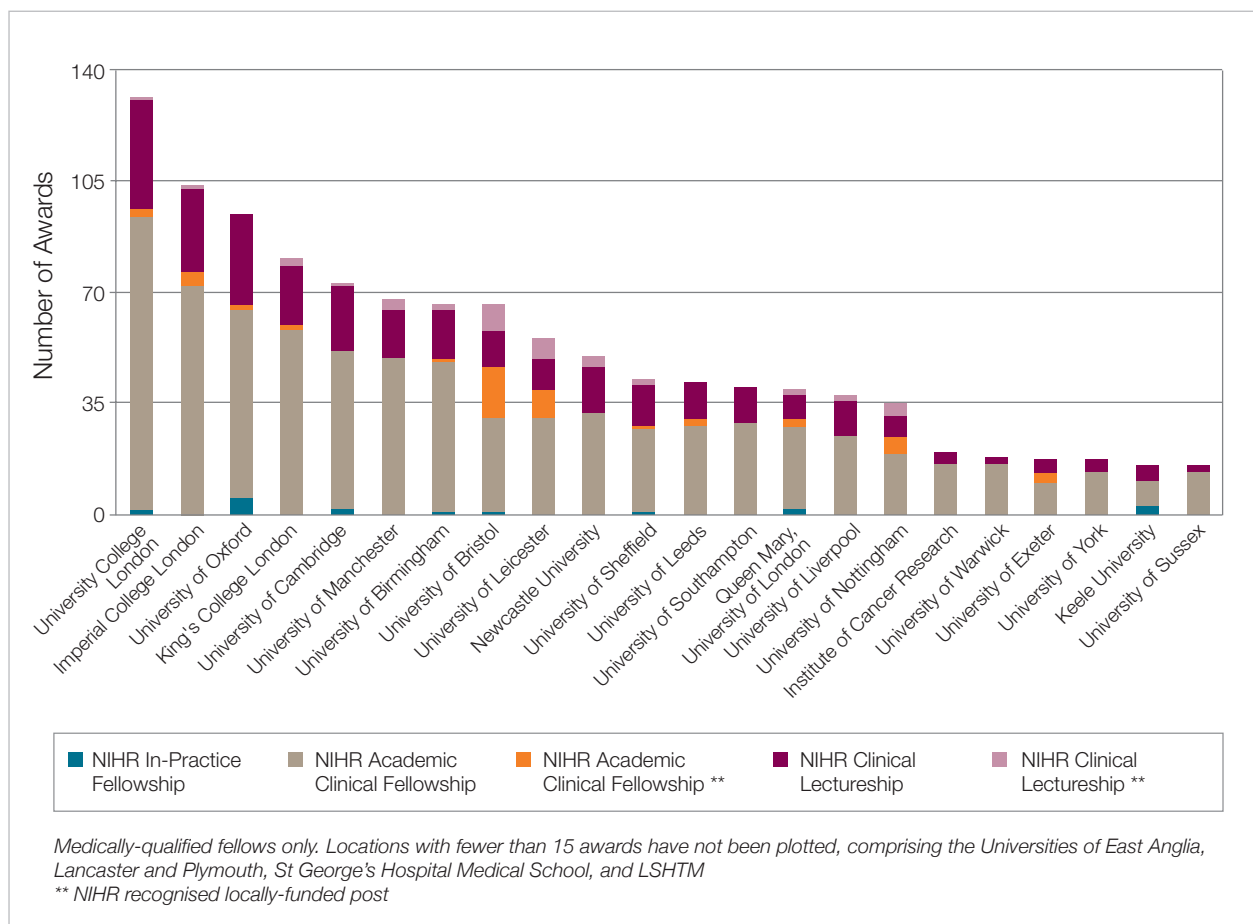
That the proportion of fellowships hosted by region does not necessarily follow the proportion of clinical academics employed there indicates that some centres may play a greater role in the career development of clinical academics in comparison to their employment capacity. This information should inform fellows choosing where to base themselves about their realistic future employment prospects in that region, especially in more senior fellowships.

69. 2017 Survey of Medical Clinical Academic Staffing Levels (Appendices 2 and 3 therein). The figures represent full time equivalent posts (FTE) at Professor, Reader/Senior Lecturer and Lecturer grades
<https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf>

Impact of NIHR's Academic Clinical Fellowships, In-Practice Fellowships and Clinical Lectureship schemes

The ACF, IPF and CLs identified by this survey are shown in Figure 14. There is more of a spread of these awards than the other fellowships schemes in the figure above, indicating these positions are seeding clinical academic talent across England⁷⁰. Bristol, Leicester and Nottingham are notable for the high proportion of NIHR-recognised locally funded places supported⁷¹.

Figure 14: Location of medically qualified fellows by region and career stage, including NIHR ACF, IPF and CL awards

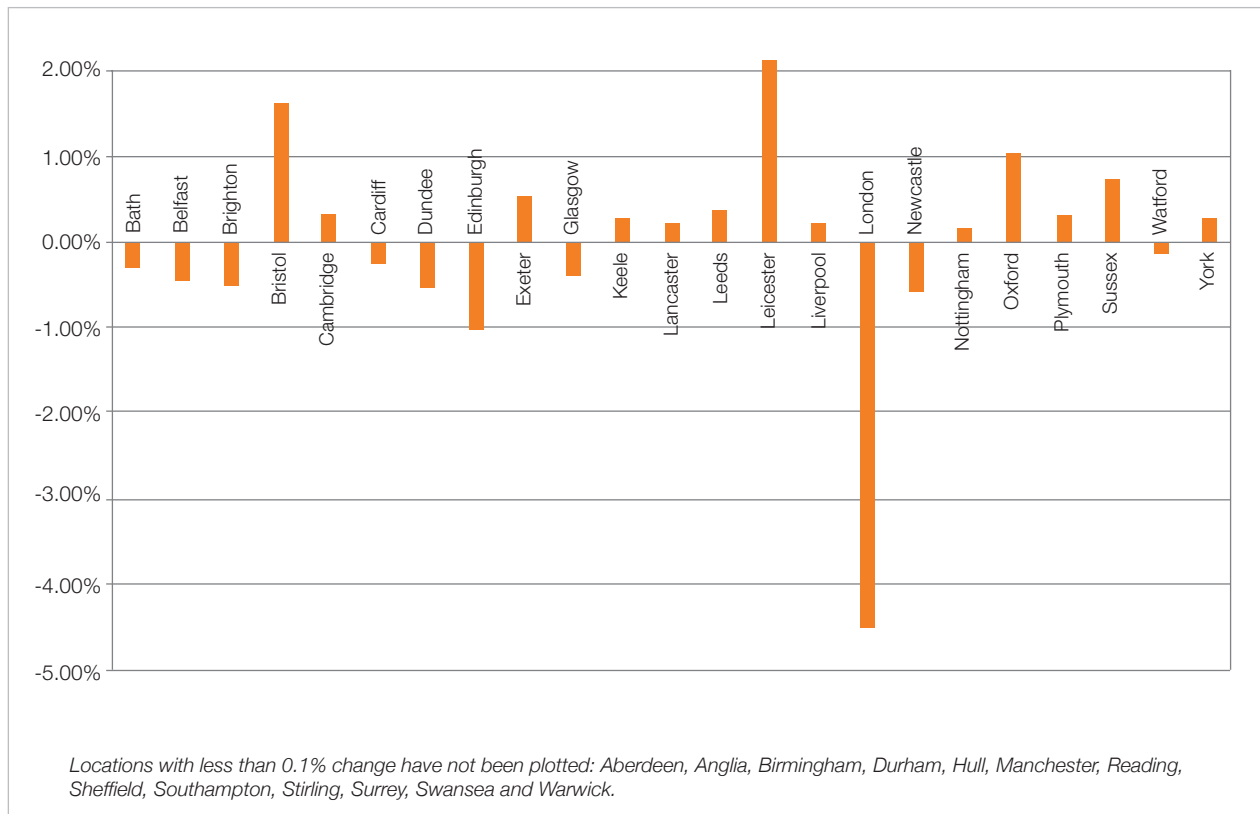


70. ACF, CL and IPF positions are supported by NIHR and are therefore based in England. Equivalent schemes exist in Northern Ireland, Scotland and Wales as discussed earlier in this section.

71. Locally funded posts are set up by the IAT partnership (HEE, HEI and NHS organisations) involved. Partnerships can request NIHR recognition if they demonstrate that the post has been set and is managed to be exactly the same as an equivalent NIHR post. Once approved the post holder becomes an NIHR trainee.

Figure 15 shows the change since 2009 in the proportion of fellowships across locations including the NIHR ACF, IPF and CLs identified in each survey. As NIHR’s funding only supports posts in England-based institutions, and given the increase in the number of these posts supported, unsurprisingly the proportion of fellows in institutions in Scotland, Northern Ireland and Wales decreases. Across English institutions there is still a decrease in the proportion of fellows hosted in London, though the increases in Cambridge and Oxford are less pronounced compared to Figure 13d, and Leicester, Bristol and Sussex show clear increases. This indicates that the NIHR posts are impacting on the overall distribution of fellows across the nation.

Figure 15: Percentage change in the proportion of fellowships by location between 2009 and 2017, including NIHR ACF, IPF and CL awards



Location of fellowships in comparison to the REF 2014 returns

The 2014 Research Excellence Framework (REF) exercise⁷² gathered data on the number of researchers in subject-based Units of Assessment (UoAs). Four of these UoAs (1: Clinical Medicine, 2: Public Health, Health Services and Primary Care, 3: Allied Health Professions, Dentistry, Nursing and Pharmacy, 4: Psychology, Psychiatry and Neuroscience) align with the research areas most relevant to this survey⁷³. While the REF data comprise all academics, not just those who are clinically qualified, they provide an indication of the academic population at each institution which can be compared with the distribution of fellowships.

72. REF 2014, <http://www.ref.ac.uk/2014/results/intro/>

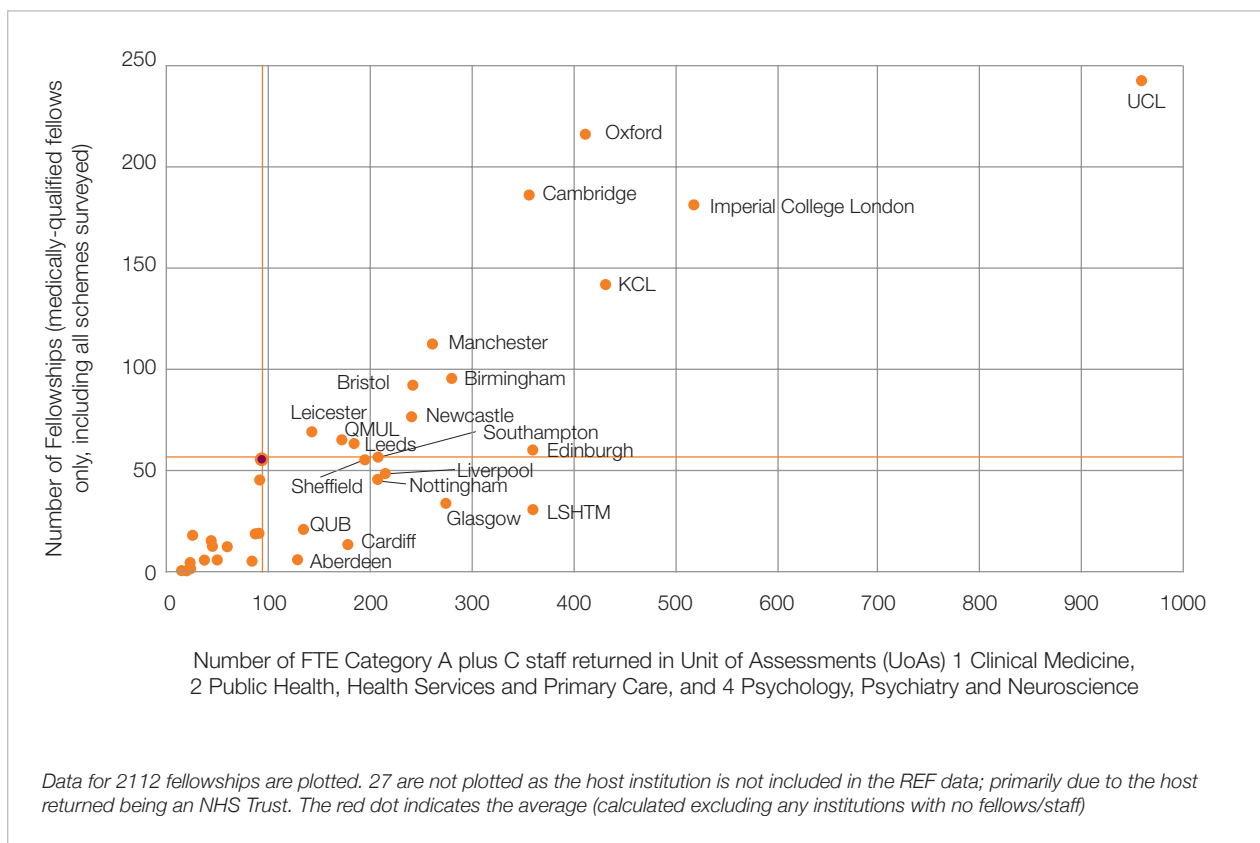
73. Unit of Assessment 6: Agriculture, Veterinary and Food Science, has not been analysed due to the small number of veterinarian fellowship holders identified.

Figures 16a and b show the fellowships held by medically qualified fellows (in all specialties) plotted against the FTE staff returns in the 2014 REF exercise for UoAs 1,2 and 4 (see Section 7 for discussion of UoA 3). The average number of fellowships per institution (calculated based on those holding one or more fellowship, rather than across all institutions in the REF exercise) and average number of FTE staff returned within the Units of Assessment 1,2 and 4 (again calculated using the number of institutions to return staff in at least 1 of these UoAs) is indicated on the plot. Figure 16a includes all schemes in this survey, while 16b excludes pre-doctoral awards (e.g. ACF, IPF) and NIHR ACLs to demonstrate the impact of these awards (which as they are England-based impact particularly on the relative positions of institutions in Scotland, Northern Ireland and Wales).

15 institutions have numbers of both staff and fellows equal to or above the average, and 16 lower than average numbers of both. No institution holds a higher than average number of fellowships while returning a lower than average number of staff, while seven returned a higher than average number of staff but held fewer fellowships than the average institution.

49 institutions in the REF exercise returned staff in one or more of these three UoAs but host no fellowships identified by this survey. The average (mean) number of FTE staff returned for the 3 UoAs by these institutions was 18, with a maximum of 47. None of these institutions hosted any fellowships identified by the survey.

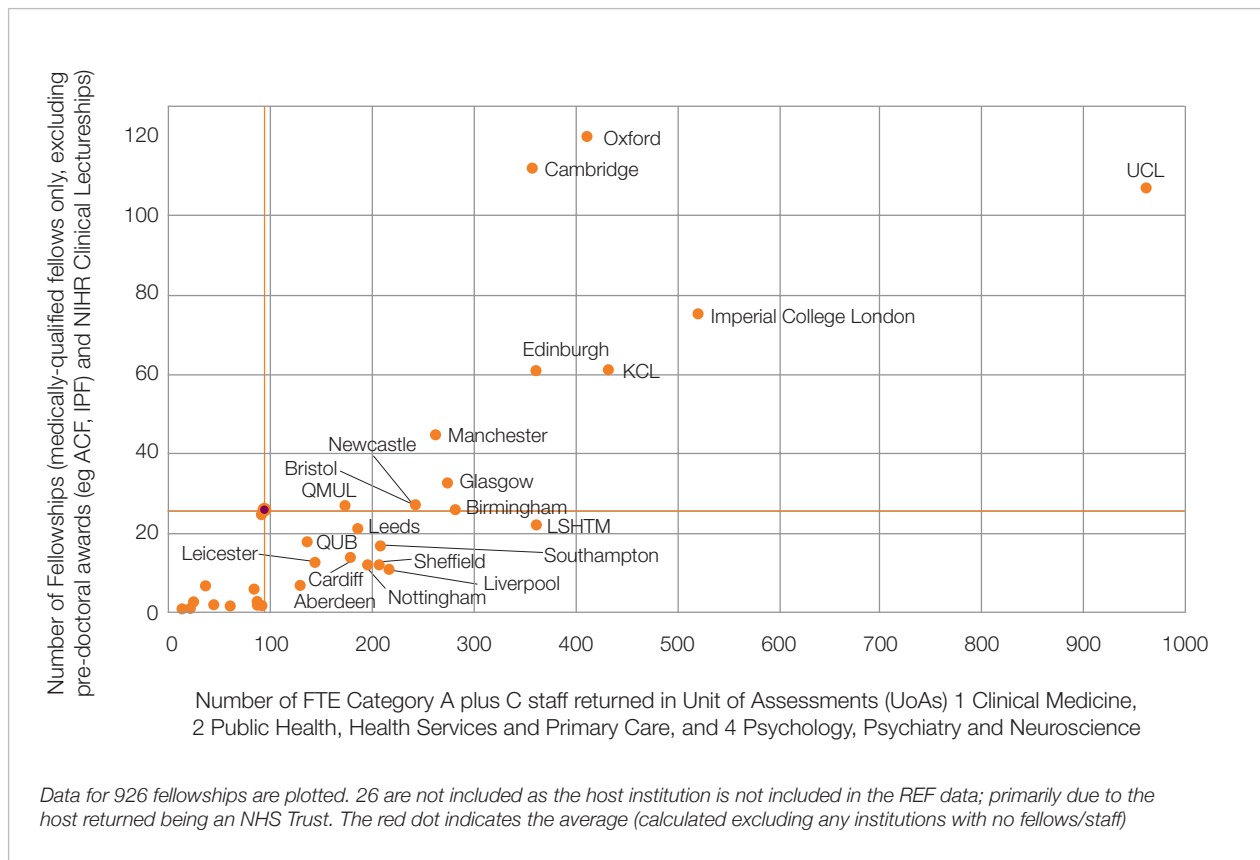
Figure 16a: Comparison of the number of fellowships held by institution and the number of staff returned in the REF 2014 in UoAs 1, 2 and 4



In Figure 16b, with pre-doctoral and Clinical lectureship awards excluded, many of the same institutions appear in the quadrant with higher than average staff and fellowship numbers. The University of Glasgow joins this quadrant when these awards are excluded, and Edinburgh University is markedly higher than the average number of fellowships, in contrast to Figure 16a where it hosts only just above the average.

A number of institutions see their position relative to the average number of fellowships per institution decline when the pre-doctoral and CL awards are excluded. The Universities of Bristol, Newcastle and Birmingham are well above the line for the average number of fellowships in Figure 16a, but are around the average in Figure 16b, Sheffield and Southampton were near the average in Figure 16a but are in Figure 16b, and Leicester is clearly above the average line in Figure 16a but is below in Figure 16b.

Figure 16b: Comparison of the number of fellowships held by institution and the number of staff returned in the REF 2014 in UoAs 1, 2 and 4 excluding pre-doctoral and NIHR Clinical Lectureship Awards

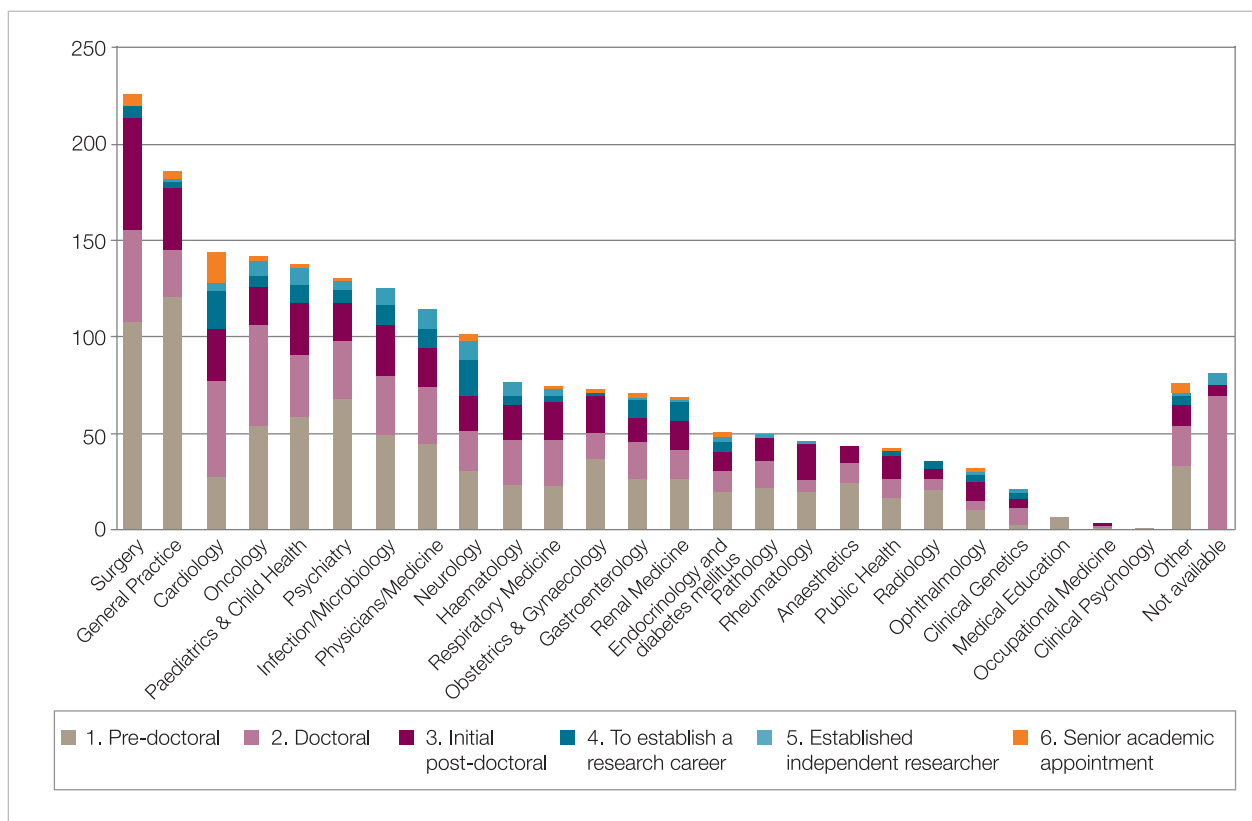


Fellowship awards by medical specialty

The distribution of all fellowships held by medically qualified fellows (excluding dentists, veterinarians and other professions) is shown by specialty in Figure 17a⁷⁴.

It should be noted that the specialty in which they have trained does not necessarily reflect the research in which an individual is engaged. The research undertaken in relation to HRCS Research Activities and Health Categories is analysed by specialty later in this section.

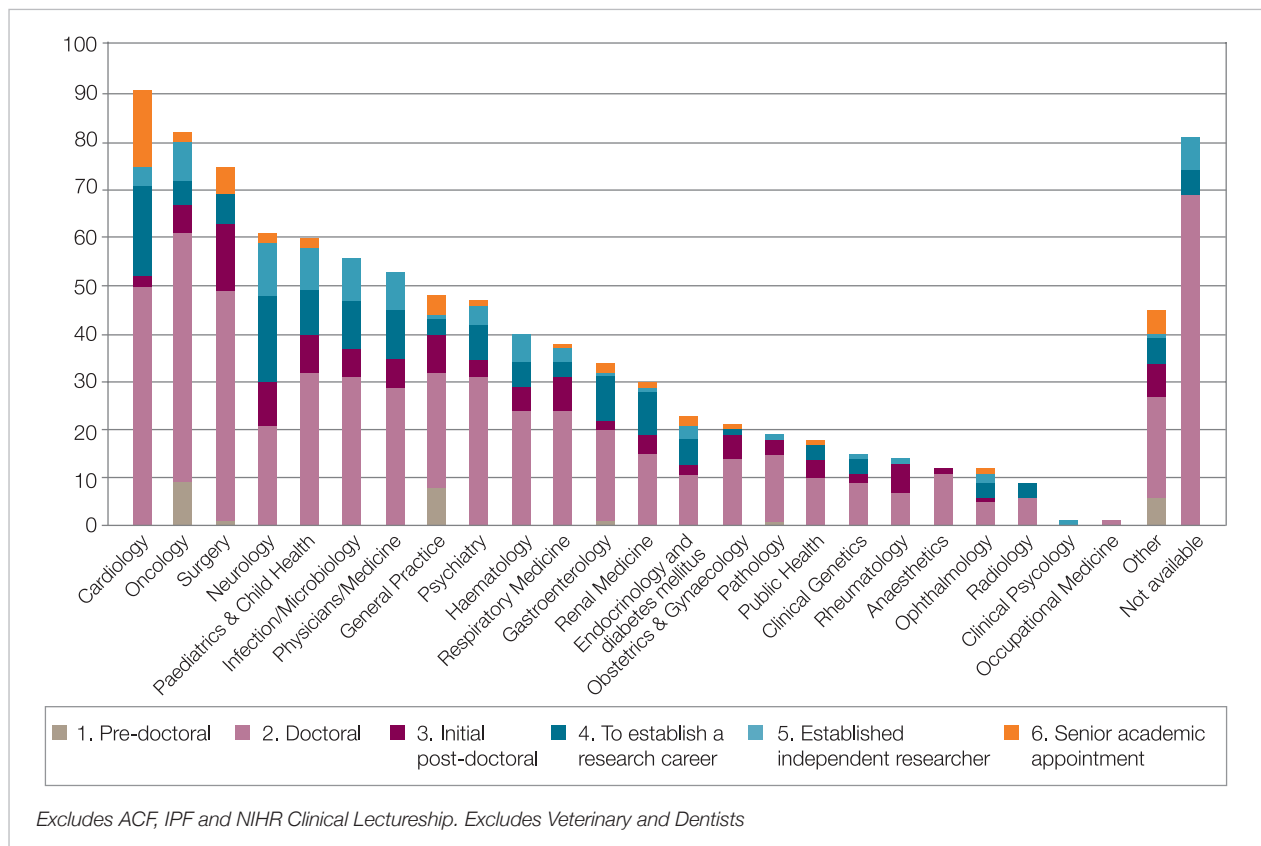
Figure 17a: Distribution of medically qualified fellows by medical specialty and career stage, including NIHR ACF, IPF and CL awards



74. Includes ACF, IPF and CL posts. Vets, dentists, and all non-medically qualified professions have been excluded. The specialties were coded to align with the Medical Schools Council's list and are listed in Appendix 4.

Figure 17b. replots these data with the ACF, IPF, CL fellows excluded to demonstrate the impact of these schemes on the distribution of fellowships by medical specialty.

Figure 17b: Distribution of medically qualified fellows by medical specialty and career stage, excluding NIHR ACF, IPF and CL awards



The specialties with the highest total number of fellows identified in Figure 17b were Cardiology, Oncology and Surgery, the same as in the 2009 survey.

Eight Specialties (the three above, along with Paediatrics and Child Health, Neurology, Infection/Microbiology, Physicians/Medicine, and Psychiatry) have changed relative positions but remain amongst the top ten specialties supported in Figure 17b. Respiratory Medicine was 7th highest in 2009 and is now 11th, and Endocrinology was 8th and is now 14th, while GPs have made a relative gain, from 15th to 8th and Haematology from 16th to 10th.

The 2009 survey identified anaesthetics, obstetrics and gynaecology, radiology, ophthalmology, pathology and clinical genetics as having relatively low research capacity, and these specialties continue to display low capacity at all career levels, though it should be noted that a low number of fellowships in a discipline does not of itself necessarily indicate a gap in meeting national research skills needs.

In 2009 it was noted that only a very low number of fellowships were identified for medical education (2 ACFs, 2 CLs) and occupational medicine (1 ACF and 1 CL). Only 7 ACFs in Medical Education were identified in the 2017 survey, though for occupational medicine 6 fellows were identified in 2017, comprising 2 ACFs, 1 PhD, 1 CL, and 2 holding initial post-doctoral awards other than CLs, so some progress has been made and across career stages.

Figures 18a and b show the change in the proportion of fellowships across specialties, including and excluding pre-doctoral (e.g. ACF, IPF, Masters awards) and CL awards, respectively.

Figure 18a: The proportion of fellowships by medical specialty in 2009 and 2017, including pre-doctoral and CL awards

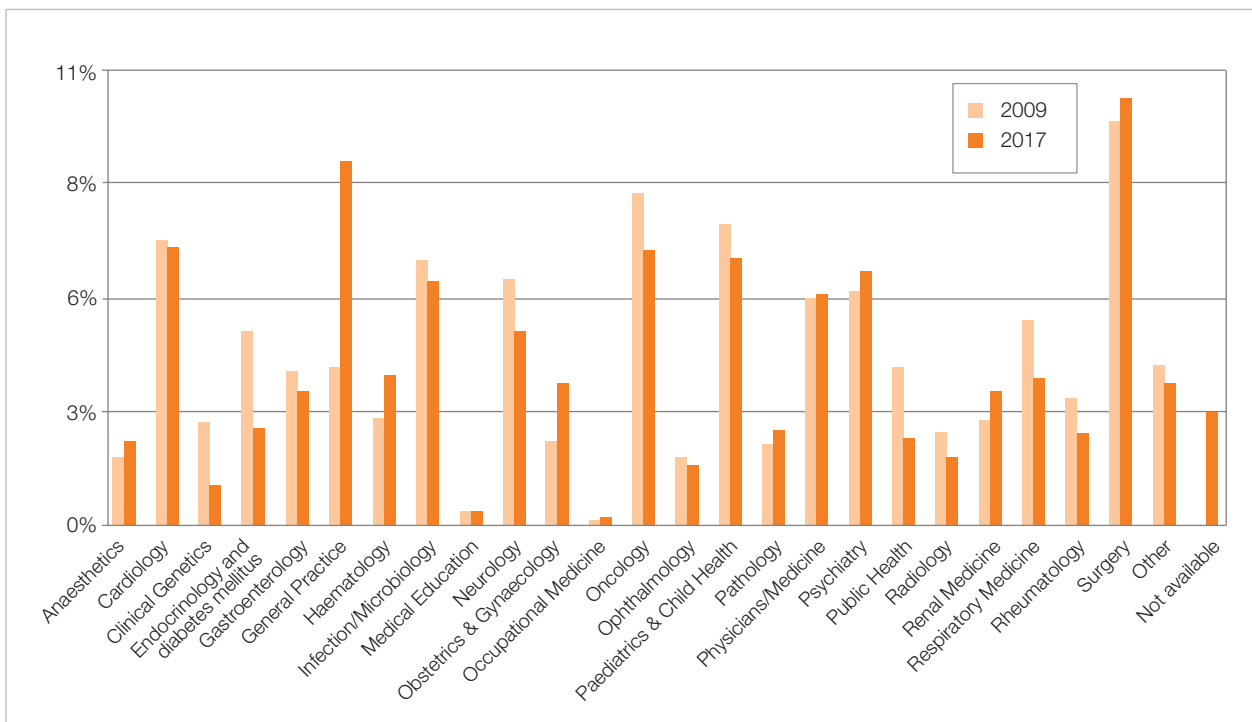
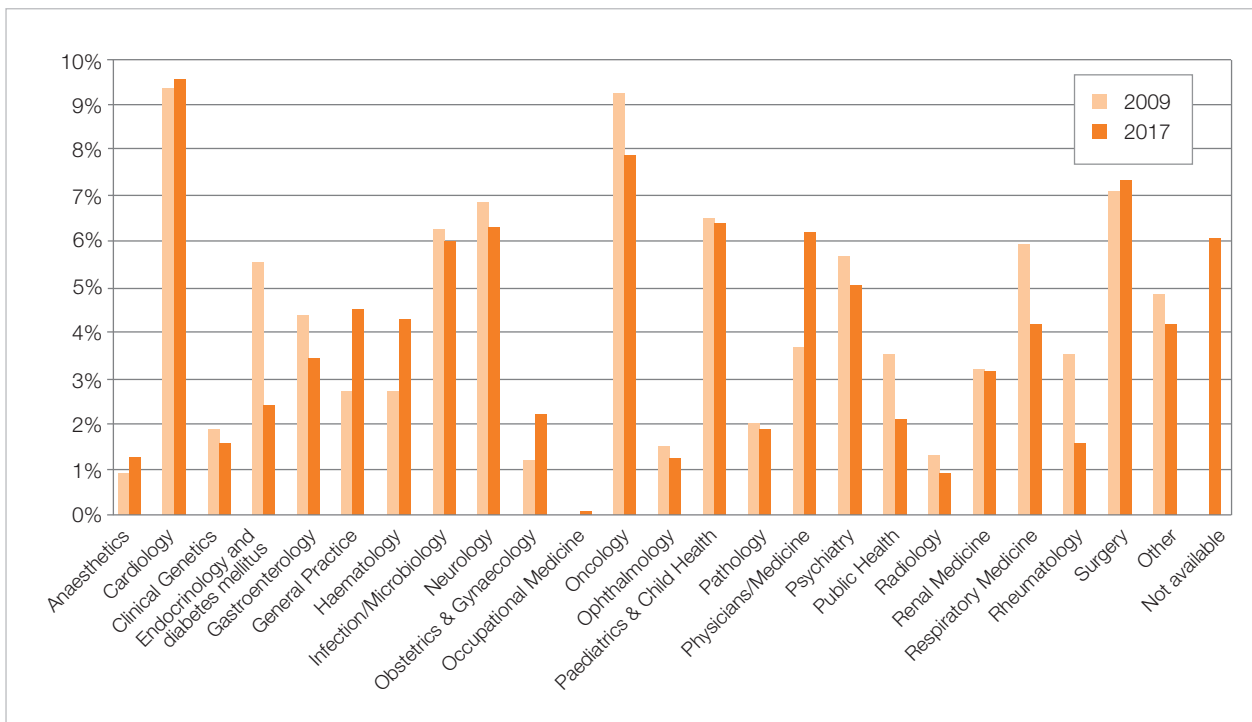


Figure 18b: The proportion of fellowships by medical specialty in 2009 and 2017, excluding pre-doctoral and CL awards



Overall there has been a limited change in the proportion of fellowships across specialities. Exceptions are General Practitioners, which have shown a marked increase, particularly in Figure 18a. Endocrinology, Respiratory Medicine and Public health all display relative decreases, as does Oncology, though the latter remains strongly supported.

In some cases the small number of trainees in a specialty may contribute to the low numbers of fellowships (for example, in 2016 14 Clinical Geneticists were awarded their CCT (0.2% of CCTs awarded), 67 in ophthalmology (1.0%) and 68 in chemical or histo-pathology (1.0%)). In other areas clinical capacity is high but academic careers are either not visible or accessible, for example, 2897 CCTs were awarded to GPs (42.9% of CCTs awarded in 2016), 400 in Anaesthetics (5.9%), 175 in Obstetrics and gynaecology (2.6%), 176 in Clinical radiology (2.6%), putting all 3 in the top 7 in terms of CCTs awarded by speciality in 2016⁷⁵. Figure 19 plots the proportion of CCTs awarded by the GMC in 2016 compared to the proportion of fellowships across specialties.

Figure 19: The proportion of CCTs awarded by the GMC in 2016 compared to the proportion of fellowships across specialties in 2017, excluding pre-doctoral and CL awards.

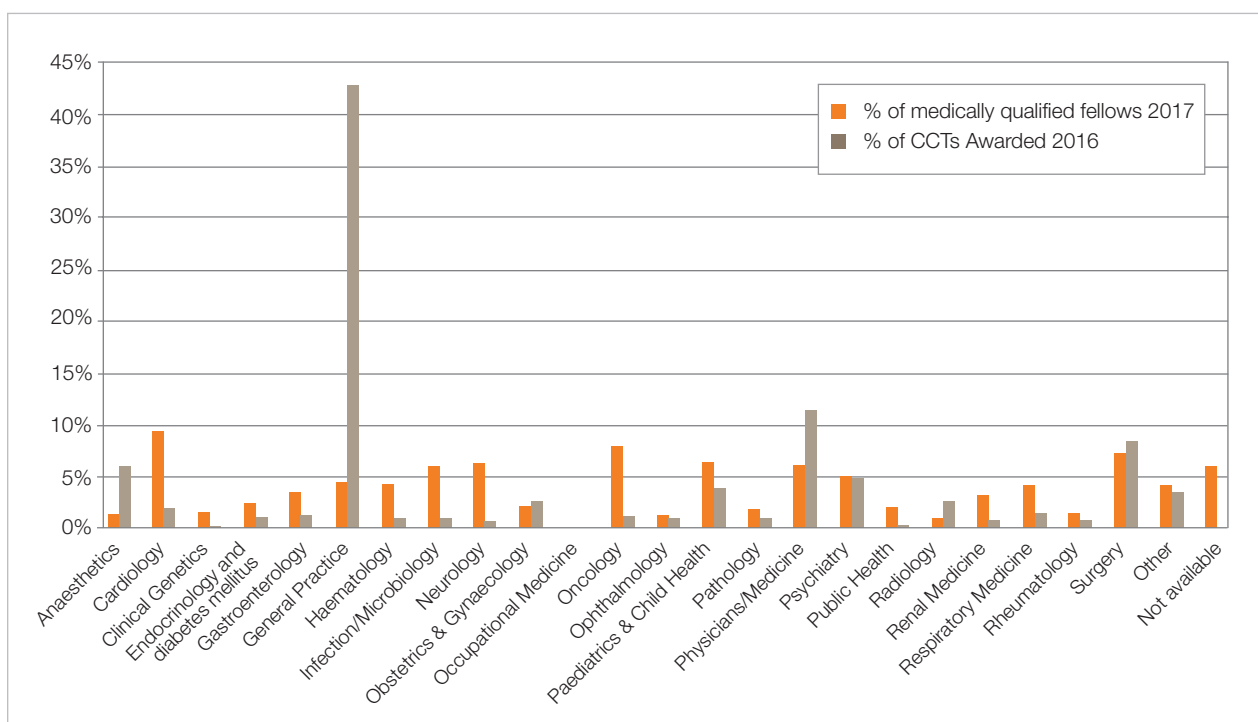


Figure 19 shows there is poor correlation between the proportion of fellowships and background population of specialists. It should be noted that this in itself does not necessarily indicate a shortage of research skills or capacity in a particular area, though it is noticeable that the disproportionately low number of academic GPs in comparison to the numbers qualifying, and the relatively strong academic populations in cardiology, neurology and oncology.

75. Applications to the GP and Specialist Registers 2016, GMC, http://www.gmc-uk.org/Applications_to_the_GP_and_Specialist_Registers_2016_report___DC10157.pdf_70860782.pdf

Specialties of note and skills priorities

Many areas of identified skills need do not align well to either medical specialties (e.g. clinical pharmacology and pathology, where relevant research may be undertaken by non-medically qualified researchers and medics in other specialties) or by the HRCS Research Activity and Health Category codes (for e.g. experimental medicine, informatics). The methodology used for this survey therefore limits the extent to which it is possible to determine the contribution of the fellowships identified in meeting some UK skills priorities, however the trends in the following specialties are of particular note:

General Practice

An estimated 90% of patient interaction with the NHS is with primary care services, including GPs⁷⁶. The majority of common and costly medical problems are managed through primary care, and academic GPs occupy a unique position to identify critical questions relevant to population health and health services research, and to lead and translate research into improved patient care⁷⁷.

Figures 17a and b show that there has been a marked increase in the number of GPs undertaking fellowships since 2009. They are predominantly supported by the health departments, with a small number supported by other funders.

Including all types of award (Figure 17a), they now form the 2nd highest supported speciality. Approximately two thirds of the fellows identified are ACFs or IPFs, indicating an increased supply of academic GPs. Encouragingly there has also been an increase in the number of senior academic positions supported, which will enable increased academic GP leadership.

The Medical Schools Council medical clinical academic staffing survey⁷⁸ shows the number of academic GPs in Lecturer, Reader/Senior Lecturer and Professor roles gradually increasing, though notes General Practice has a low number of clinical academics relative to its staff in the wider workforce; approximately 0.4% of the 61,097 licensed registered GPs are clinical academics in UK medical schools, compared to 3.7% of all 75,053 licensed doctors in registered specialties holding roles as clinical academics.

Public Health

In Figure 17a Public Health ranks 19th, demonstrating a shortage of ACF and CL post-holders and therefore a lack of developing capacity. Public Health ranks 17th in Figure 17b, having been 12th in 2009 and has seen a net decrease in the number of medically qualified public health specialists being supported (from 27 in 2009 to below 20 in 2017)⁷⁹.

As noted in Section 3, infrastructure and other large investments have been excluded from the survey, including significant investments such as the five UKCRC Public Health Research Centres of Excellence, the NIHR School for Public Health Research, the MRC/CSO Social and Public Health Sciences Unit⁸⁰, which all have a role in training and addressing capacity and capability needs. However, there are concerns about the public health research base, and public health specialists face particular career pressures given the nature of training and location of roles often far from academic centres. Recommendations to support capacity and capability development were made in the Academy of Medical Sciences' 2016 report: 'Improving the health of the public by 2040'⁸¹ which focused on two areas:

76. NHS Digital, <http://content.digital.nhs.uk/primary-care>

77. UK academic general practice and primary care, John Campbell et al., the BMJ, <http://www.bmj.com/content/351/bmj.h4164>

78. 2017 Survey of Medical Clinical Academic Staffing Levels
<https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf>

79. Only medically qualified fellows were included in Figures 17a and b. Nine non-medical Public Health specialists were also identified in the survey data: 1 doctoral-level award, 7 initial post-doctoral awards, and 1 to establish a research career.

80. For further details see <http://www.ukcrc.org/research-coordination/joint-funding-initiatives/public-health-research/>; <http://sphr.nihr.ac.uk/>; <https://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/mrccsocialandpublichealthsciencesunit/>

81. Improving the health of the public by 2040, The Academy of Medical Sciences, September 2016
<https://acmedsci.ac.uk/policy/policy-projects/health-of-the-public-in-2040>

- Review of undergraduate medical curricula: The report recommends that relevant stakeholders should review undergraduate medical curricula to develop and embed health of the public training and its broader application in clinical practice.
- Strengthening postgraduate training: The report recommends that all doctors have appropriate grounding in research and in particular the core principles and methods of quantitative research that underpin health of the public research. In addition, relevant stakeholders should establish a special interest group to develop a credential in health of the public research. Opportunities for credentialing should be provided for all trainees and not just those who wish to pursue a career in public health.

Clinical Pharmacology and Pathology

The number of fellows specialising in Pathology⁸² has increased from 26 to 50 in total, though most of this growth has been driven by ACF numbers, which may increase the future supply but at other career stages, excluding ACFs and CL positions, the number of fellows has fallen slightly since 2009.

Clinical Pharmacology and Therapeutics was coded within the category Physicians/Medicine to mirror other surveys and reports. Across five of the larger partners in this survey (BHF, CRUK, MRC, NIHR and Wellcome) 18 fellows whose main specialty is CPT were identified⁸². This reflects the very low number of CPT specialists in the UK, with fewer than 5 awarded CCT in 2016⁸³.

Pharmacology and Pathology continue to be recognised as important areas of skills needs within the wider landscape of the UK research base⁸⁴. A number of strategic initiatives have focused on developing capacity and capability in areas of skills need, including the MRC's Clinical Pathology and Pharmacology and Wellcome's Translational Medicine fellowship programmes⁸⁵, the Cellular Molecular Pathology Initiative⁸⁶, launched in 2016 and coordinated by the National Cancer Research Institute on behalf of ten funders, and the MRC/EPSRC Molecular Pathology Nodes⁸⁷, established in 2015.

82. See Appendix 4 for specialty categorisations.

83. Applications to the GP and Specialist Registers 2016, GMC, http://www.gmc-uk.org/Applications_to_the_GP_and_Specialist_Registers_2016_report___DC10157.pdf_70860782.pdf

84. See, for example, Life Sciences: Industrial Strategy, August 2017, <https://www.gov.uk/government/publications/life-sciences-industrial-strategy>; ABPI – Bridging the skills gap in the biopharmaceutical industry, November 2015, http://www.abpi.org.uk/our-work/library/industry/Documents/Skills_Gap_Industry.pdf; MRC Molecular Pathology Review, 2014, <https://www.mrc.ac.uk/documents/pdf/mrc-molecular-pathology-review/>

85. It should be noted that these initiatives were not specialty specific, rather they aimed to develop research skills relevant to these fields by attracting trainees from a range of specialties.

86. National Cancer Research Institute, <http://cmpath.ncri.org.uk/about/>

87. MRC, <https://www.mrc.ac.uk/research/initiatives/stratified-medicine/molecular-pathology/research/>

Distribution of the seniority of awards by medical specialty

Figures 17a and b show the total number of fellowships by medical specialty. Figures 20a and 20b explore further the distribution of awards by career stage for each specialty.

Figure 20a: Distribution of the career stage of awards by specialty, including pre-doctoral and CL awards

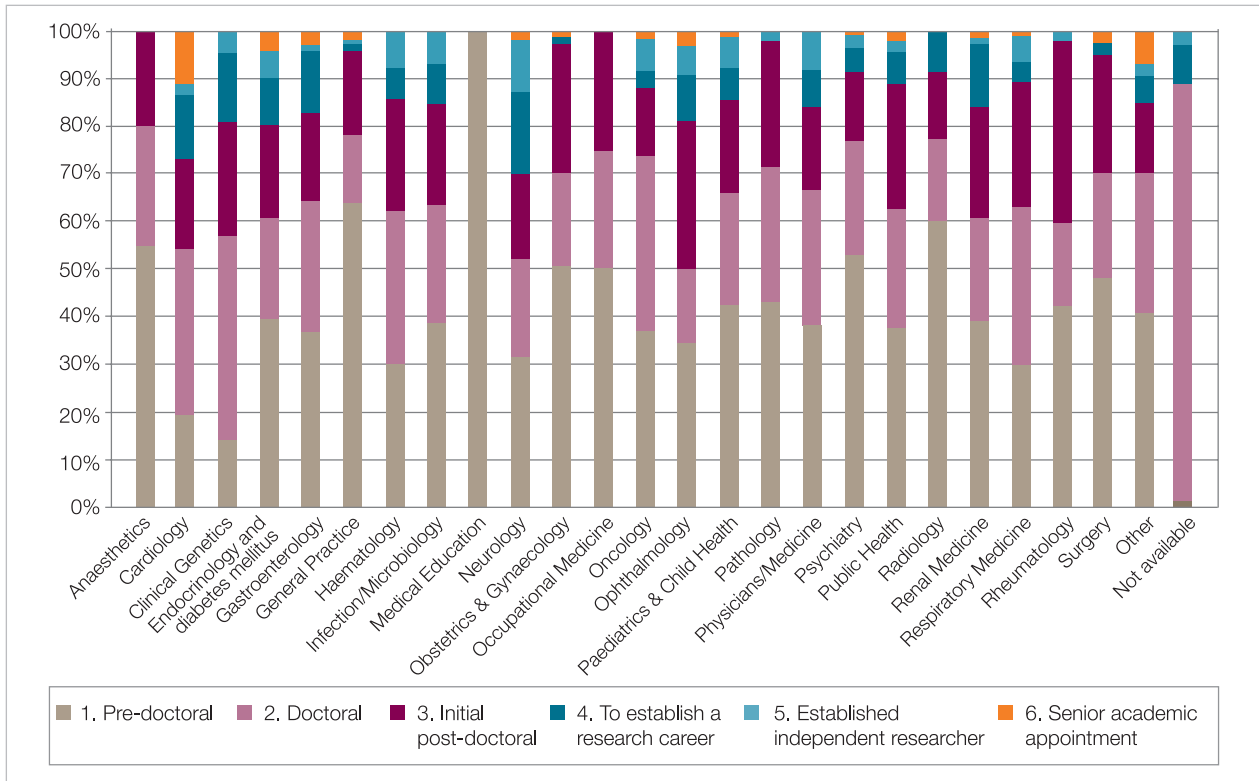
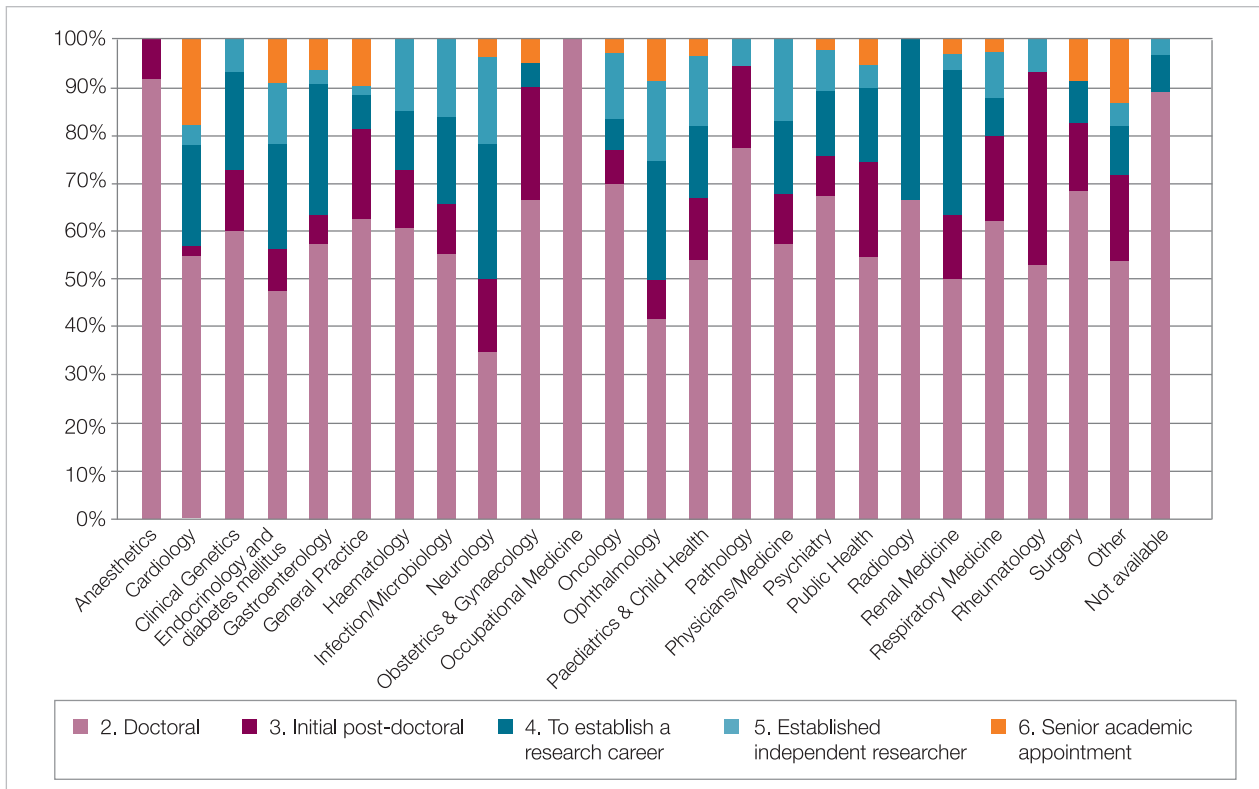


Figure 20b: Distribution of the career stage of awards by specialty, excluding pre-doctoral and CL awards



In 2009 it was noted that there appeared to be relatively few doctoral or pre-doctoral researchers entering neurology, with only approximately a third of the neurology fellows identified holding awards at these career stages. In the 2017 survey this is now approximately half, though it remains one of the specialties with the highest proportion of established and senior fellows. Other specialties with proportionally large numbers of established and senior fellows include cardiology, endocrinology, ophthalmology, and paediatrics and child health.

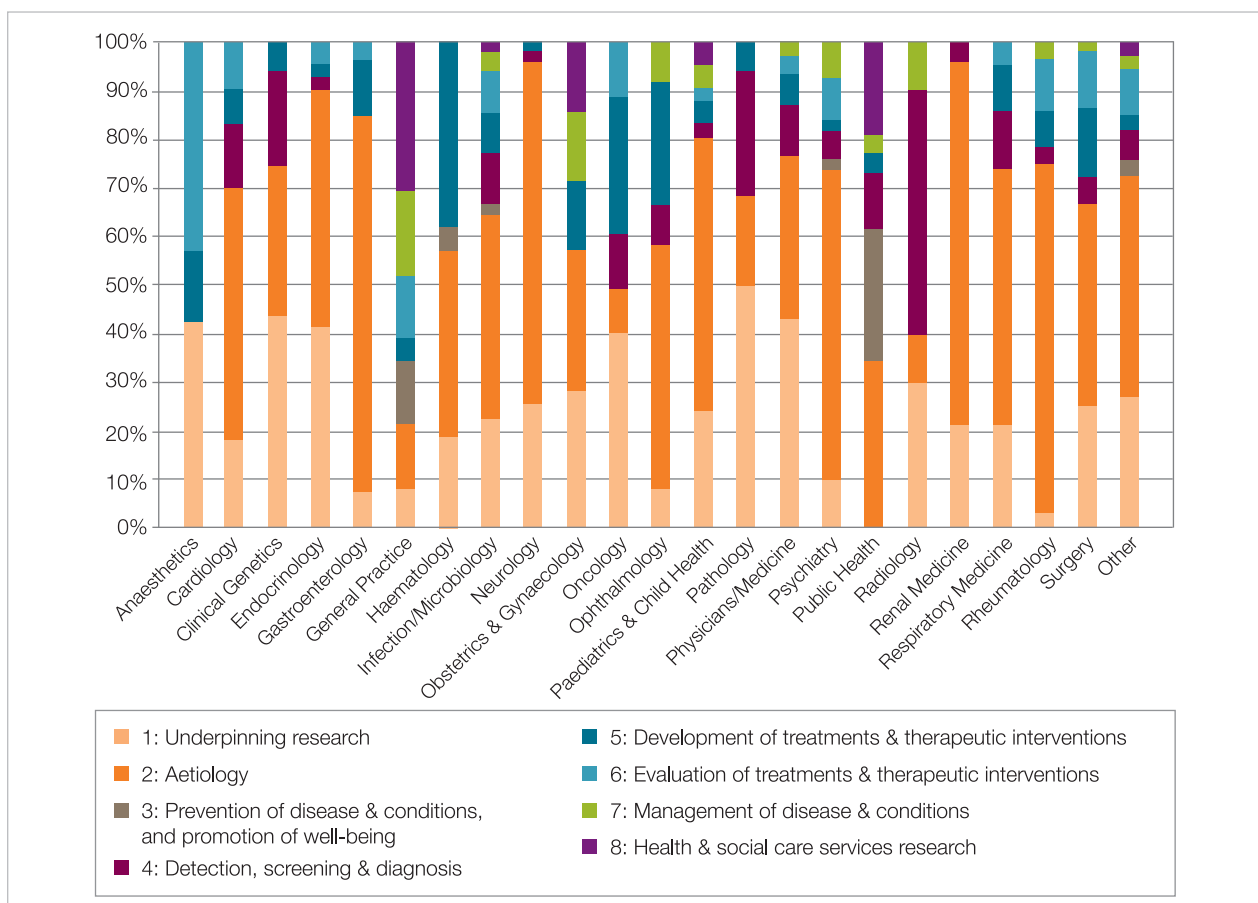
Specialties with a high proportion of early-career fellows and a potential lack of senior academic leadership include several specialties with low overall numbers of fellows, such as anaesthetics, obstetrics and gynaecology, occupational medicine, pathology, public health, radiology and renal medicine and rheumatology, but also some specialties with larger fellowship populations as shown in Figures 17a and b, such as general practice, psychiatry and surgery.

The 2017 Survey of Medical Clinical Academic Staffing Levels⁸⁸ highlights that the number of clinical academics in both Pathology and Psychiatry has decreased; since 2009 the number of clinical academic consultants in Psychiatry has decreased by 17.0% and in Pathology by 38.9%, indicating a particular contraction of academic leadership roles within these fields.

UKCRC HRCS Research Activities and Health Categories by medical specialty

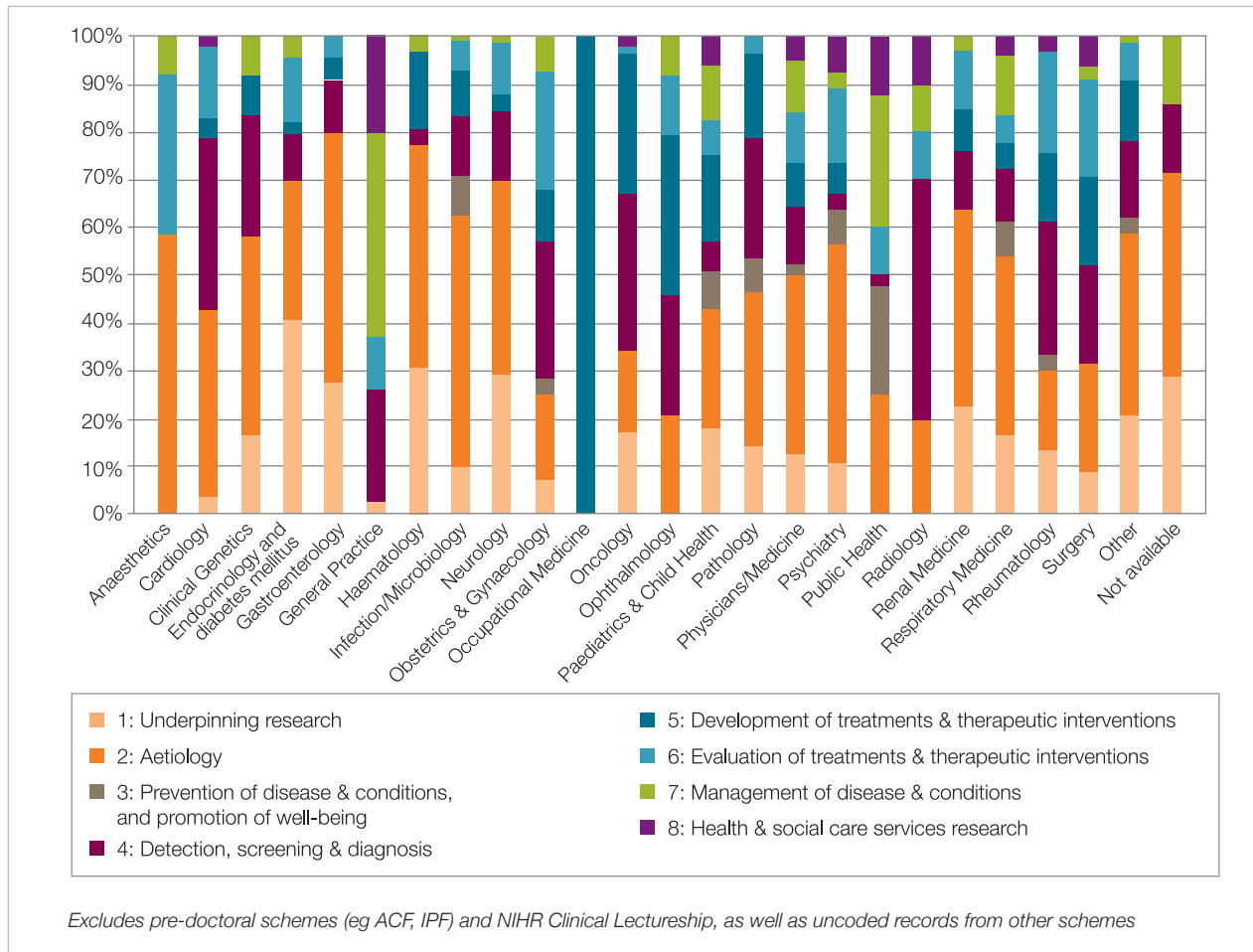
Figures 21 a and b show the distribution, within each medical specialty, of research across the UKCRC Research Activity codes in 2009 and 2017, respectively⁸⁹. The plots in this section exclude pre-doctoral awards (such as ACFs, IPF, Masters) and NIHR Clinical Lectureships, as these are not routinely coded.

Figure 21a: Proportion of fellowships in 2009 by UKCRC HRCS Research Activity and by medical specialty



88. 2017 Survey of Medical Clinical Academic Staffing Levels <https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf>
 89. UKCRC Health Research Classification System, <http://www.hrcsonline.net/pages/guidelines>

Figure 21b: Proportion of fellowships in 2017 by UKCRC HRCS Research Activity and by medical speciality

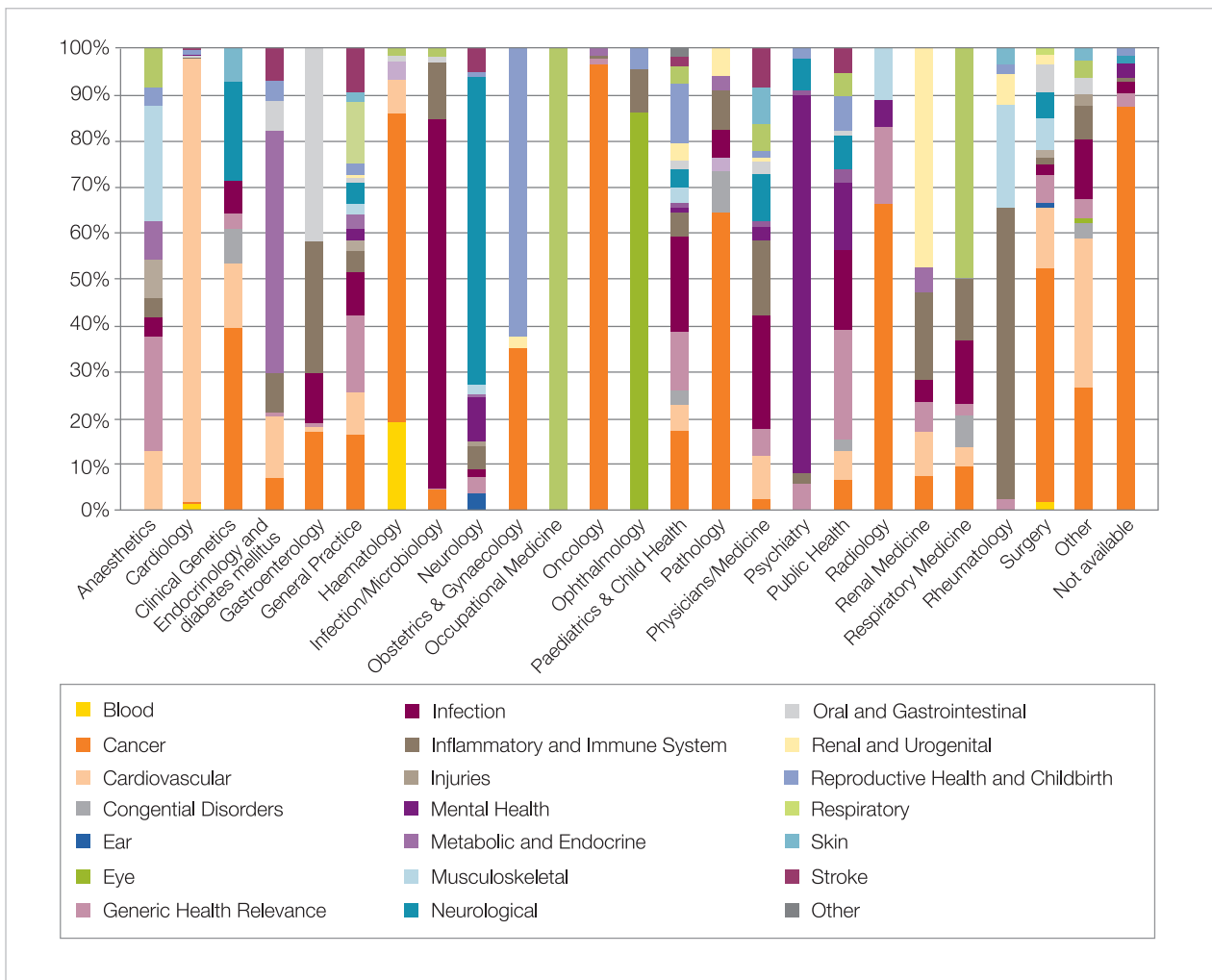


There has been an overall shift towards more applied work across the specialties. Changes of particular note include:

- Amongst cardiology specialists there has been a marked increase in research focusing on detection and diagnostics, which now accounts for 35.7% of research undertaken, compared to 12.7% in 2009. In 2009 underpinning and aetiology accounted for 70.4% of research in the specialty, compared with 42.9% in 2017.
- Of awards held by surgeons, 31.5% focus on underpinning or aetiology in 2017, compared with 66.7% in 2009.
- For awards held by neurologists, 70.2% of fellowships focus on underpinning research or aetiology, however this still represents a shift to more applied research in the specialty as 95.7% focused on these research activities in 2009.
- Oncology has also shifted towards more applied research; 49.3% of awards in 2009 focused on underpinning research and aetiology, compared to 34.1% in 2017.

Figure 22 plots the distribution of UKCRC HRCS Health categories assigned to describe the area of research undertaken by fellows by specialty

Figure 22: Proportion of fellowships in 2017 by UKCRC HRCS Health Category and by medical speciality



Occupational medicine reflects a single record, and radiology 9 records. All other specialties have over 10 records, and the average number of records per specialty is 36.4.

Some specialties with relatively direct alignment with a health category are primarily dedicated to research in that category as would be expected; for example, over 95% of oncologists identified are undertaking research focused on cancer, over 95% of cardiologists are undertaking research focused on cardiovascular health⁹⁰, and just under 90% of psychiatrists' research focuses on mental health or neurological research.

51% of surgeons, 64.7 % of pathologists, 66.7% of radiologists, and 67.5% of haematologists are undertaking research focusing on cancer, demonstrating the range of specialties which can underpin research in particular health categories.

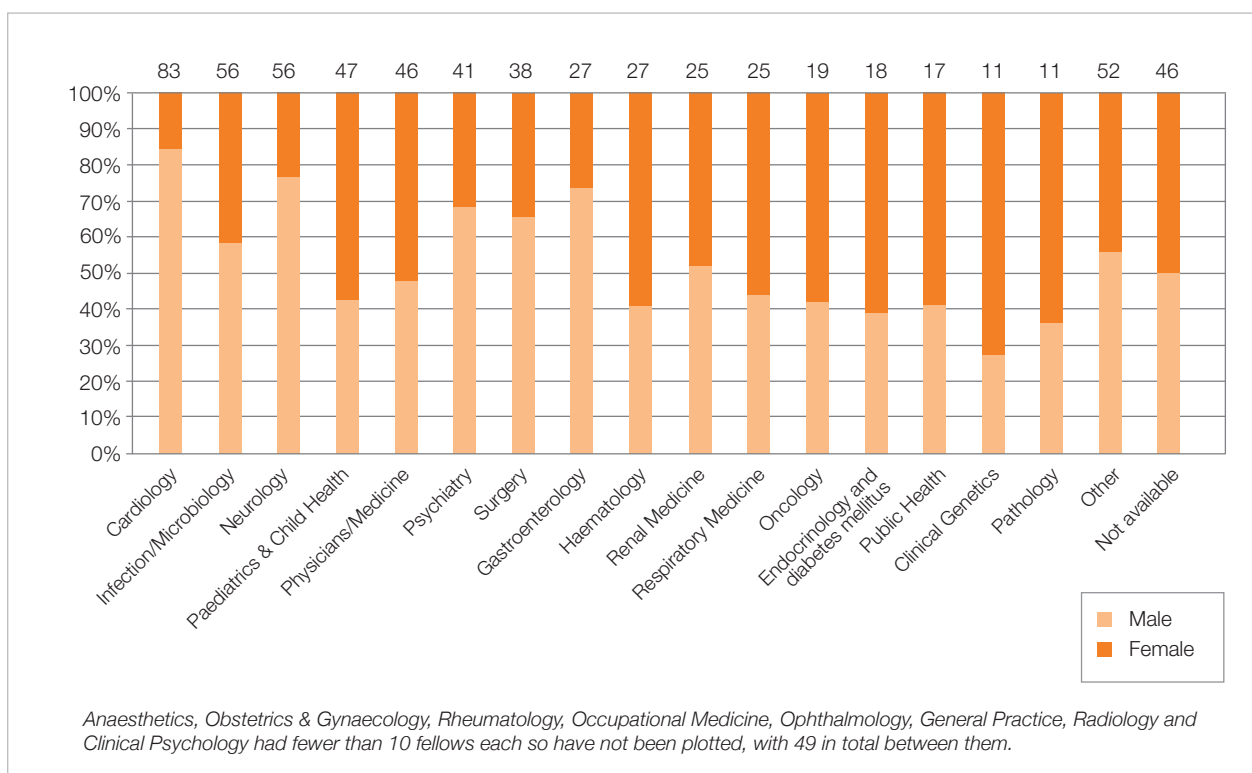
General practitioners, paediatricians and public health specialists have particular mixed portfolios of research, as would be expected given the range of disease areas covered the specialties.

90. BHF only use the Health Category 'Cardiovascular'. 78.9% of the awards held by cardiologists plotted Figure 23 were funded by BHF.

Diversity data by speciality

Figure 23 shows the gender of medically qualified fellowship holders by speciality.


Figure 23: Gender of medically qualified fellowship holders by medical speciality



Data on speciality by gender were available for a total of 694 awards of 2149 identified (32%). Data were available for awards from Alzheimer’s Research UK, Health and Care Research Wales, Chief Scientist Office Scotland, BHF, MRC, Action Medical Research and, Wellcome. NIHR has not contributed data for inclusion in this plot (therefore no ACF or CLs are included), nor have AMS, CRUK, the Stroke Association, HSCR&D NI, or HEFCE.

Cardiology and Neurology have the highest number of data points available, and from the data are the two most male-dominated specialties in terms of the distribution of clinical academic fellowships. In cardiology 16% of the fellows identified were female, and 23% in neurology. In comparison, 23% of higher specialist trainees in cardiology are female, and 43% in neurology⁹¹, indicating that a lower proportion of women than men from these specialties are embarking on an academic career.

91. Royal College of Physicians, 2016–17 census (UK consultants and higher specialty trainees) <https://www.rcplondon.ac.uk/projects/outputs/2016-17-census-uk-consultants-and-higher-specialty-trainees>



7. Support for nurses,
midwives, dentists,
allied health professionals,
veterinarians and other
healthcare professionals

7. Support for nurses, midwives, dentists, allied health professionals, veterinarians and other healthcare professionals

Figures 24a and b summarise the career stages of non-medically qualified fellows identified by this survey (across the UK) in 2009 and 2017, respectively.

Figure 24a: Fellowship holders by profession and career stage in 2009

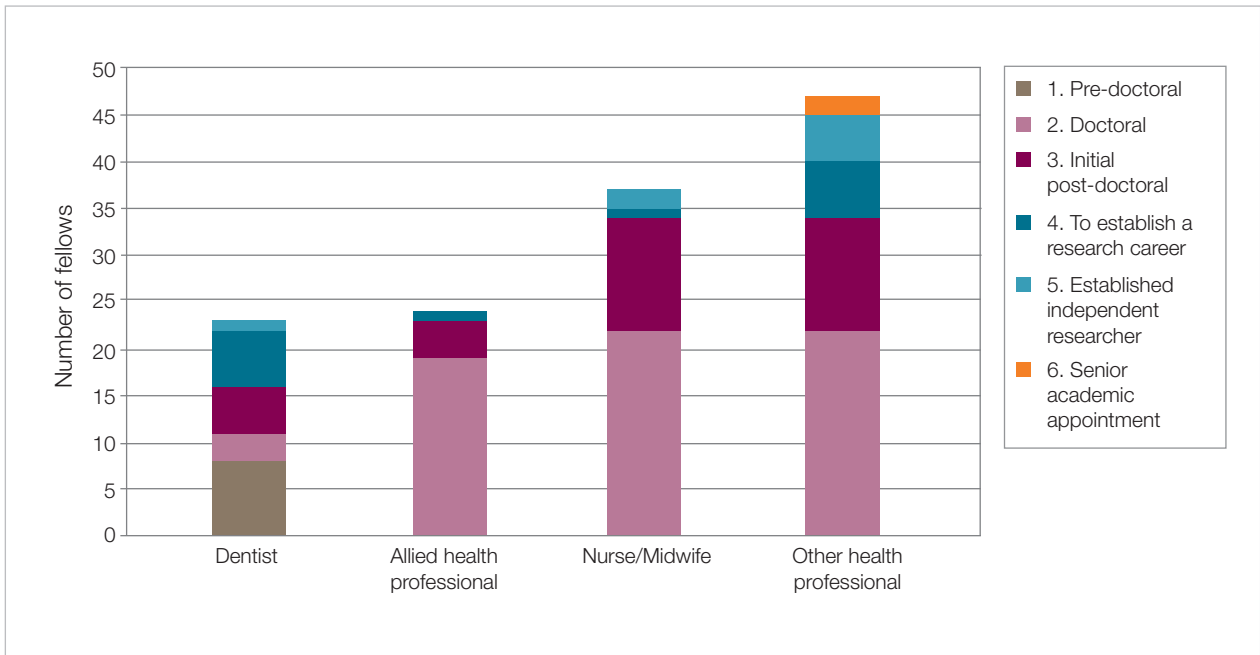
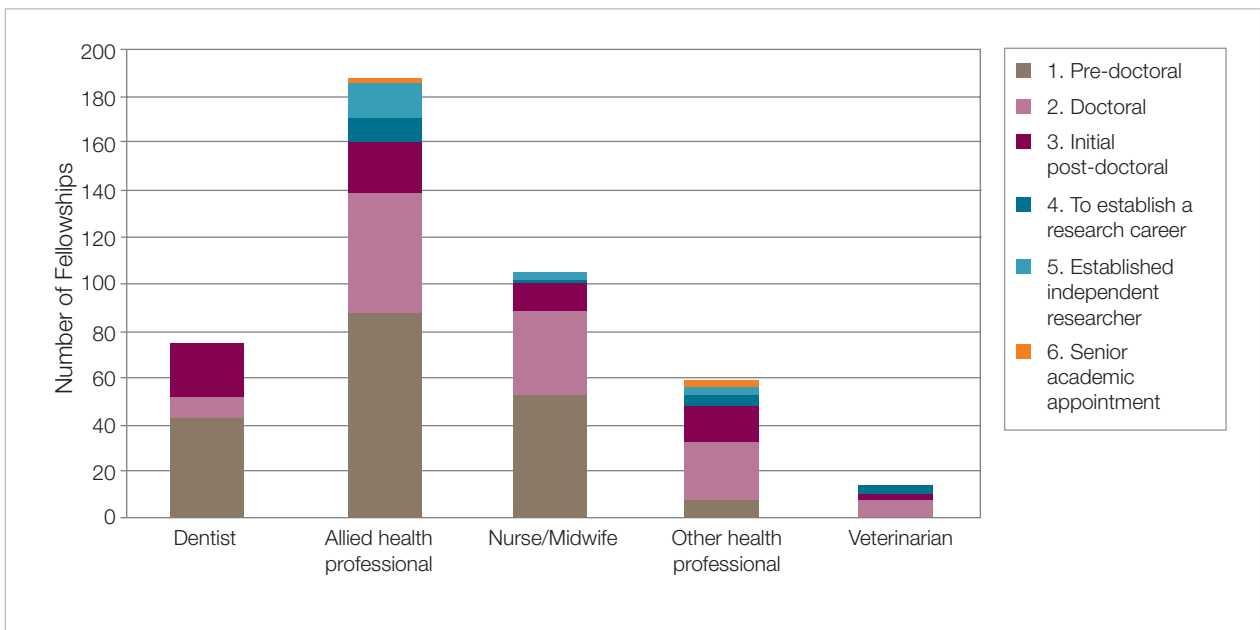


Figure 24b: Fellowship holders by profession and career stage in 2017



It should be noted that wider opportunities for allied health professionals exist beyond the fellowships identified by this survey. For example, Health and Care Research Wales fund a partnership between six universities in Wales to deliver Research Capacity Building Collaboration Wales (RCBC Wales), which provides a range of fellowships for new and experienced researchers in nursing, midwifery, pharmacy, clinical science and allied health professions, ranging from first into research and Masters degrees to doctoral and post-doctoral projects. Health and Care Research Wales also fund annual Clinical Research Time Awards, which offer NHS staff the opportunity to apply for protected time to engage in research activity. Additionally, Health and Care Research Wales fund Social Care Fellowships, which have also not been included in the dataset for this survey.

Dental fellows

- 75 dental fellowships were reported in this survey, compared with 23 in the 2009 survey. Of these, all were funded by NIHR apart from three.
- The increase in dental fellowship numbers is confined to early career stages, with no dentists identified holding an award more senior than an initial post-doctoral fellowship. 23 dentists with initial post-doctoral fellowships were identified by this survey (increased from 5 in 2009), however the number supported to establish a research career has decreased from 6 in 2009 to none being identified in the 2017 survey.
- Data collected by the Dental Schools Council⁹² demonstrate that academic capacity at Professor, Reader/Senior Lecturer and Lecturer grades declined by 11.8% between 2010 and 2015, before recovering by 1.8% 2015-2016 to 594.3 FTE in the last survey. The Survey notes an increase in vacancies for research-active dental posts, and 66% of dental schools reported difficulties recruiting, suggesting a potential future shortage of capacity.

Nursing/midwifery, allied health professions and other health professions

- 351 of the fellowships identified were held by a nurse, midwife, allied health professional or other health professional.
- Of the 105 fellowships identified in nursing/midwifery, the great majority (103) were funded by the Health Departments.
- Other Healthcare Professionals⁹³ is the group displaying the lowest overall growth in numbers, (total of 47 in 2009 to 59 in 2017) and is now the smallest group after vets.
- The number of senior-level fellowships in nursing, midwifery, and in the allied health professions remains relatively low. While allied health professionals have shown an increase in the number of awards held at this level, it has remained level for nurses and midwives. The 2009 survey predicted an increase in senior-level fellowships for this group as capacity identified in that survey progressed through the academic training pathway; this has not been evidenced in the 2017 data. Health Education England is undertaking a survey of past nurse, midwife and AHP fellowship holders in 2017 to understand the career pathways they have undertaken.

92. Survey of Dental Clinical Academic Staffing Levels 2017
<http://www.dentalschoolscouncil.ac.uk/wp-content/uploads/2017/07/Survey-Dental-Clinical-Academic-Staffing-Levels-2017.pdf>.

93. See Section 3 for details of the professions included in this survey.

Veterinarians

- Veterinarians holding fellowships relevant to human health were included in this survey. They were not captured as part of the 2009 survey, however the importance of developing academic veterinary capacity in tackling human health challenges such as antimicrobial resistance has been highlighted⁹⁴ and they were therefore included in 2017 as a new profession category.
- The Veterinary Schools Council's strategic plan⁹⁵ includes as one of its core themes to “advocate and drive the growth of UK veterinary research” and states that “The Research Committee will also oversee a project (jointly funded by the Wellcome Trust) which will collect evidence relating to the numbers of veterinarians working in veterinary research, and the factors that influence career choices. This project will help to inform the development of sustainable career pathways for veterinary researchers.”
- 14 fellowship awards held by veterinarians were identified in this survey, 13 of whom were supported by the Wellcome, and 1 by the MRC. 8 doctoral awards were identified, 3 initial post-doctoral awards, and 3 to establish a research career, indicating only a small level of academic veterinary capacity building is supported by the funders involved in this survey⁹⁶.

In the 2009 survey dentists were the only professional group (apart from medically qualified fellows) where a significant proportion held a pre-doctoral level award. Support at this career level has grown for dentists and there are now much broader routes (mainly through ACFs and Masters-level awards), with notable growth in the number of pre-doctoral awards held by nurses/midwives and AHPs as well.

The number of doctoral fellows identified has increased across all four professional groups, however progression beyond this career stage is a potential bottle neck. The number of post-doctoral-level awards has increased significantly for AHPs, but remained almost static for nurses/midwives and other healthcare professionals, and while the overall number of dentists has increased, no awards more senior than initial post-doctoral were identified.

The 2009 survey identified a lack of senior-level fellowships in nursing and midwifery and in the allied health professions. While clear progress has been made for AHPs, with a relatively balanced population identified across the career stages, primarily supported via the ICA HEE/NIHR Integrated Clinical Academic Programme for non-medical healthcare professions, low numbers of academic leadership positions have been identified for nurses/midwives, dentists and veterinarians.

The need to develop a clear career pathway for nurses involved in clinical research has been recognised for over a decade⁹⁷. While some progress has been made⁹⁸, it is estimated that 4.6% of the NHS medical consultant workforce are clinical academics⁹⁹, but best estimates are that less than 0.1% of the nursing, midwifery and allied health professional workforce are clinical academics¹⁰⁰. The 2015 Shape of Caring review¹⁰¹ included ‘Assuring sustainable research and innovation’ as one of its core themes, and recommended greater development of postgraduate doctoral centres with the aim of increasing the number of academics in practice. On-going initiatives led by HEE and NIHR to explore the experiences of academic Nurses, Midwives and AHPs and the potential role of doctoral training centres in developing clinical academic careers will lead to better understanding of how to develop and support this population.

94. Bridging the Gap: Linking animal and human medicine through veterinary school research and One Health; Veterinary Schools Council, 2016. <http://www.vetschoolscouncil.ac.uk/wp-content/uploads/2016/10/Bridging-the-gap-VSC-2016.pdf>

95. Veterinary School Council Strategic Plan 2016-2020, <http://www.vetschoolscouncil.ac.uk/wp-content/uploads/2016/10/VSC-Strategic-Plan-2016-2020.pdf>

96. BBSRC fellowship schemes (<http://www.bbsrc.ac.uk/skills/leadership/how-fellowships/>) are open to veterinarian applicants, however at the time of survey no live awards were identified.

97. Developing the best research professionals Qualified graduate nurses: recommendations for a clear career pathway for those nurses involved in clinical research preparing and supporting clinical academic nurses of the future: Report of the UKCRC Subcommittee for Nurses in Clinical Research (Workforce) <http://www.ukcrc.org/wp-content/uploads/2014/07/Nurses-report-August-07-Web.pdf>

98. Developing the Role of the Clinical Academic Researcher in the Nursing, Midwifery and Allied Health Professions https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215124/dh_133094.pdf

99. 2017 Survey of Medical Clinical Academic Staffing Levels <https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf>

100. <http://www.aukuh.org.uk/index.php/affiliate-groups/nmahps>

101. The Shape of Caring review (Raising the Bar) published in March 2015, <https://www.hee.nhs.uk/our-work/developing-our-workforce/nursing/shape-caring-review>

Distribution by geographic location

Figures 25, 26 and 27 show the location of fellows by profession.

Figure 25: Location of fellows by profession, including NIHR ACF, IPF and CL awards

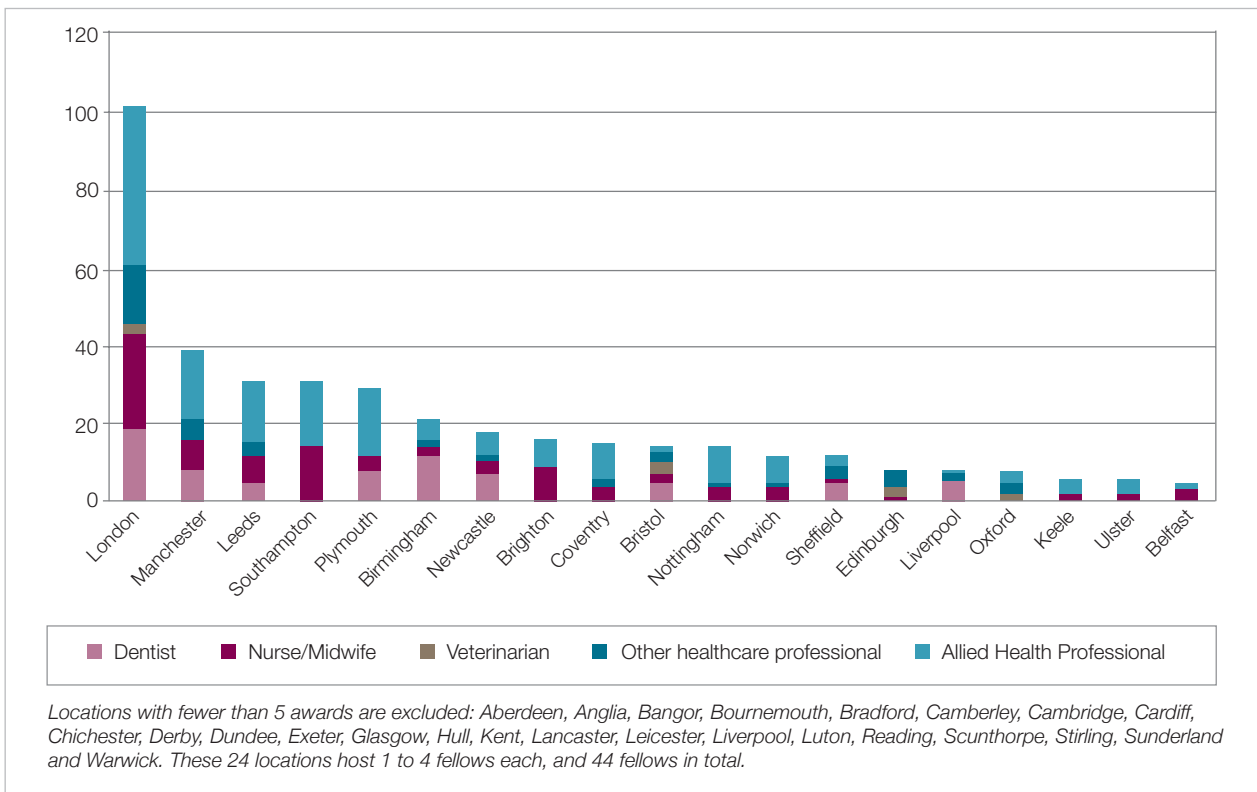


Figure 26: Location of fellows by profession, excluding NIHR ACF, IPF and CL awards

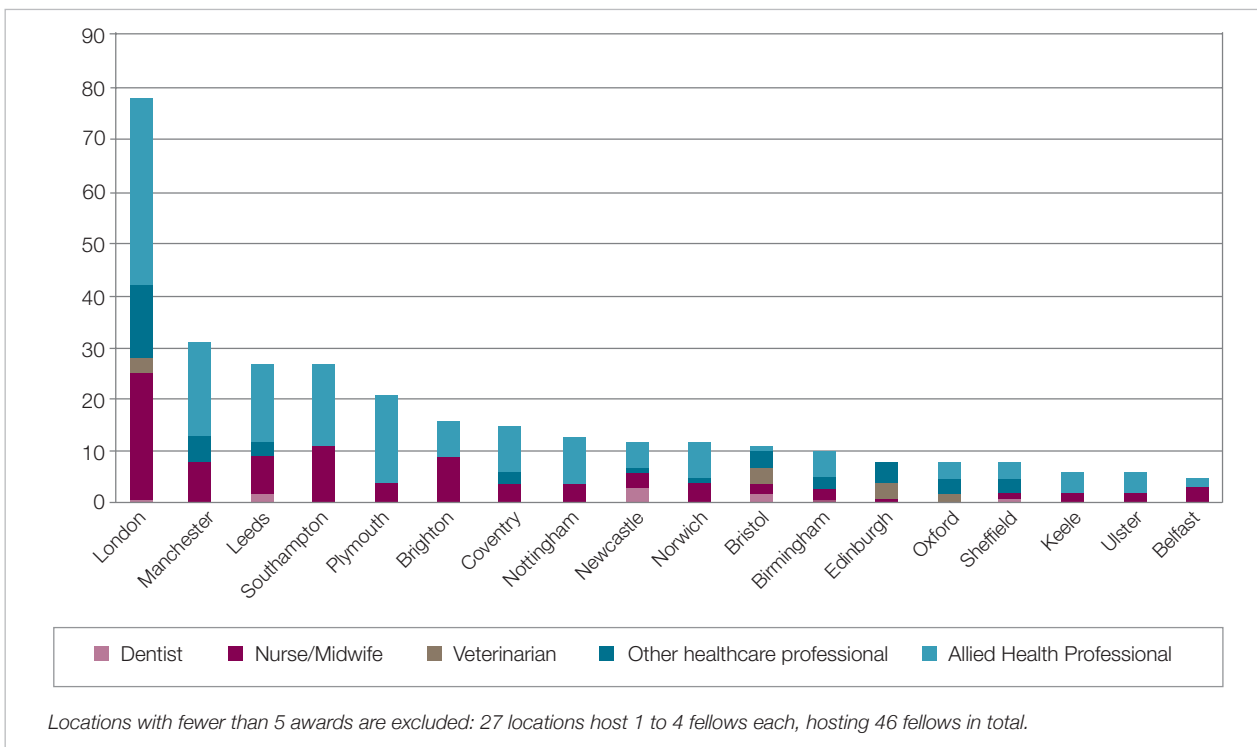


Figure 27: Location of NIHR ACF, IPF and CL awards held by dentists, nurses and midwives, veterinarians, allied health professionals and other health professionals

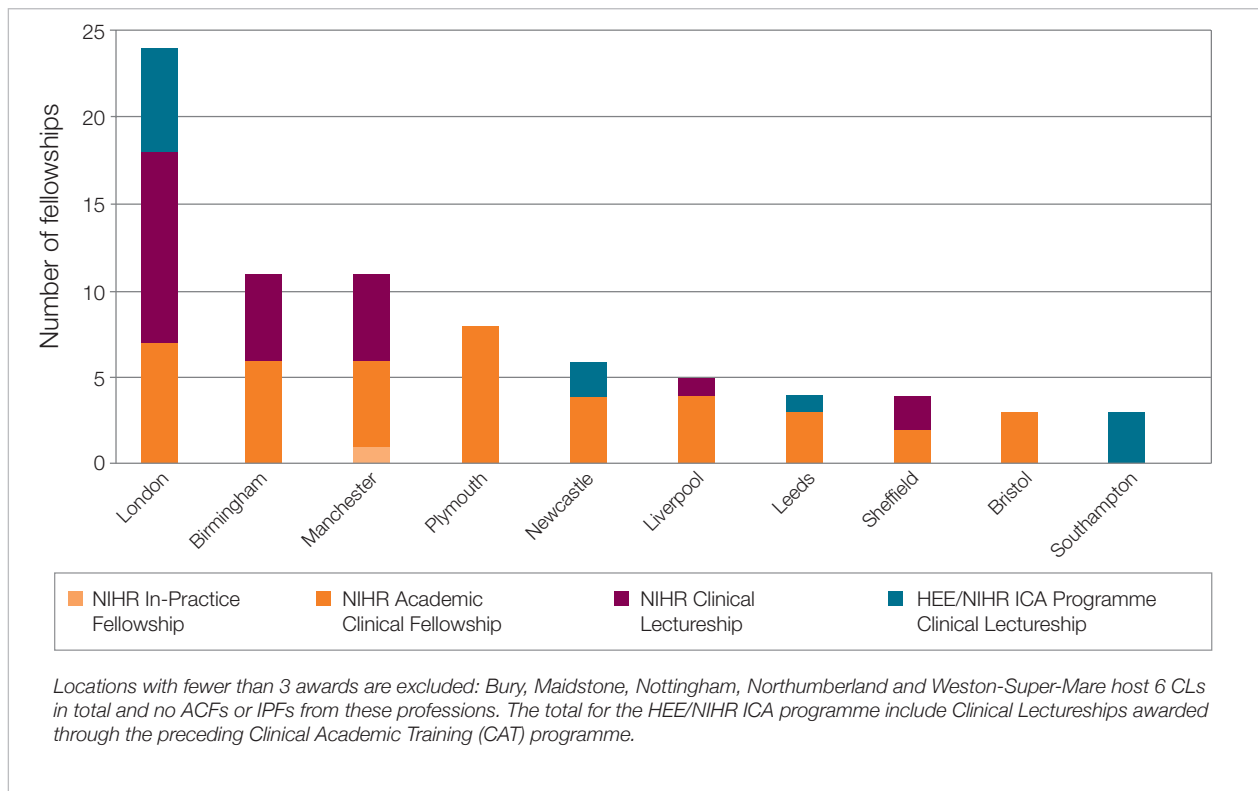


Figure 25 shows that Newcastle, Bristol and Leeds have developed small cadres of dental fellows. Although the DSC survey shows London is the region employing the largest number of dental clinical academics, the survey notes that the largest changes were seen in the North East and South West increasing staffing by 10.1 and 10.2%, respectively in the past year (though from low baselines).

In 2009 the centres with the largest cohorts of nurses/midwives were York (2 doctoral, 3 initial post-doctoral), Manchester (2 doctoral, 2 initial post-doctoral), Belfast (4 doctoral), and Newcastle (2 doctoral, 1 established independent researcher).

No pre-doctoral awards held by nurses/midwives were identified in the 2009 survey and as noted at the start of this section, a large proportion of the growth in the number of nurses/midwives identified by this survey stems from the increase at this career stage (53 of a total of 105 as in table 1). These 53 awards are clustered in 9 cities, 5 of which have no other nurse/midwife fellowships in this survey data (Brighton, Coventry, Norwich, Nottingham, Plymouth), potentially indicating these award holders may encounter a lack of senior clinical academic role-models, mentorship and routes to progress their research ambitions, though more senior academic staff may be supported via other routes not identified by this survey's methodology. Doctoral awards (36 in total) were identified across 17 cities (with 11 in London), and initial post-doctoral awards (12 in total) over 9 cities.

187 fellowships held by AHPs were identified by this survey, located across 32 cities. Most of these had AHP fellowships across a range of career stages, though two (Brighton and Coventry) had only pre-doctoral AHP fellows. The 51 doctoral fellows identified were located across 22 cities, with the largest cohorts in London (13), Birmingham (4) and at Ulster University (4), and 22 initial post-doctoral fellows across 14 cities. The largest cadre of AHPs in 2009 was located in Cardiff (4 doctoral), with 3 in London (2 initial post-doctoral, 1 to establish a research career) and Glasgow (3 doctoral). No pre-doctoral awards held by AHPs were identified in the 2009 survey, while in this survey 88 pre-doctoral awards were identified held across 9 cities.

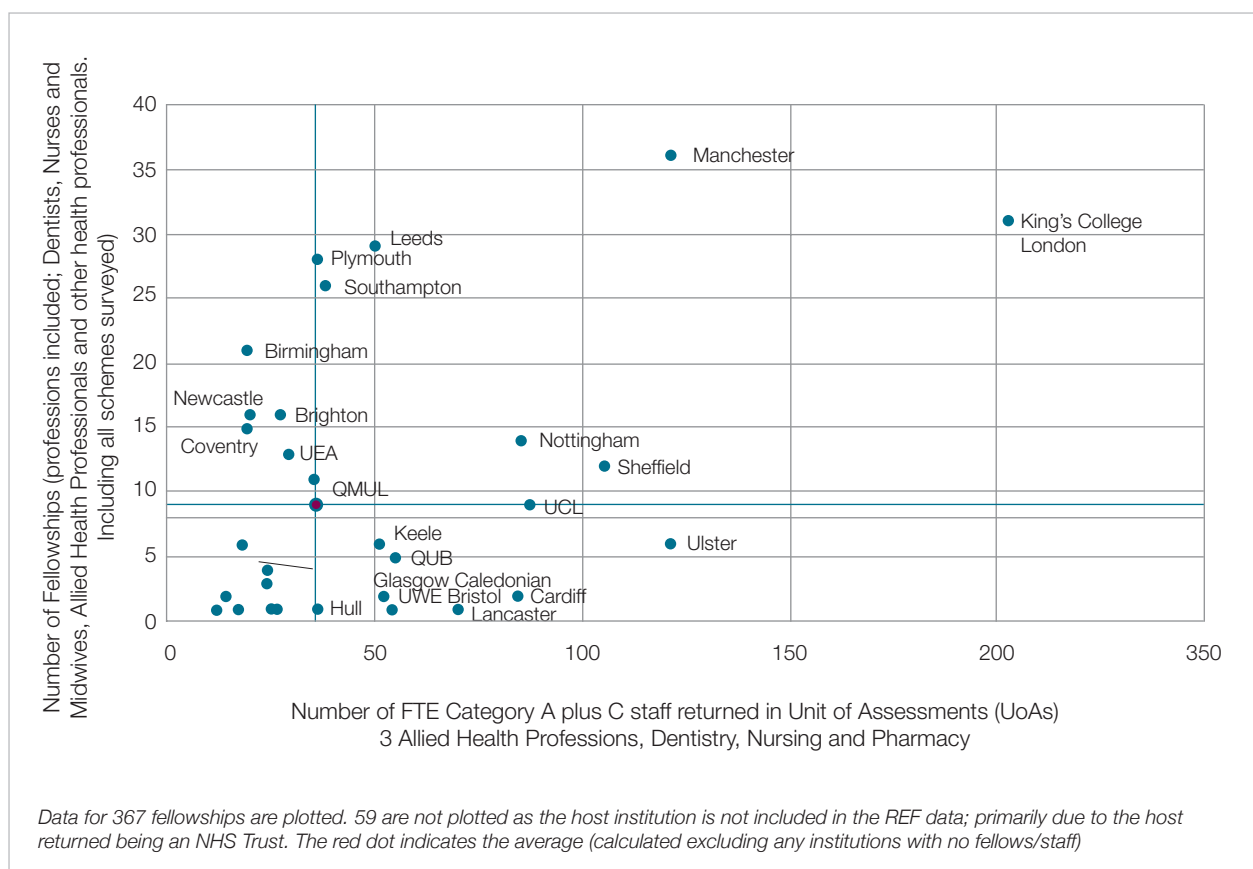
Across the four nations, a total of 408 Dentists, Nurses/midwives, AHPs, Other Health professional and veterinarians based at English institutions were identified, with 11 in Northern Ireland, 17 in Scotland, and 4 in Wales. The vast majority across all four nations are supported by the health departments.

Location of fellowships in comparison to the REF 2014 returns

The 2014 Research Excellence Framework (REF) exercise¹⁰² gathered data on the number of researchers in subject-based Units of Assessment (UoAs). One of these, UoA 3, collated data on research related to Allied Health Professions, Dentistry, Nursing and Pharmacy. While the REF data comprise all academics, not just those who are clinically qualified, they provide an indication of the academic population at each institution which can be compared with the distribution of fellowships.

Figure 28 shows the fellowships identified in this survey held by dentists, nurses and midwives, allied health professionals and other health professionals plotted against the FTE staff returns in the 2014 REF exercise for UoA 3. The average number of fellowships per institution (calculated based on those holding one or more fellowship, rather than across all institutions in the REF exercise) and average number of FTE staff returned within the Units of Assessment 3 (again calculated using the number of institutions to return staff in this UoA) is indicated on the plot.

Figure 28: Comparison of the number of fellowships held by institution and the number of staff returned in the REF 2014 in UoA 3



102. REF 2014, <http://www.ref.ac.uk/2014/results/intro/>

Eight institutions have average or higher numbers of staff and fellows, and eight lower than average numbers of both. Seven institutions returned a higher number of staff in the REF exercise than the average for this UoA but host a lower than average number of fellows, while six institutions host a higher than average number of fellowships while returning a lower than average number of staff. The latter group includes Coventry and Brighton, noted in the sections above as hosting a relatively large number of junior fellowships held by nurses, midwives and allied health professionals and having a potential lack of senior clinical academic role models. It should be noted that the average number of fellowship per institution across these professions in 9, and therefore small differences in the number of fellowships can have a large impact on an institution's position relative to the average.

Ten institutions did not return any staff in this UoA in the REF2014 exercise but host fellows from these professions (not included in Figure 28), including St George's, University of London (15 fellows), Imperial College London (6), University of Oxford (6), University of Liverpool (6), University of Edinburgh (5), and Aberdeen, Warwick, LSHTM, Exeter and Leicester, hosting 9 fellowships between them.

UKCRC HRCS Research Activities and Health Categories across professions

Figure 29a plots the number of fellowships by HRCS Research Activities and fellows' profession. Figure 29b shows the research activities by profession as a proportion across that profession. The plots in this section exclude pre-doctoral awards (such as ACFs, IPF, Masters) and NIHR Clinical Lectureships, as these are not routinely coded.

Figure 29a: Number of fellowships by HRCS Research Activities and profession

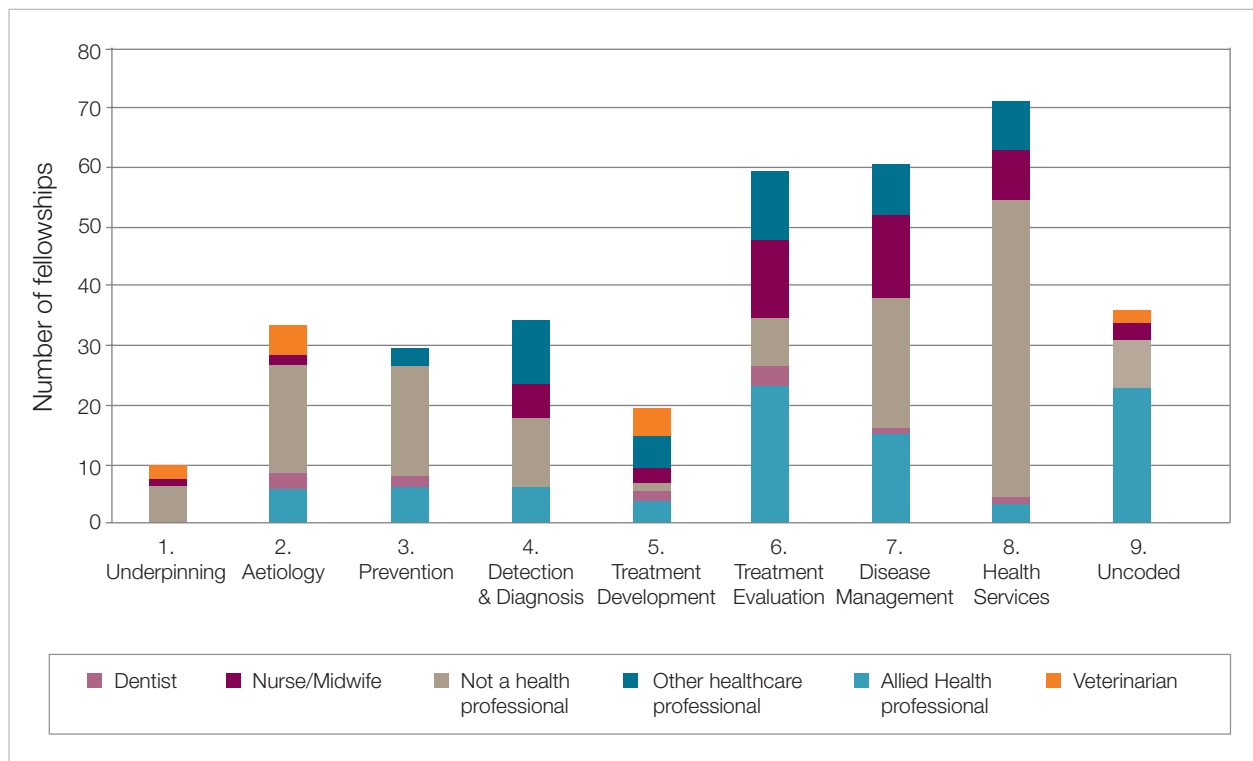
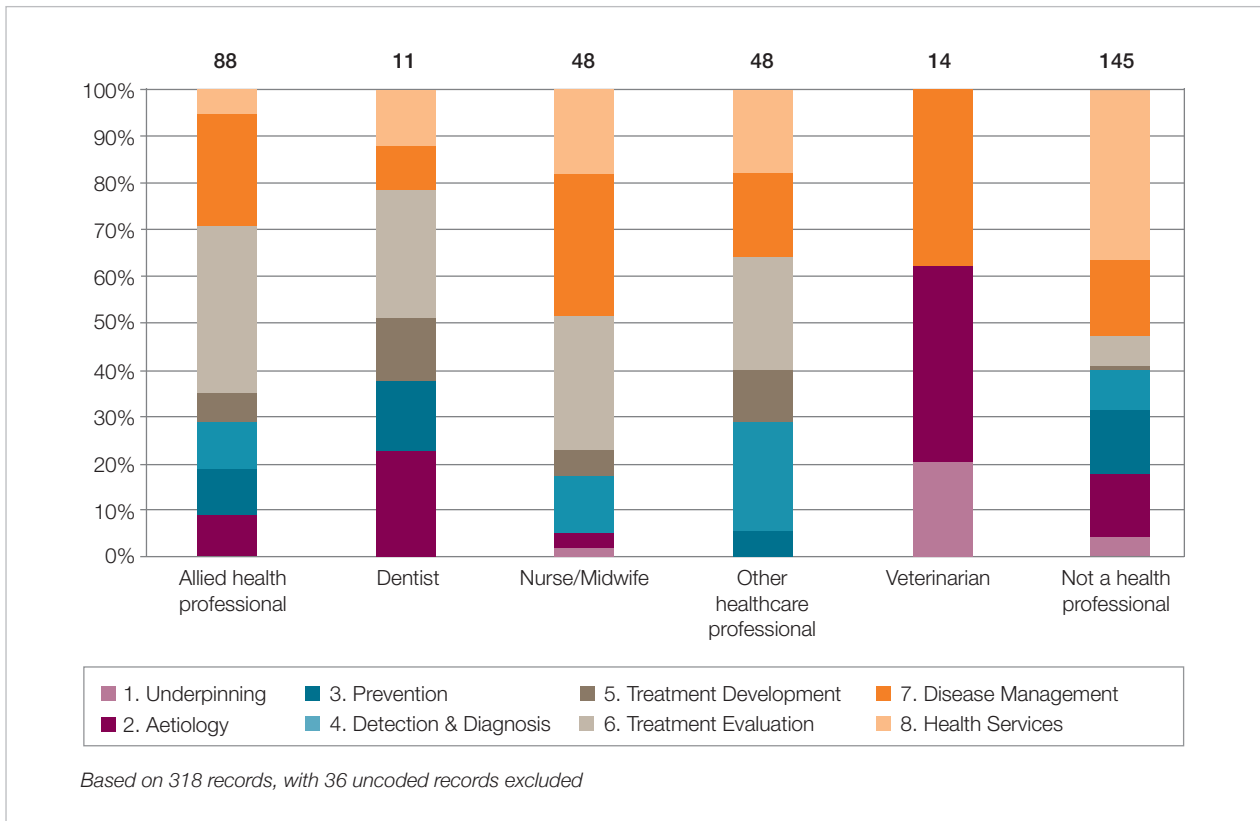


Figure 29b: Proportion of research by HRCS Research Activity and by profession



Academics in these professions tend to more applied research than medics, and with the exception of veterinarians, undertake relatively low proportions of underpinning and aetiological research. Most of the professions are engaged across a range of research activities.

Overall the non-medically qualified fellows are undertaking more translational work than the medically qualified ones, with a higher proportion undertaking research relevant to Treatment Evaluation, Disease Management and Health Care Services.

HRCS Health Categories analysed by Profession

Figure 30a plots the number of fellowships by HRCS health category and profession. Figure 30b shows the research activities by profession as a proportion across that profession.

Figure 30a: Number of fellowships by HRCS Health Categories and profession

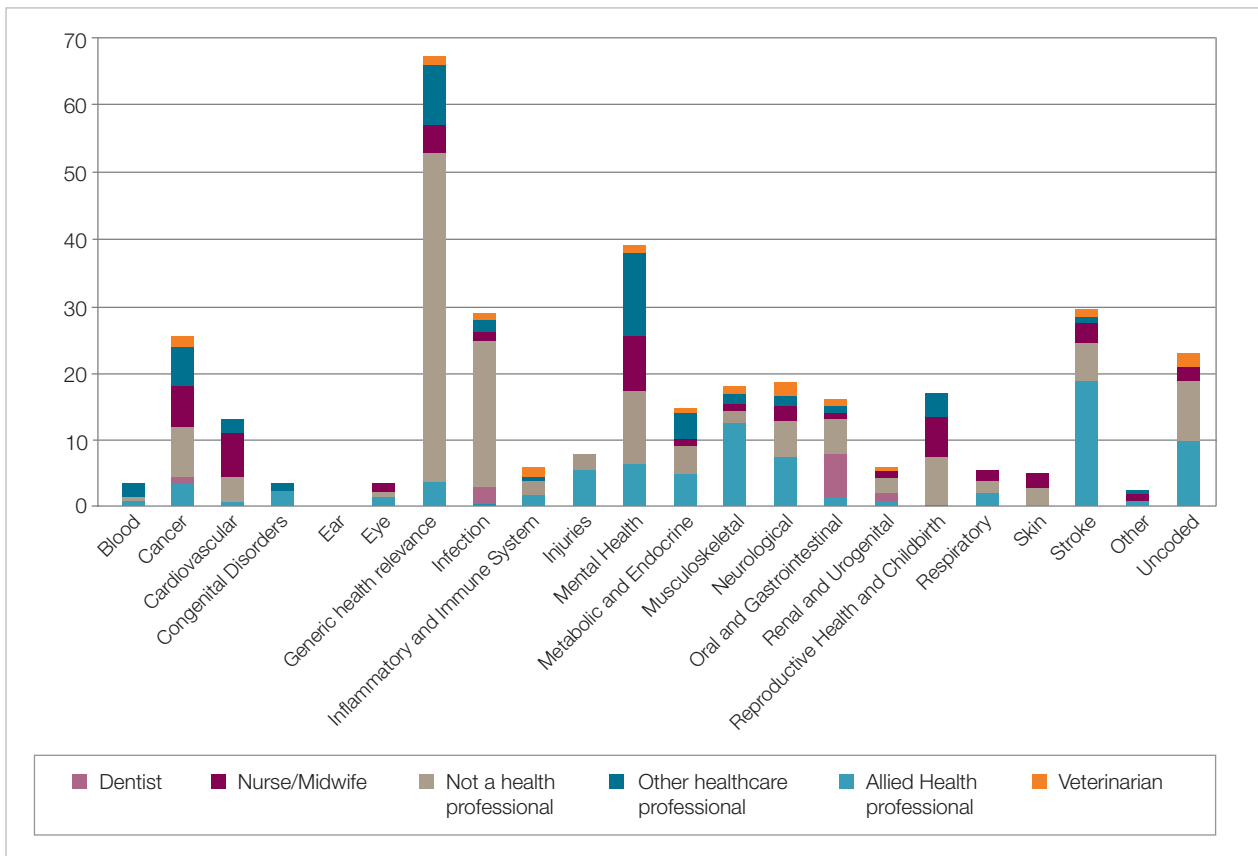


Figure 30b: Proportion of research by HRCS Health Category and by profession

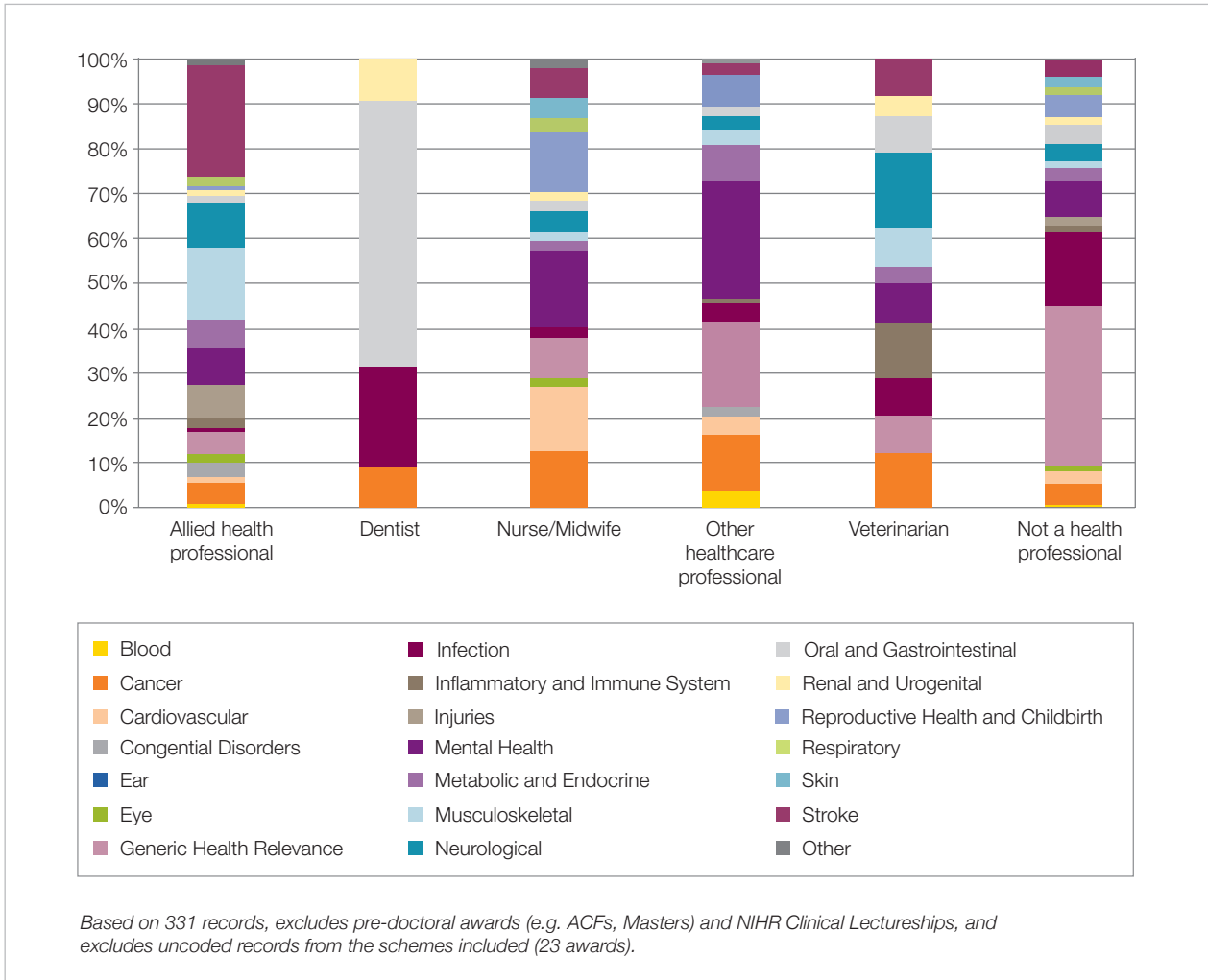


Figure 30b demonstrates engagement across health categories by these professions, with the exception of dentists, who as might be expected, focus on Oral and Gastrointestinal research. Across the professions there is a high level of research of generic health relevance, and strong interest in mental health, stroke and infection research.



8. Conclusions and recommendations

8. Conclusions and recommendations

This survey was designed to provide an overview of current UK-wide investment supporting clinical and health research fellowships and to understand changes to the landscape since a similar exercise undertaken in 2009.

Embarking on a clinical academic career

The introduction of training pathways across the UK to integrate both clinical and academic training has resulted in major improvements to clinical academic training, with widened opportunities to undertake pre-doctoral and doctoral research.

The number of medically qualified fellows supported at these career stages has markedly increased; at the pre-doctoral stage the numbers have increased three-fold due to the expansion of the number of NIHR Academic Clinical Fellowship posts, and a number of funders have increased their support at the doctoral level, resulting in an increase of over 30% in doctoral-level support.

The increased numbers of allied health professionals and nurses/midwives supported at these early career stages is encouraging, and points to the impact of the ICA HEE/NIHR Integrated Clinical Academic Programme for non-medical healthcare professions.

The number of dentists supported to undertake pre-doctoral or doctoral research has increased almost five-fold since 2009, though remains relatively low in comparison to the other professions surveyed. Veterinarians were included for the first time in the 2017 data; a low number were identified across the partners in this survey.

The number of fellowships supporting initial post-doctoral researchers has almost doubled since 2009, indicating an encouraging widening of support for progression after a PhD but also reflecting an extended post-doctoral career phase.

Progressing to research independence and leadership

The number of fellowships awarded to support the transition to research independence has decreased slightly, and application rates have remained static despite none of the major funders reducing their support for this level of fellowship.

The number of established researchers supported by fellowships has decreased markedly due to the discontinuation of one time-limited scheme included in the 2009 data.

In parallel with these changes, medical clinical academic staff numbers have declined in recent years and vacancies have increased¹⁰³, potentially indicating university and NHS funded posts are available to support established and senior clinical academics but there are insufficient numbers earlier in the career pathway ready to progress. 28% of clinical academic staff (952) were reported to be over the age of 55, while only 564 medically qualified fellows holding either an initial post-doctoral fellowship or a fellowship to establish a research independence were identified in this survey. This suggests that the current shortage of clinical academics will become more acute if we do not address this critical need at the transition to independence.

Although the numbers of AHPs, nurses/midwives and dentists entering the early stages of an academic career are positive so far, the sustainability of these career pathways needs consideration as it is not possible to predict if this will result in an increase in the number of leadership roles within these professions, of which there are currently very limited numbers.

103. The 2017 Survey of Medical Clinical Academic Staffing Levels
<https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf>

The clinical academic population

There is a clear appetite from women to engage in clinical academic careers, however the steep decline in the proportion of women holding post-doctoral fellowships mirrors other reports, indicating barriers to progression exist which need to be addressed. The data available on the ethnicity, nationality and other characteristics of the fellowship population are limited, and do not provide a robust picture.

The provision of research career opportunities varies regionally and across the four nations, and discrepancies remain across professions.

There is a high concentration of awards in the golden triangle, which follows research investment¹⁰⁴ and level of clinical academic staffing¹⁰⁵, with little change in the proportion of fellowships across institutions since 2009.

Overall there have been limited changes in the proportion of fellowships across medical specialities. Exceptions are General Practitioners, which have shown a marked increase, while Endocrinology, Respiratory Medicine and Public Health have shown relative decreases, as has Oncology, though the latter remains strongly supported.

Overall the fellowship projects supported have moved towards more applied research, with increases in the proportion of research focusing on detection and diagnostics, treatment evaluation and disease management.

Summary of issues and recommendations:

Core data collection was complicated. The completeness, format, ease of access and type of data held by funders varied considerably. We recommend that partners come together to agree core data that should be routinely collected to better inform future UK-wide planning including a greater understanding of patterns and trends in the UK clinical workforce. Data collection and reporting should be made more automatic and ideally reported annually, for instance linking to existing data sets such as the UK Medical Education Database¹⁰⁶.

Supporting more informed decision making, ensuring clinical academic research is viewed as an attractive career choice. There are no data which explain why and how different clinical career paths are chosen. We need to undertake formal research to better understand how aspiring clinical academics think about their future, when and how key decision points are reached and what evidence or opinion is sought to inform them. This research should place particular emphasis on understanding how we might better support increased diversity and inclusion in clinical careers including, but not limited to gender, BME, speciality, and sector. Partners should then collectively review and restructure their approaches to most effectively support key career stages.

Enhanced partnerships – funding and policy. A four-nation approach to strategic planning for clinical research careers should be adopted across Departments and funders in the UK to help deliver the vision set out in the Government's Life Sciences Innovation Strategy. This should include agreement on short term and long term indicators of success.

104. REF 2014, <http://www.ref.ac.uk/2014/results/intro/>

105. See, e.g. The 2017 Survey of Medical Clinical Academic Staffing Levels
<https://www.medschools.ac.uk/media/2026/medical-clinical-academic-staffing-levels-2017.pdf>,
Survey of Dental Clinical Academic Staffing Levels 2017

<http://www.dentalschoolscouncil.ac.uk/wp-content/uploads/2017/07/Survey-Dental-Clinical-Academic-Staffing-Levels-2017.pdf>

106. UKMED, <https://www.ukmed.ac.uk/>



9. Appendices

Appendix 1: Schemes included in the 2017 UK-Wide Survey of Clinical and Health Research Fellowships by funder and the career stage supported

Funder	Scheme	Career stage(s) ¹⁰⁷
Academy of Medical Sciences	Clinician Scientist Fellowship	4
Action Medical Research	Research Training Fellowship Scheme	2
Alzheimer's Research UK	Preparatory Clinical Research Fellowship	1
	Clinical Research Fellowship	2
British Heart Foundation	Clinical Research Training Fellowship	2
	MBPhD Studentship	2
	Intermediate Clinical Research Fellowship	4
	Senior Clinical Research Fellowship	5
	Personal Chair	6
Cancer Research UK	Clinical trial fellowship	1
	Clinical Research Training Fellowship	2
	Clinician Scientist Fellowship	3
	Advanced Clinician Scientist Fellowship	4
	Career Establishment Award	4
	Institute Group Award	5
	Senior Career Research Fellowships	5
Chief Scientist Office	Clinical Academic Fellowship	2
	Doctoral Training Fellowship	2
	Post Doctoral Fellowship	3
	Senior Clinical Academic Fellowship	5
Health and Care Research Wales	Health Fellowship Award	3
	Health Fellowship Award (NIHR)	3
Higher Education Funding Council for England	Senior Clinical Lectureship Awards	5
Health Education England/ National Institute for Health Research	HEE/NIHR Masters in Clinical Research	1
	NIHR/HEE CAT Clinical Doctoral Research Fellowship	2
	NIHR/HEE Healthcare Science Doctoral Research Fellowship	2
	HEE/ NIHR ICA Programme Clinical Doctoral Research Fellowship	2
	NIHR/HEE Healthcare Science Post Doctoral Fellowship	3
	NIHR/HEE CAT Senior Clinical Lectureship	5
	NIHR/HEE HCS Senior Clinical Lectureship	5
	HEE/ NIHR ICA Programme Senior Clinical Lectureship	5

107. 1. Pre-doctoral; 2. Doctoral; 3. Initial post-doctoral; 4. To establish a research career; 5. Established independent researcher; 6. Senior academic appointment. Where schemes support more than one career stage funders coded individual awards to the most appropriate stage.

Funder	Scheme	Career stage(s) ¹⁰⁷
Medical Research Council	Clinical Research Training Fellowship (including CRTF programmes CPT, PsySTAR, SCP3 and MARC)	2
	Clinical Research Training Fellowship Postdoc	3
	Clinician Scientist Fellowship	4
	Skills Development Fellowships	3
	Senior Clinical Fellowships	5
National Institute for Health Research	NIHR Academic Clinical Fellowship	1
	NIHR In-Practice Fellowship	1
	NIHR Research Methods : Fellowship and Internship	1
	NIHR Research Methods : Masters Studentship in Health Economics	1
	NIHR Research Methods : Masters Studentship in Medical Statistics	1
	NIHR Research Methods : Systematic Reviews Fellowship	1
	NIHR School for Primary Care Research ST3	1
	NIHR School for Primary Care Research Studentship	1, 2
	NIHR Doctoral Research Fellowship	2
	NIHR Knowledge Mobilisation Research Fellowship	2, 3, 4
	NIHR School for Primary Care Research Post-doctoral Fellowship	3
	NIHR School for Primary Care Research Transitional Research Fellowship	3
	NIHR Post Doctoral Fellowship	3
	NIHR Clinician Scientist Award	3, 4
	NIHR Clinical Trials Fellowship	3, 4
	NIHR School for Primary Care Research GPCP	4
	NIHR Career Development Fellowship	4
	NIHR Senior Research Fellowship	5
NIHR Research Professorship	6	
Public Health Agency, Health & Social Care R&D Northern Ireland	GP Academic Research Training Scheme	1
	Doctoral Fellowship Awards	2
	Career Development Award	2, 3
	Career Development Fellowship Award	4
	Clinician Scientist Award	4
Stroke Association	Junior Research Training Fellowship	2
	Postgraduate Fellowship	2
	Princess Margaret Research Development Fellowship	2
	Postdoctoral Fellowship	3
	Reader	6
	Senior Clinical Lectureship for Medical Professionals	5

Funder	Scheme	Career stage(s) ¹⁰⁷
Wellcome Trust	PhD Training Fellowship for Clinicians	2
	Research Training Fellowship	2
	Translational Medicine & Therapeutics Programme Clinical PhD Fellow	2
	Early Postdoctoral Training Fellowship for Clinician Scientists	3
	Postdoc Training Fellowship for Clinicians	3
	Postdoctoral Fellowship for MB/PhD Graduates	3
	Clinical Research Career Development Fellowship	3, 4
	Intermediate Clinical Fellowship	4
	Senior Research Fellowship Clinical	5
	Senior Research Fellowship Clinical Renewal	5
	Principal Research Fellowship (New)	5
	Principal Research Fellowship Renewal	5

Appendix 2: Schemes included in the OSCHR UK-wide Survey of Health Research Fellowships 2009 by funder and career stage supported

Funder	Scheme	Career stage(s) ¹⁰⁸
Academy of Medical Sciences	Clinician Scientist Fellowship	4
	Senior Clinician Scientist Fellowship	4
Arthritis Research campaign	AHP training fellowship	2
	Clinical research fellowship	2
	Orthopaedic clinical research fellowship	2
	Clinician scientist fellowship	4
British Heart Foundation	Clinical Research Training Fellowship	2
	MB/PhD studentship	2
	PhD studentship	2
	Intermediate Fellowship	4
	Ionescu Fellowship	4
	Travel Fellowship	4
	Clinical Research Leave Fellowship	5
	Senior Fellowship	5
	BHF Chair	6
Cancer Research UK	Clinical Research Training Fellowship	2
	Graduate Training Fellowship in Cancer Public Health & Epidemiology	2
	Molecular Pathology Fellowship	2
	Nurse Research Training Fellowship	2
	Institute Core Grant	2,4,5
	Post-doctoral fellowship in population or behavioural sciences	3
	Clinician scientist fellowship	4
	Senior Clinical Research Fellowship	5
	CRUK Chair	6
	Personal Support	6
	Principal Research Fellowship	6
Chief Scientist Office, Scotland	Clinical Academic Fellowship	2
	Pre-Doctoral Fellowship	2
	Research Training Fellowship	2
	Studentship	2
	Post Doctoral Fellowship	3
	Primary Care Research Career Award	4
Economic and Social Research Council	Joint ESRC/MRC Studentship	2

108. 1. Pre-doctoral; 2. Doctoral; 3. Initial post-doctoral; 4. To establish a research career; 5. Established independent researcher; 6. Senior academic appointment. Where schemes support more than one career stage funders coded individual awards to the most appropriate stage.

Funder	Scheme	Career stage(s) ¹⁰⁸
Higher Education Funding Council for England	Clinical Senior Lectureship Award	5
Public Health Agency, Health & Social Care R&D Northern Ireland	Doctoral Fellowships	2
	NIHR Clinician Scientist Award	4
	NIHR-Senior Research Fellowship	5
Medical Research Council	Clinical Training Fellowship	2
	Special Training Fellowship in Health Services Research	2
	Bioinformatics Training Fellowship	3
	Career Development Award – Biostatistics	3
	ESRC/MRC Interdisciplinary Postdoctoral Fellowship	3
	ESRC/MRC/NIHR/ Health Economics Fellowship	3
	Clinician scientist fellowship	4
	Senior Clinical Fellowship	5
	Senior Non-Clinical Fellowship	5
	Clinical Research Professorship	6
	Non-Clinical Research Professorship	6
National Institute for Health Research	NIHR Academic Clinical Fellowship	1
	NIHR In-Practice Fellowship	1
	PAS Research Development Award	2
	NIHR Research Training Fellowship	2
	NIHR Clinical Lectureship	3
	PAS Post-doctoral development award	3
	NIHR Post Doctoral Fellowship	3
	Career Development Fellowship	4
	NIHR Clinician Scientist Award	4
	Public Health Clinician Scientist	4
	PAS Clinician Scientist Award	5
	NIHR Senior Research Fellowship	5
Wellcome Trust	PhD Programme for Clinicians	2
	Research Training Fellowship	2
	Advanced Fellowships for Medical and Dental Graduates	4
	Clinician Science Fellow	4
	Intermediate Clinical Fellowship	4
	Senior Clinical Fellowship	5
	Principal Research Fellowship	6
Welsh Office for Research of Development	Health Studentship Scheme	2
	Research Capacity Building Collaboration Wales	2,3
	NIHR Fellowship Scheme	3
	DoH National Clinician Scientist	4
	Healing Foundation fellowship	4

Appendix 3: Fellowship award levels 2014-2017

Table 4 shows the number of fellowships awarded over 3 years between April 2014 and March 2017 to indicate recent award levels, and the comparable data gathered for the 2009 survey.

Table 4: Number of awards made in the 3 years prior to the survey date

Career stage supported	Number of awards 2014/15 – 2016/17	Number of awards made 2006/07 – 2008/09
1. Pre-doctoral	2441	578
2. Doctoral	850	559
3. Initial post-doctoral Scheme spans stages 3 & 4	908	334
	87	n/a
4. To establish a research career	125	117
5. Established independent researcher ¹⁰⁹	70	154
6. Senior academic appointment Spanning other multiple career stages	33	9
	28	n/a
Grand Total	4542	1751

Award durations vary, usually between 3 and 5 years for the schemes listed, generally with more senior awards having a longer duration, therefore these data would not be expected to reflect the proportion of live fellowships across career stages in Figure 1 (although there will be significant overlap between the populations identified in the table above and in Table 1).

The number of doctoral awards made over 3 years mirrors the number of live doctoral fellowships identified (787) which is expected as these awards are usually for 3 or 4 years.

A higher number of initial post-doctoral awards has been made than doctoral awards, which may reflect that a number of these have a shorter duration than 3 years. As 908 awards have been made in the last three years and 587 live awards were identified by this survey, this indicates that a number of the 908 awards made had already terminated. Some new award decisions may have been made but the fellows had yet to start and were not yet active at the point of survey, though this is possible for all types of award.

Awards to establish a research career are generally 4 or 5 years in duration, with some offering the possibility of extension/renewal. The total of 125 awards is barely higher than the 117 awarded in the 3 years preceding the last report, indicating little growth in the number of fellows supported at this stage overall, although some additional schemes overlap this career stage (87 schemes span career stages 3 and 4) and may support some additional fellows. Section 6 explores this career stage for medically qualified fellows in further detail.

The award numbers for established researchers have decreased due to the discontinuation of HEFCE's time-limited CSLA schemes, which contributed 115 of the 154 awards identified in the 2009 survey, indicating that other funders have increased the number of awards made at this career stage, as is the case for senior clinical academic appointments. The support across career stages by profession are discussed in more detail in Sections 6 and 7.

¹⁰⁹. The data on awards made between 2006/07-2008/09 excluded Wellcome Senior Clinical Fellow renewals. These have been included in the 2014/15-2016/17 data. Of the total of 70, 11 were Wellcome Senior Clinical Fellow renewals. Both the 2009 and 2017 surveys included renewals in the live awards data.

Appendix 4: Categorisation of medical and surgical specialties in this survey

This survey has reported data using the specialties below. Where more than one specialty or subspecialty is included within a heading they are listed below it.

Anaesthetics	Haematology	Occupational medicine
Clinical genetics	Medical Education	Radiology
Endocrinology and diabetes mellitus	Neurology	Renal medicine
Gastro-enterology	Public Health	Respiratory medicine
General practice	Obstetrics and gynaecology	Rheumatology
Cardiology		
Cardiology	Paediatric cardiology	
Physicians/Medicine		
Acute internal medicine	General (internal) medicine	Pharmaceutical medicine
Allergy	Genito-urinary medicine	Physicians/Medicine
Audio vestibular medicine	Geriatric medicine	Rehabilitation medicine
Clinical neurophysiology	Immunology	Sport and exercise medicine
Clinical pharmacology and therapeutics	Nuclear medicine	
Dermatology	Palliative medicine	
Infection/Microbiology		
Infection/Microbiology	Medical microbiology	Medical virology
Infectious diseases	Medical microbiology and virology	
Oncology		
Clinical oncology	Medical oncology	Non-clinical oncology
Ophthalmology		
Medical ophthalmology	Ophthalmology	
Other		
Aviation and space medicine	Emergency medicine	Medical psychotherapy
Community sexual and reproductive health	Intensive care medicine	Tropical medicine
Paediatrics & Child Health		
Paediatrics	Paediatrics & Child Health – other	
Pathology		
Chemical pathology	Forensic histopathology	Paediatric and perinatal pathology
Diagnostic neuropathology	Histopathology	
Psychiatry		
Child and adolescent psychiatry	General psychiatry	Psychiatry – other
Forensic psychiatry	Old age psychiatry	Psychiatry of learning disability
Surgery		
Cardio-thoracic surgery	Otolaryngology	Trauma and orthopaedic surgery
General surgery	Paediatric surgery	Urology
Neurosurgery	Plastic surgery	Vascular surgery
Oral and maxillo-facial surgery	Surgery – other	

Appendix 5: Research funders involved in this research

The **Medical Research Council** (MRC) is a publicly-funded organisation which supports research across the spectrum of medical sciences in universities and hospitals and through its own units, centres and institutes. The MRC's mission is to improve human health through world class medical research. It works to achieve this through training and developing the next generation of biomedical research leaders by supporting outstanding individuals at crucial points in their research careers, aligned to national strategic skills objectives.

Medical Research Council (Swindon office), 2nd Floor David Phillips Building, Polaris House, North Star Avenue, Swindon, SN2 1FL Medical Research Council (London office), 14th Floor, One Kemble Street, London, WC2B 4AN Phone (+44) (0)1793 416200 www.mrc.ac.uk

The **Academy of Medical Sciences** is the independent body in the UK representing the diversity of medical science. Our mission is to promote medical science and its translation into benefits for society. The Academy's elected Fellows are the United Kingdom's leading medical scientists from hospitals, academia, industry and the public service. We work with them to promote excellence, influence policy to improve health and wealth, nurture the next generation of medical researchers, link academia, industry and the NHS, seize international opportunities and encourage dialogue about the medical sciences.

Academy of Medical Sciences, 41 Portland PI, London W1B 1QH Phone (+44) (0)20 7631 0200 www.acmedsci.ac.uk

Action Medical Research is a UK-wide charity saving and changing children's lives through medical research. We fund a broad range of cutting-edge medical research most likely to deliver real benefit to babies, children and young people. With the help of our supporters, we raise funds to make vital research possible. We want to make a difference in premature birth, pregnancy complications and treating sick and vulnerable babies, as well as in preventing infections and helping children affected by disabilities, disabling conditions and rare diseases.

Action Medical Research, Vincent House, Horsham, West Sussex, RH12 2DP, United Kingdom. Tel: 01403 210406. www.action.org.uk

Alzheimer's Research UK is Europe's largest charity funder of dementia research, investing in biomedical research into the causes, diagnosis, prevention and treatment of the diseases that cause dementia. Since our creation we have invested over £79 million across 660 projects spread over 3 continents. Backed by our passionate scientists and supporters, we're challenging the way people think about dementia, uniting the big thinkers in the field and funding the innovative science that will deliver a cure.

Alzheimer's Research UK, 3 Riverside, Granta Park, Cambridge, CB21 6AD Phone (+44) (0) 300 111 5555 www.alzheimersresearchuk.org

The **British Heart Foundation** (BHF) is the single largest independent funder of cardiovascular research in the UK. Its vision is a world in which people do not die prematurely or suffer from cardiovascular disease. The BHF supports research into the causes, prevention, diagnosis and treatment of cardiovascular disease through a large portfolio of research grants and personal awards. It is committed to supporting researchers at all stages of their career and to developing the next generation of cardiovascular researchers by the provision of flexible training and fellowship schemes.

British Heart Foundation, Greater London House, 180 Hampstead Road, London NW1 7AW Phone (+44) (0)20 7554 0000 www.bhf.org.uk

Cancer Research UK is the world's leading cancer charity dedicated to saving lives through research. Cancer Research UK's pioneering work into the prevention, diagnosis and treatment of cancer has helped save millions of lives. Cancer Research UK receives no government funding for its life-saving research. Every step it makes towards beating cancer relies on every pound donated. Cancer Research UK has been at the heart of the progress that has already seen survival in the UK double in the last forty years. Today, 2 in 4 people survive their cancer for at least 10 years. Cancer Research UK's ambition is to accelerate progress so that 3 in 4 people will survive their cancer for at least 10 years within the next 20 years. Cancer Research UK supports research into all aspects of cancer through the work of over 4,000 scientists, doctors and nurses. Together with its partners and supporters, Cancer Research UK's vision is to bring forward the day when all cancers are cured.

Cancer Research UK, Angel Building, 407 St John Street, London EC1V 4AD
Phone (+44) (0)20 7242 0200 www.cancerresearchuk.org

The **Chief Scientist Office (CSO)** is part of the Scottish Government Health Directorates. Its vision is to support and increase the level of high-quality health research conducted in Scotland for the health and financial benefits of the population. CSO looks to achieve this by enabling NHS Scotland to host and participate in research through investment in infrastructure, research workforce capacity, scientific and management capability. In addition CSO also look to build on the strong science infrastructure that exists across Scottish Universities. CSO fund research studies generated by both the University and NHS research community and also work with other funders to maximize funding opportunities for health researchers in Scotland.

Chief Scientist Office, Ground Rear, St Andrews House, Regent Road, Edinburgh, EH1 3DG
www.cso.scot.nhs.uk

Health and Care Research Wales is a national, multi-faceted, virtual organisation funded and overseen by the Welsh Government's Research and Development Division. It provides an infrastructure to support and increase capacity in research and development (R&D), runs a range of responsive funding schemes and manages the NHS R&D funding allocation. Health and Care Research Wales' innovative infrastructure and portfolio of funded programmes consolidates, updates and builds on what has been created and delivered to date, placing Wales at the international forefront of health and social care research. The new infrastructure allows a sharper focus on Wales' current and emerging areas of excellence and will ensure an integrated, interdisciplinary, interagency, all-Wales approach, from research development to changes in practice based on research evidence.

**Health and Care Research Wales, 02920 230457, healthandcareresearch@wales.nhs.uk,
www.healthandcareresearch.gov.wales/**

The **Health and Social Care Research and Development (HSC R&D) Division** is part of the Public Health Agency in Northern Ireland. Established in 2009, it is responsible for the administration and coordination of the HSC R&D budget on behalf of Department of Health, Northern Ireland (DoH NI). Its work is based on the principle that the best health and social care must be underpinned by knowledge, based on well conducted research, which can then be applied in the delivery of care. The HSC R&D Division supports researchers based in Northern Ireland as well as those in Health and Social Care Trusts or other bodies who use the outputs from research findings. While the effectiveness of research performance and application depends ultimately on the skill and ability of individual researchers and users of research, the HSC R&D Division ensures that researchers can work within an environment that supports, encourages and facilitates them. HSC R&D Division has a local focus but acknowledges that health and social care research is a global endeavour, and so, forms effective partnerships and close working relationships with our counterparts in the other UK administrations and in Ireland, the European Union and the United States of America.

HSC R&D Division, Public Health Agency, 12-22 Linenhall Street, Belfast BT2 8BS.
Phone (+44) (0)28 9536 3490 <http://www.research.hscni.net/>

The **Higher Education Funding Council for England** (HEFCE) funds and regulates universities and colleges in England. We invest on behalf of students and the public to promote excellence and innovation in research, teaching and knowledge exchange. HEFCE aims to create and sustain the conditions for a world-leading system of higher education which transforms lives, strengthens the economy, and enriches society.
www.hefce.ac.uk/

The **National Institute for Health Research** (NIHR) is funded by the Department of Health to improve the health and wealth of the nation through research. Since its establishment in April 2006, the NIHR has transformed research in the NHS. It has increased the volume of applied health research for the benefit of patients and the public, driven faster translation of basic science discoveries into tangible benefits for patients and the economy, and developed and supported the people who conduct and contribute to applied health research. The NIHR plays a key role in the Government's strategy for economic growth, attracting investment by the life-sciences industries through its world-class infrastructure for health research. Together, the NIHR people, programmes, centres of excellence and systems represent the most integrated health research system in the world.

National Institute for Health Research, Room 132, Richmond House, 79 Whitehall, London, SW1A 2NS
www.nihr.ac.uk

The **Stroke Association** are the UK's leading charity dedicated to conquering stroke. We rely on your support to provide vital services, campaign for better stroke care and to find better treatments. There are over 1.2 million stroke survivors in the UK with 100,000 strokes happening in the UK each year. That's one stroke every five minutes. Even though you are now twice as likely to survive a stroke compared to 20 years ago, stroke is still the fourth single largest cause of death in the UK. We know we need to change how people think about stroke and challenge the myths surrounding it. We push for greater awareness of stroke and its warning signs and campaign for better stroke care. We believe strokes can and should be prevented, everyone has the right to make the best recovery they can after stroke and research has the power to save lives and ensure people make the best recovery they can. These beliefs drive us forward to change the world for people affected by stroke.

Stroke Association, Stroke Association House, 240 City Road, London EC1V 2PR www.stroke.org.uk

The **Wellcome Trust** is an independent global charitable foundation dedicated to improving human health that was established in 1936 under the will of Sir Henry Wellcome. Its interests range from science to the history of medicine to public engagement, and it has an annual expenditure on charitable activities of around £700 million per year. Its philosophy is that good health makes life better, and it is seeking to improve health for everyone by helping great ideas to thrive. It seeks to achieve this by supporting thousands of curious, passionate people all over the world to explore great ideas, at every step of the way from discovery to impact.
Wellcome Trust, Gibbs Building, 215 Euston Rd, London NW1 2BE Phone (+44) (0)20 7611 8888
www.wellcome.ac.uk

Appendix 6: Survey Steering Group and Working Group Membership

Steering Group

Dr Katie Petty-Saphon (Chair), Medical Schools Council
Dr Suzanne Candy, Academy of Medical Sciences
Dr Anne-Marie Coriat, Wellcome Trust
Dr Lisa Cotterill, National Institute for Health Research, Trainees Coordinating Centre
Dr Joanna Jenkinson, Medical Research Council
Professor David Jones, NIHR Dean of Newcastle University, Faculty of Medical Sciences
Dr Karen Noble, Cancer Research UK

Working Group

Dr Julia Dickinson (Chair), Medical Research Council
Dr Shannon Amoils, British Heart Foundation
Dr Dawn Biram, National Institute for Health Research, Trainees Coordinating Centre
Dr Andrew Clempson, Association of Medical Research Charities
Dr Catherine Cowell, Cancer Research UK
Dr Melissa Lewis-Brown, Academy of Medical Sciences
Dr Rachel Macdonald, Academy of Medical Sciences
Dr Caroline Magee, National Institute for Health Research, Trainees Coordinating Centre
Dr Clare McVicker, Wellcome Trust
Jennie Scott, Medical Research Council
Peter Tang (Secretariat), Medical Schools Council

