

# Starter Grants for Clinical Lecturers: Research outputs and impact 2020

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# Starter Grants for Clinical Lecturers: Research outputs and impact

**April 2019 - March 2020**

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# Background

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In 2008 the Academy partnered with the Wellcome Trust to launch the Starter Grants for Clinical Lecturers scheme. The scheme helps research-active clinical lecturers to build and establish their research portfolios and provides the means to generate data to support longer-term fellowships and awards.

Award holders receive:

- Funds of up to £30,000 over one to two years.
- Mentorship through the Academy's established mentoring scheme.
- A comprehensive career support programme through the Academy's career development activities, such as the SUSTAIN programme, scientific meetings, and career development events and training. In 2013 the Academy launched the Winter Science Meeting – a meeting designed to bring together Starter Grant holders. This meeting has been a huge success and as a result has now been extended to all Academy awardees.

Unsuccessful applicants to the Starter Grants scheme receive feedback and are allowed to resubmit their application at a future round. Additionally, they can participate in the Academy's mentoring scheme. Over the past 11 years, the scheme has evolved and encourages applications from Clinical Lecturers across all medical specialties including dentists, general practitioners and veterinarians.

The Starter Grants Selection Panel meets twice a year and supports on average 45 new clinical lecturers each year, awarding over £1.3 million annually.

Since its launch, a funding consortium has been formed to support the Starter Grants scheme; currently comprising the Wellcome Trust, Medical Research Council, British Heart Foundation, Versus Arthritis, Diabetes UK, the British Thoracic Society (through the Helen and Andrew Douglas bequest), and the Association of Physicians of Great Britain and Ireland, to whom we are grateful for their continued support.

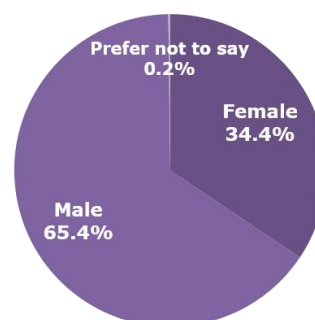
## Starter Grants at a glance

23 grant selection panels



£14.9M  
awarded in grants

523 grant awardees

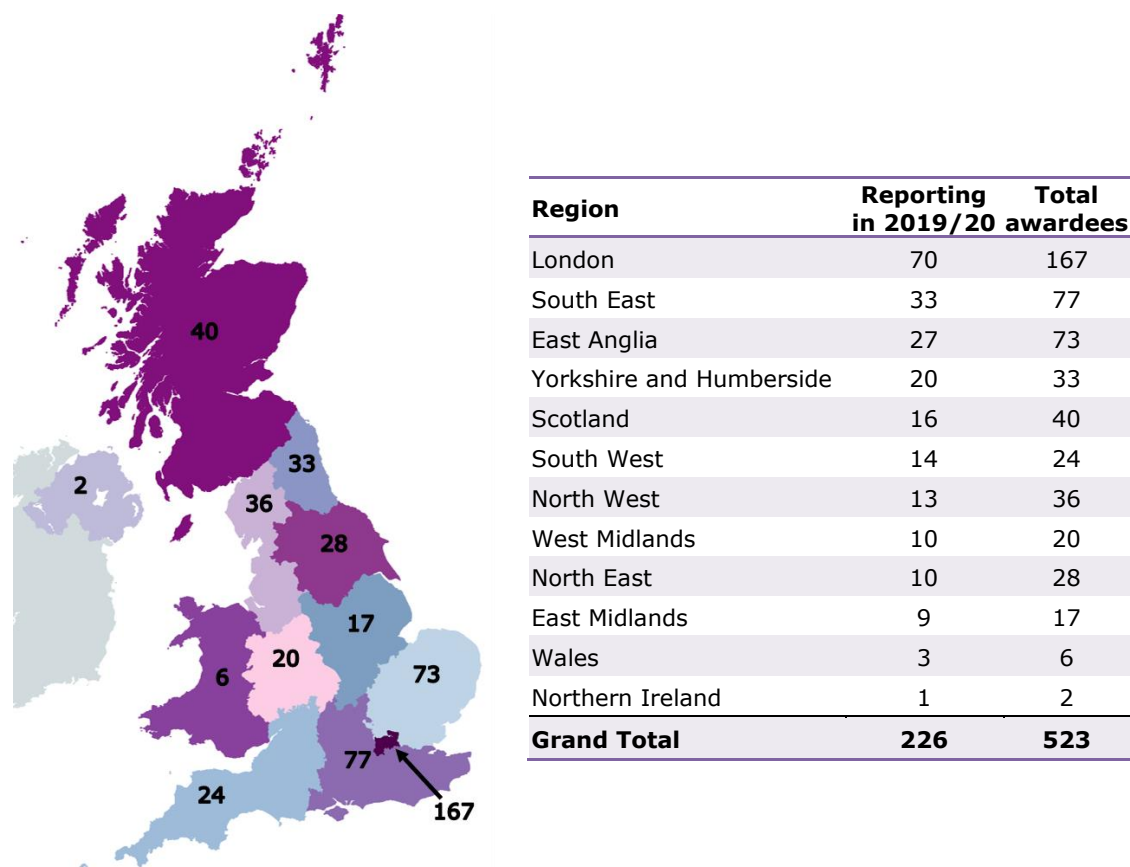


To date, we have awarded over £14.9 million to 523 clinical lecturers through 23 grant rounds, with round 24 underway. The scheme supports clinical lecturers from a broad range of clinical specialties, as summarised in Table 1.

<b>Awardee clinical specialty</b>	<b>Reporting in 2019/20</b>	<b>Total awardees</b>
Surgery	23	69
Cardiology	20	43
Neurology	20	48
Infectious diseases	18	24
Psychiatry	12	25
Paediatrics	11	22
Haematology	10	14
Respiratory Medicine	10	21
Obstetrics and Gynaecology	10	23
Rheumatology	9	14
Oncology	9	32
Gastroenterology	8	17
Endocrinology	8	15
Ophthalmology	7	17
Dental Medicine	6	14
Public Health	5	7
Radiology	5	6
Nephrology	4	23
Veterinary Medicine	4	9
General Practice	4	7
Anaesthetics and intensive care	3	13
Pathology	3	12
Trauma & Orthopaedics	3	5
Geriatric Medicine	3	5
Clinical Genetics	2	7
Urology	2	8
Palliative Medicine	2	3
Clinical Pharmacology	1	4
Otolaryngology	1	1
Hepatology	1	2
Immunology	1	2
Tropical medicine	1	1
Clinical neurophysiology	0	1
Dermatology	0	4
Medical oncology	0	3
Renal medicine	0	2
<b>Grand Total</b>	<b>226</b>	<b>523</b>

**Table 1** – Clinical specialty of Starter Grant holders reporting in the 2019/20 submission window and in total since Round 1 in 2009.

The geographic distribution of these awards for rounds 1 to 23 are presented in Figure 1, while the gender split of applicants and awardees is presented in Table 2.



**Figure 1** – Geographical distribution of award holders

Applications considered by Panel		
Gender split	Totals	Average by round
Male	833	36
Female	458	20
Prefer not to say (PNS)	2	
<b>TOTAL</b>	<b>1293</b>	
Percentage Male	64.4%	
Percentage Female	35.4%	
Percentage PNS	0.2%	

Awards offered and accepted		
Gender split	Totals	Average by round
Male	342	15
Female	180	8
PNS	1	
<b>Total</b>	<b>523</b>	
Percentage Male	65.4%	
Percentage Female	34.4%	
Percentage PNS	0.2%	

**Table 2** – Gender split of applicants and awardees across all rounds (Round 1 to Round 23)

## Aims of the report

With this report we aim to summarise the outputs and impact of our Starter Grant for Clinical Lecturers funding scheme, as reported by the award holders on the Researchfish platform. The report pulls together quantitative analysis of data from Researchfish, as well as case studies drawn from awards that are either ongoing or were recently completed.

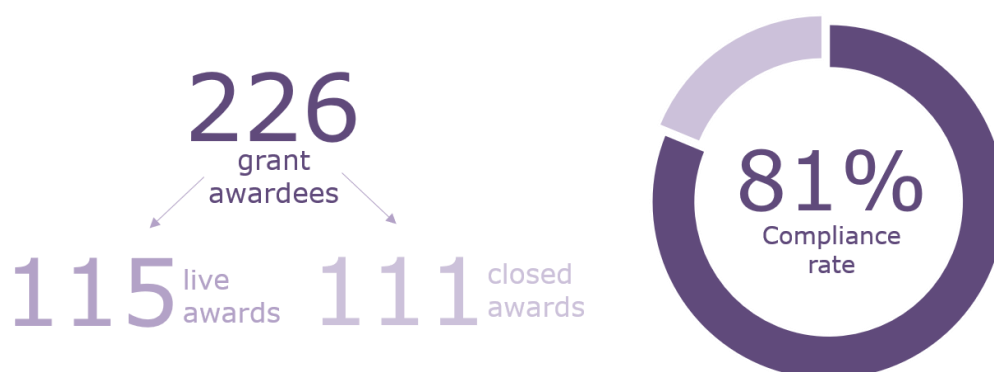
By outlining the outputs reported by the award holders we hope to demonstrate the impact of the scheme in generating new knowledge and helping retain clinical researchers within academia by supporting their development to more senior research-active and independent positions. The analysis is complemented by the case studies, through which we explore individual awards in greater detail, and beyond the most recent submission window. Each case study presents the researcher and research supported by the grant and the impact of the award on the award holder's career.

### How the data is captured

The Academy adopted Researchfish in 2013 as the sole reporting system for its grant schemes, replacing end of grant reports. Award holders are required to submit data to Researchfish annually throughout the lifetime of their grant and for the year immediately following the close of their award; they are also requested to continue doing so for up to five years after their award finishes. Researchfish submissions are completed between January and March of each year.

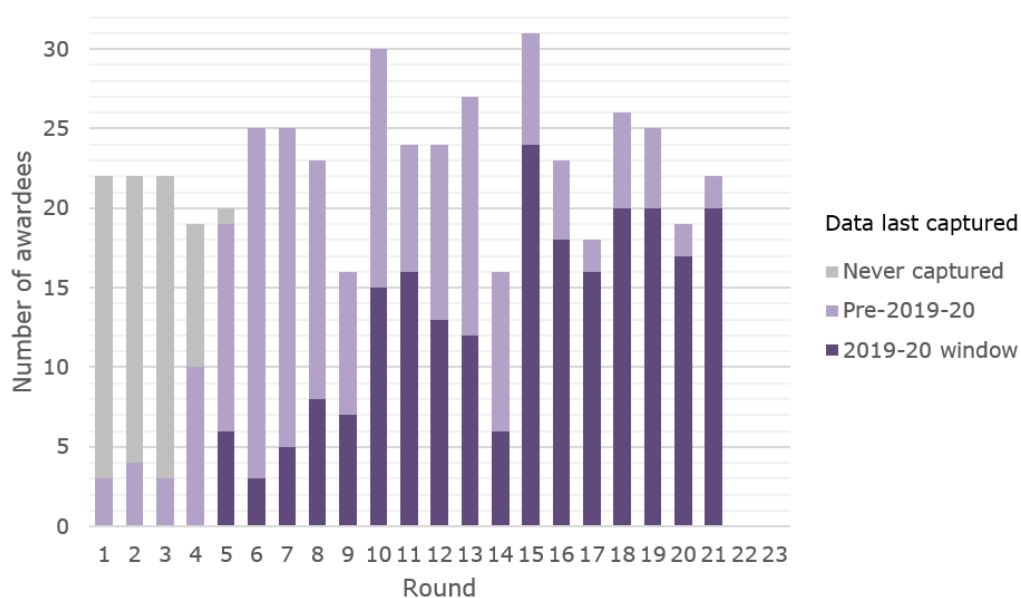
This submission window captured new research outputs reported between April 2019 and March 2020. It is important to note that some outputs may pre-date the reporting period but were only reported in this submission window.

### 2019/20 reporting statistics



In total, 226 Starter Grant holders reported to us in the latest submission window, representative of 115 active awards and 111 closed awards. Of all the award holders that are required to submit a report, 81% complied and submitted. As we adopted Researchfish in 2013, not all awards have been captured on the system. The majority of starter grants awarded from round 5 onwards (since the June 2011 Panel meeting) have been captured and there has been a steady increase of grant holders reporting per round since the adoption of the platform (Figure 2). As rounds 22 and 23 were awarded shortly before and after the 2019/20 submission window, we will receive and

analyse the first reports from these grant holders in the 2020/21 window. More than 80% of awardees from the most recent rounds (round 19: 80% of awardees; round 20: 89.5%; round 21: 90.9%) reported in the latest window, while round 15 contributed the highest number of awardees reporting (24, corresponding to 77.7% of the awardees of that round, June 2016 Panel meeting).



**Figure 2** – Number of awards captured in Researchfish

**Notes on the analysis** Two time periods ('2019/20' and 'To date') have been used for the analysis of the Starter Grants Researchfish data, which span all rounds up until round 21 of the scheme.

- **2019/20** – New outputs first submitted in the 2020 submission period (between 1 April 2019 and 31 March 2020).
- **To date** – All data submitted on Researchfish since its adoption by the Academy in 2013.

Award holders are required to report to us within the tenure of the award and asked to continue reporting for up to five years after its completion. References are made to live and closed awards in this report, which are defined as follows:

- **Live** – Award with an end date occurring within or after the 2019/20 submission window, i.e. after 31 March 2019, excluding awards made in round 22 and 23 (which were not captured in the submission window).
- **Closed** – Award with an end date occurring on or before the 2019/20 submission window start date, i.e. on or before 31 March 2019.



# Research outputs and impact

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In this section, we discuss outputs that were reported to us, which demonstrate the impact of the scheme in generating new knowledge and enabling the development of our Starter Grant holders. For this, we focus primarily on publications produced, further funding leveraged, as a result of this scheme, and career progression. We also look at collaborations formed, prizes and awards, and influences on policy and practice.

Grant holders were asked to report outputs that arose as a result of their Starter Grant award. Because research is a collaborative endeavour, some of the outputs presented here may also have been supported by additional awards.

## New outputs: April 2019 – March 2020

During this submission window we received reports from 226 Starter Grant award holders – of these, 115 are active award holders, some having only recently started their grant, while 111 have already completed their awards.

Highlights:



Starter Grant award holders also reported receiving **65 awards, prizes and other markers of esteem** and indicated **22 instances of influencing policy and practice**.

## Publications

Starter Grant holders reported **273** new publications stemming from their Starter Grant award:

- **256** peer reviewed journal articles
- **11** conference proceedings and abstracts
- **five** book chapters
- **one** study protocol

In 2019/20, publications were reported by 85 award holders from 25 clinical specialties (Table 3). Of the 273 newly reported publications, 195 were published within the submission window period.

The most popular journal in which our grant holders reported publications in this year's submission period was BMJ Open (Table 4). Many of the journals in which the award holders published are dedicated to work of a clinical nature, showing the translational benefit these funds provide. Award holders specialising in Surgery, Cardiology, Neurology and Psychiatry were together responsible for 47% of the publications reported in 2019/20, reflecting the high number of award holders working in those specialties (Table 3). A small group of individuals from less represented specialties, i.e., Ophthalmology and Pathology, was highly productive, with a total of 24 new publications reported by three award holders. Five of the newly reported publications were the result of ongoing collaborations between two or more award holders.

Clinical specialty	Number of publications	Award holders reporting
Surgery	52	8
Cardiology	45	12
Neurology	31	10
Psychiatry	18	6
Ophthalmology	16	2
Infectious Diseases	13	6
Paediatrics	11	5
Gastroenterology	11	5
Public Health	11	2
Haematology	10	5
<i>Other specialties</i>	55	24
<b>Total</b>	<b>273</b>	<b>85</b>

**Table 3** – Clinical specialties of the award holders reporting new publications in 2019/20.

Journal	Number of journal articles
BMJ open	17
Blood	6
British Journal of Surgery	5
JACC. Cardiovascular imaging	4
Brain communications	4
Journal of the American College of Cardiology	4
European urology	3
Journal of hepatology	3
Nature medicine	3
The Lancet	3
Ophthalmology	3
Circulation	3
Clinical oncology	3
<i>Remaining 165 journals</i>	195
<b>Total</b>	<b>256</b>

**Table 4** – Journals in which award holders published as reported in the 2019/20 window.

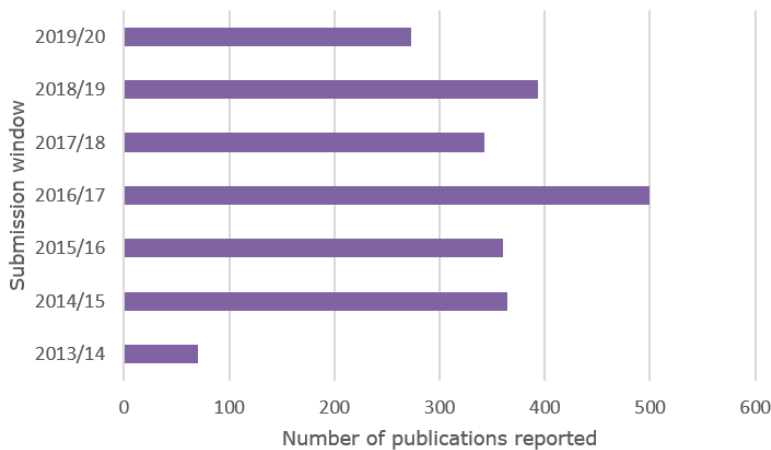
To date, 289 Starter Grant award holders have reported a total of **2,303 unique publications**. This figure counts just once the publications that resulted from collaborations between different grant holders, and that were reported multiple times across different submission periods.

Figure 3 shows the number of publications reported on Researchfish to date, according to the year of publication. Figure 4 shows the number of newly reported publications within each submission

period and shows that the number of newly reported publications decreased in the latest submission window, as compared to the previous period (2018/19), which may be due to the lower response rate in this window. It is important to note that grant holders can capture outputs from any date within the submission period and also include publications that were published before the submission window reporting period (before 1 April 2019). Of the 273 publications that were newly reported in the 2019/20 submission window, 78 publications were published before 1 April 2019. The overall number of articles published in 2019 and earlier is likely to increase in reports from future reporting windows.



**Figure 3** – Publications reported by Starter Grant award holders to date.



**Figure 4** – Number of publications newly reported by Starter Grant award holders in each reporting window.

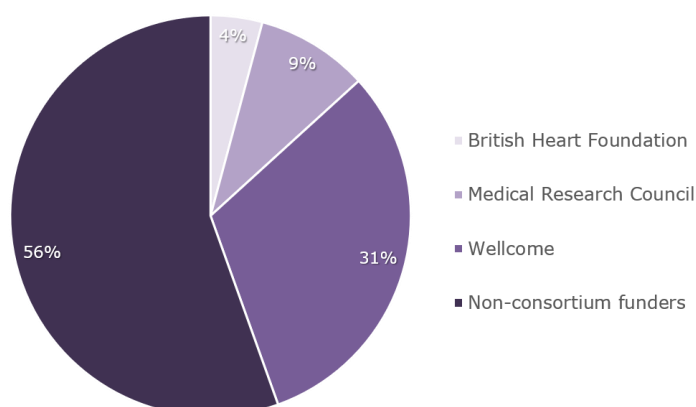
*“The publications and experience gained as a result of this grant have contributed to my bids to secure further funding, and in securing a post which combines the opportunity to work at a consultant-level in the NHS and undertake cutting edge research.”*

Dr Nicole Stoesser, Starter Grant held at the University of Oxford (Round 15)

## Further funding

New outputs captured in the 2019/20 submission window:

- **£14.1M** of further funding was leveraged by 44 Starter Grant holders (a total of 75 grants).
- The gender split of the 44 grant holders is 43% female and 57% male.
- **92%** of further funding awards came from UK-based organisations.
- The majority of funding awards came from the **charity/non-profit** and **public sectors** (56.4% and 36.5% of the overall total further funding amount, respectively).
- Starter Grant scheme funders contributed **£6.3M** (44.6%) of the further funding secured by award holders (Figure 5; Table 5).



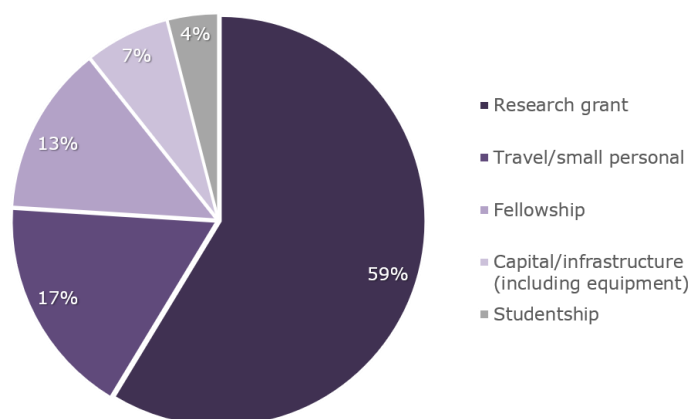
**Figure 5** – Starter Grants consortium funder contributions to further funding reported in 2019/20

Organisation	Sum of award(s)
Wellcome	£4,416,884.00
National Institute for Health Research	£1,614,938.71
Cancer Research UK	£1,495,000.00
Medical Research Council	£1,309,715.00
Health Education and Improvement of Wales	£1,000,000.00
UK Department for International Development (now FCDO)	£580,000.00
British Heart Foundation	£552,099.00
Chief Scientist Office	£299,889.00
Meningitis Now	£249,917.00
Motor Neurone Disease Association	£220,000.00
<i>Remaining 45 funders</i>	<i>£2,352,903.91</i>
<b>Grand Total</b>	<b>£14,091,346.62</b>

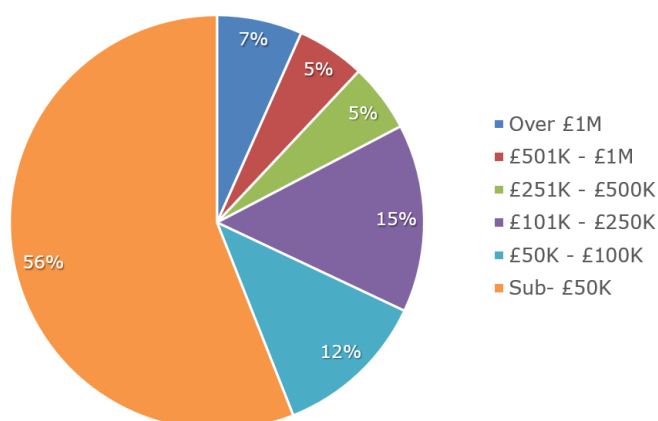
**Table 5** – Top ten organisations providing further funding to Starter Grant holders in 2019/20

Most of the further funding secured in 2019/20 comes from research grants and fellowships. Together, these award categories account for 72% of the number of further funding reported (Figure 6) and correspond to 95% of the overall amount of further funding received. The majority of the further funding awards were small grants, but Starter Grant holders also succeeded in securing large research grants and fellowships: 17% of the awards had a value exceeding £250K (Figure 7). Some award holders participated as co-investigators in a number of consortia funding

bids, with overall award values ranging between £1.5M and £9M. It should be noted that, in the case of collaborative awards where Starter Grant holders are listed as co-investigators, they are asked to only report their share of the grant.



**Figure 6** – Type of funding received as reported in 2019/20



**Figure 7** – Value of individual funding received as reported in 2019/20

Starter Grant holders from rounds 10, 14 and 16 (awarded in December 2013, December 2015, and December 2016, respectively) were the most successful in their funding bids, securing 21 grant awards and receiving over £8.1M, which corresponds to 57% of the overall further funding received as reported within the 2019/20 submission window.

To date, 54% of 414 Starter Grant holders that have reported via Researchfish across all submission windows have successfully received further funding for an overall total of **£156.5M**, with a **return on investment of £13.3 per pound invested**.

*"This was a huge boost to my career and enabled me to get onto the next step as an NIHR Clinician Scientist. Now, a few years later, I have won more than £12m research income and have international clinical trials in children's orthopaedic surgery. I sit on the funding panel for NIHR HTA, and love academia."*

Dr Daniel Perry, Starter Grant held at the University of Warwick (Round 10)

## Career progression

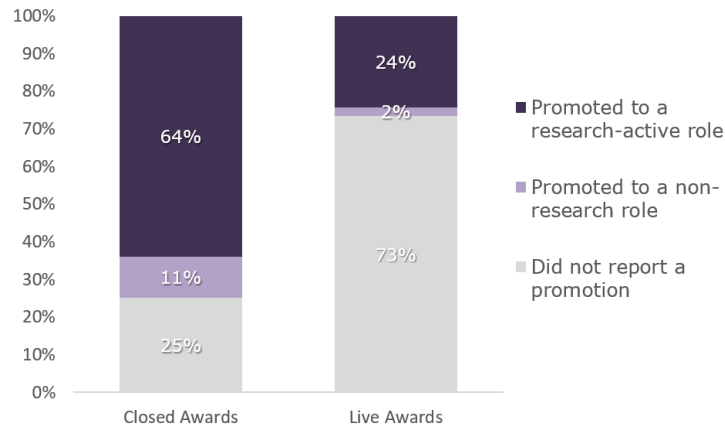
New outputs captured in the 2019/20 submission window:

- Starter Grant holders reported securing **12** large personal fellowships (Table 6), of which there were:
  - **two** Clinician Scientist Fellowships.
  - **ten** senior post-doctoral clinical fellowships.
- **31** grant holders secured other promotions, with **83.9%** of these being research-active roles, e.g. Senior Clinical Lecturer, Associate Professor.

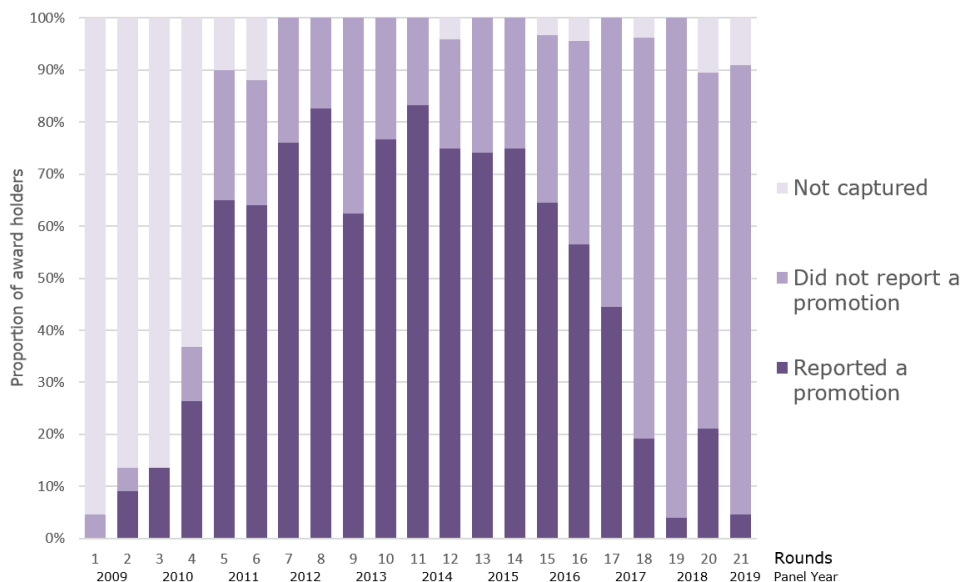
Round	Funding body and award name
17	British Heart Foundation Intermediate Clinical Research Fellowship
19	British Heart Foundation Intermediate Clinical Research Fellowship
10	Cancer Research UK Advanced Clinician Scientist Fellowship
10	Medical Research Council Clinician Scientist Fellowship
17	NIHR Clinical Trials Fellowship
20	University of Manchester Presidential Fellowship for Clinicians
11	Wales Clinical Academic Track (WCAT) fellowship
14	Wellcome Clinical Research Career Development Fellowship
16	Wellcome Clinical Research Career Development Fellowship
18	Wellcome Clinical Research Career Development Fellowship
7	Wellcome Intermediate Clinical Fellowship
7	Wellcome Senior Research Fellowship

**Table 6** – Personal clinical fellowships secured by award holders, as reported in 2019/20

The above awards take the total number of fellowships reported to us via Researchfish, to date, to 63 Clinician Scientist Fellowships (or equivalent) and 42 senior clinical postdoctoral fellowships received after the Starter Grant. The number of fellowships and promotions secured by all the Starter Grants holders is, however, likely to be much higher. Fellowships and promotions are often secured following the completion of a Starter Grant (as shown in Figure 8), but most of the data from early rounds of the scheme (e.g. rounds 1-4) which closed before the adoption of Researchfish, have never been captured. Figure 9 shows the current trend across different rounds, including a few entries from round 1-4 grant holders, as reported to date. Most of the grant holders from early rounds (in particular rounds 8 and 11) reported receiving a promotion. As per previous reports we expect this trend to evolve as awards mature and end.



**Figure 8** – Proportion of award holders as of 2019/20 who have reported securing a promotion based on award status.



**Figure 9** – Proportion of award holders each round reporting whether they have received a promotion.

*"Thanks to the AMS award, I have established a track record in the field of 'classical' observational epidemiology, successfully completed to translation a high impact PhD programme, led a multicentre clinical research network, and contributed to national policy and practice. This will support my career aim to be a leading clinician scientist whose research improves outcomes for children with rare eye and vision disorders."*

*Dr Lola Solebo, Starter Grant held at University College London (Round 12)*

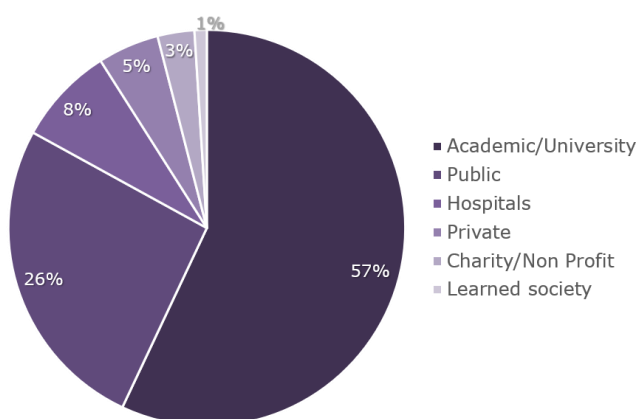
## Other outputs

In addition to publications, further funding, and promotions, we also collect information on any collaborations forged by our Starter Grants holders, awards and prizes they have received, and any influences they have had on policy and practice. These outputs can serve as indicators of research quality and esteem. They are also of interest to us as they align with the Academy's careers policy activities and strategic priority of developing talented researchers.

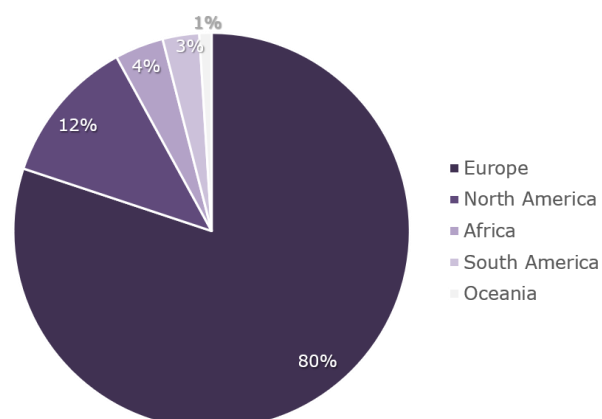
### Collaborations

New outputs captured in the 2019/20 submission window:

- 35 award holders reported **77** new collaborations linked to their Starter Grant; of these, **12** collaborations were established within the organisation where the Starter Grant was held.
- Most of the collaborations reported, 57%, were within the Academic/University sector (Figure 10).
- Most of the collaborators were based in Europe (80.5%), with the majority being in the UK (54 collaborations). The remaining collaborations were with partners based in North America (12%) and the other continents (Figure 11).



**Figure 10** – Sector of newly reported collaborating partners in 2019/20



**Figure 11** – Location of newly reported collaborating partners in 2019/20

*"Thank you for the opportunity provided by this grant awarded 12 months ago. Of particular value, it has led to me forming a growing network of researchers in England, Scotland, Denmark, Canada and Australia using shared code to develop harmonised research datasets."*

Dr Simon Sawhney, Starter Grant held at the University of Aberdeen (Round 20)



## Influences on policy and practice

New outputs captured in the 2019/20 submission window:

- Starter Grant holders reported **22** new activities influencing policy and practice (Table 7).
- 45% of these influences were at **international level**.

Type of influence	Instances
Participation in an advisory committee	7
Influenced training of practitioners or researchers	6
Membership of a guideline committee	3
Participation in a national consultation	2
Citation in clinical reviews	1
Citation in other policy documents	1
Citation in clinical guidelines	1
Implementation circular/rapid advice/letter to e.g. Ministry of Health	1
<b>Grand Total</b>	<b>22</b>

**Table 7** – New influences on policy and practice reported in 2019/20

Some examples of these activities are listed below:

- Participation in the advisory committee for the WHO Technical consultation on *Prevention and treatment of wasting - gaps in guidance and way forward to a holistic approach in bringing children back to healthy growth* (<https://www.who.int/news-room/events/detail/2019/12/17/default-calendar/technical-consultation-prevention-and-treatment-of-wasting-gaps-in-guidance-and-way-forward-to-a-holistic-approach-in-bringing-children-back-to-healthy-growth>).
- Influenced training of practitioners by contributing the outcomes of the iBRA studies to *RCS Breast Surgery Course* for surgical trainees in the UK and internationally.
- Membership of the committee for the *European Guideline on IgG4-related digestive diseases*.

To date, 67 of the 414 (16%) Starter Grant award holders who have submitted their Researchfish reports have reported a total of 126 policy and practice influences.

## Awards and recognition

New outputs captured in the 2019/20 submission window:

- **35** of the Starter Grant holders (15.5% of those reporting in this submission period) reported receiving **65** new awards or other markers of esteem and recognition (Table 8).
- Together, research prizes, personal invitations to speak at conferences and poster/abstract prizes accounted for the 80% of the instances reported.

Type of award	Instances
Personally asked as a key note speaker to a conference	23
Research prize	19
Poster/abstract prize	10
Prestigious/honorary/advisory position to an external body	4
Medal	3
Appointed as the editor/advisor to a journal or book series	3
Attracted visiting staff or user to your research group	2
National honour e.g. Order of Chivalry, OBE	1
<b>Grand total</b>	<b>65</b>

**Table 8** – New awards and markers of esteem reported in 2019/20

To date, 180 of the 414 (43.5%) Starter Grant award holders whose awards have been captured on Researchfish reported a total of 526 awards and markers of esteem.

Furthermore, a number of Starter Grant holders have been involved in different development opportunities offered by the Academy:

- **220** grant holders accessed the Academy's one-to-one mentoring scheme and were paired with an Academy fellow or senior academic.
- **Five** grant holders were selected for the Future Leaders in Innovation, Enterprise and Research (FLIER) programme.
- **12** award holders participated in the SUSTAIN scheme, an innovative programme of training and support through mentoring, coaching and networking for female researchers.
- **146** grant holders (approximately one in three) attended the annual Winter Science Meeting, a multi-disciplinary conference for Starter Grant, Springboard and Newton International Fellowship award holders. In 2020, the annual Winter Science Meeting was re-configured as a week-long launch event for our new online community portal, PILLAR, for current Academy grant holders. The event, held online on 23-27 November 2020, included a number of talks, training, and networking opportunities. On the first day of PILLAR week we held the very first induction event for Starter Grant holders awarded in round 23 (June 2020 Panel). The 1.5-hour long event comprised an introduction by the scheme Panel Chair, Professor Rosalind Smyth, inspiring talks by three alumni of the scheme, and a Q&A session. The event was very well received, with 15 new grant holders in attendance.

*"This award has been extremely valuable in providing funds at a key early junction in my career. The additional support and mentorship opportunities provided through the AMS are also very helpful for early-stage researchers."*

Dr David Lissauer, Starter Grant held at the University of Birmingham (Round 11)

# Case studies

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In this section, we present case studies from selected Starter Grants holders. These case studies complement the quantitative analyses reported so far from the of Researchfish data by exploring single awards in greater detail.

The selected award holders were asked to complete a short questionnaire on the research that was supported through their Starter Grant and the impact that the award has had on their career.

Case studies were formed from the following awards:

**Kathryn Peall**, Cardiff University (Round 11, 2014) – Project title: *“Identification of novel candidate genes in dystonia-plus disorders”*

**Anoop Shah**, University of Edinburgh (Round 19, 2018) – Project title: *“Trends in the incidence of and outcomes following myocardial infarction”*

**Emma Yu**, University of Cambridge (Round 12, 2014) – Project title: *“Mitochondrial dysfunction, inflammation and treatment in atherosclerosis”*

## Kathryn Peall

### Starter Grant awarded in 2014 Cardiff University

#### *Identification of novel candidate genes in dystonia-plus disorders*

Can you give an overview of your research interests?

My main research interests relate to the underlying mechanisms in dystonia, one of the most common forms of movement disorder that can affect both adults and children. Non-motor symptoms, notably psychiatric symptoms, have also been linked with dystonia. Investigation of how mechanisms that contribute to the motor symptoms in dystonia may also be involved in driving the psychiatric symptomatology, is another key area of interest of mine. Within my research group we take a number of approaches in trying to better understand dystonia, including cohort recruitment with in-depth, longitudinal clinical phenotyping, genotyping, use of routinely collected clinical data, imaging and *in vitro* cellular models.

Have you participated in any of the Academy's career development activities?

I have participated in several of the Academy's career development activities:

a) SUSTAIN programme. I'm currently undertaking this programme, and although not in its original format due to constraints around meeting in person, this has been a fantastic experience to date. I've been able to take a lot from the leadership, time management and negotiating training sessions, as well as the peer-coaching sessions.

b) Mentoring. This has been, and continues to be, a particular highlight of my Academy experiences to date. The guidance and advice has been invaluable, particularly from someone not influenced by working or knowing me.

c) 'Breaking the glass ceiling' event. This was an outstanding event held by the Academy in Birmingham in 2016. It was focused on women's career progression in science and included talks from a variety of people (men and women) with very different research backgrounds, together with an acting class (!) and top tips for interviews. This came a few weeks before my



intermediate fellowship interview and was invaluable.

What do you find most satisfying about medical research, and what are the biggest challenges that you face as a clinical academic?

The opportunity to be creative and to find new ways of working. I also find the varied techniques/approaches that we use, as well as the diverse group of people that I meet and work with along the way, both enjoyable and exciting. Principally trying to juggle all the different elements to my role without feeling too much as though I'm underperforming on every front.

What's next for you and your research?

I'm now coming to the end of my MRC fellowship, so the focus is currently on writing up the work to date and manuscript publication. I'm always looking to expand my research group and to develop new collaborative links, so grant writing and application for a more senior fellowship!

#### Recent career highlights

- **MRC Clinician-Scientist Fellowship**
- Opportunity to undertake a clinical research fellowship in The Netherlands
- Sir Charles Symmonds Prize – award for best presentation at the Association of British Neurologists Annual Meeting
- My first invite to speak at a meeting

# Anoop Shah

## Starter Grant awarded in 2018 University of Edinburgh

### *Trends in the incidence of and outcomes following myocardial infarction*

Can you give an overview of your research interests?

My main research interests have been in two main areas. First is a keen interest in understanding cardiovascular disease in low and middle-income settings. I originate from Nairobi, Kenya and am increasingly doing more research in high-risk populations such as patients living with HIV and their risk of cardiovascular disease. The second area is what my PhD had been based on, which was mainly evaluating cardiovascular disease using high volume routine healthcare data.

What has the impact of your Starter Grant been so far?

The Starter Grant was a perfect fertilizer to help me get started as a post-doctoral clinical lecturer. It was the first competitive grant that I received as a principal investigator to look at cardiovascular disease in Scotland, using routine administrative datasets. The initial results provided me with adequate pilot data and subsequent success in being awarded a British Heart Foundation (BHF) Clinical Intermediate Fellowship. One of the studies initially funded by the Starter Grant and supported by further funding from BHF has evaluated how acute cardiovascular disease has changed over the last two decades. We are close to finalising the results for submission.

Have you participated in any of the Academy's career development activities? What has the impact of those been in your development?

I had attended the Clinical Academics in Training Annual Conference which I found very useful, especially to observe the breadth of research being supported by UK-based funders. However, by far the most useful career development activity that the Academy provided was the mentoring scheme. This scheme has been instrumental in assisting me with career advice. I have now met my mentor three times and it was



just fulfilling to receive unbiased advice based on their breadth of experience in research and how to navigate the academic maze!

What do you find most satisfying about medical research, and what are the biggest challenges that you face as a clinical academic?

First, I enjoy the collaborations, especially with budding investigators from low- and middle-income settings, where the clinical and research needs are starkly different. Second, especially with clinical epidemiology and the digitisation of medical data, I really enjoy using these large resources to answer practical questions about disease trends and burden that can influence policy. The biggest challenge is funding! It's always difficult to get funded and when you do get funded the time for further funding comes back so soon!

### Recent career highlights

- ***Incidence, Microbiology, and Outcomes in Patients Hospitalized With Infective Endocarditis.***

The first [publication](#) supported by the Clinical Starter Grant.

- ***Global burden of atherosclerotic cardiovascular disease in people living with the human immunodeficiency virus.***

The [study](#) has now been used as evidence by the Global Alliance for Chronic Diseases: Researchers' statement on multi-morbidity highlighting the issues of non-communicable disease in low- and middle-income nations and vulnerable populations in high-income nations.

## Emma Yu

### Starter Grant awarded in 2014 University of Cambridge

#### *Mitochondrial dysfunction, inflammation and treatment in atherosclerosis*

#### Can you give an overview of your research interests?

My research interests are in mitochondria and atherosclerosis. Mitochondria are considered to be the powerhouses of the cells. They generate fuel, in the form of ATP, which cells can then use to function. If the mitochondria are damaged then this can impact on how the cells work and ultimately lead to disease. One disease where mitochondria are dysfunctional is atherosclerosis which affects the blood vessels in the body. It is an important disease as it can cause heart attacks and strokes, and remains the leading cause of death in the western world. My work is now focussed on examining what factors regulate mitochondrial function in atherosclerosis and if targeting these pathways has beneficial effects.

#### Why did you apply for a Starter Grant and what appealed to you about the scheme?

Whilst I was delighted to be awarded a NIHR Clinical Lectureship, this only paid the cost of my salary but did not include any funding towards the research costs. My supervisor therefore encouraged me to apply for a Starter Grant, which could help fund my initial CL work. The scheme appealed to me because it was specific to my stage of research, and the funding was fairly flexible; it could be used in a variety of ways, e.g. for consumables/access to instruments. The scheme also helped me to develop my credibility as an independent investigator as the grant demonstrated that I could attract funding as a PI.

#### What do you find most satisfying about medical research, and what are the biggest challenges that you face as a clinical academic?

As a cardiologist my clinical work can be very acute. Generally we offer patients the latest treatments that have been proven to reduce morbidity and/or mortality. However, despite



great advances in cardiology, cardiovascular disease still has a significant impact on patient health. I therefore find that medical research is satisfying as it contributes to our knowledge of diseases and hopefully will one day improve the care that we offer to our patients. I think I am very privileged to be a clinical academic but there are, undoubtedly, significant challenges. One of the greatest challenges is finding the right balance between clinical work and research work. It is important yet challenging to maintain clinical and procedural skills whilst maintaining research momentum.

#### What is next for your research?

My previous work has highlighted that mitochondrial DNA is damaged in atherosclerosis and that this contributes to mitochondrial dysfunction and disease development. My work is now focussed on examining what factors regulate mitochondrial function in atherosclerosis and if targeting these pathways has beneficial effects.

### Recent career highlights

- ***Mitochondrial Respiration Is Reduced in Atherosclerosis, Promoting Necrotic Core Formation and Reducing Relative Fibrous Cap Thickness.*** [This publication](#) was based on my CL work and funded by the Starter Grant and a BHF project grant, for which I was PI. This work highlighted that mitochondrial dysfunction is present in human atherosclerosis and showed that improving mitochondrial function can have beneficial effects.
- Awarded a **BHF Intermediate Clinical Research Fellowship** (2019-2024). The Fellowship will be examining the regulation, consequences and treatment of mitochondrial dysfunction in atherosclerosis. This Fellowship will allow me to continue as a clinical academic and to develop my independent programme of research.

# Closing remarks

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This report summarises the outputs and impact of our Starter Grant for Clinical Lecturers funding scheme, as reported by the award holders on the Researchfish platform in the latest submission period, between April 2019 and March 2020, along with cumulative Researchfish data since the adoption of the platform in 2013.

Data presented within this report demonstrated, as in previous reports, that these awards have had a significant impact on the career development of the Starter Grant holders funded so far. This is reflected by the vast amount of publications produced and further funding received, mostly in the form of personal research grants and fellowships. To date, for every £1 awarded to those Starter Grant holders who have reported on Researchfish (414 across all funding rounds) approximately £13 has been leveraged in further support. Furthermore, grant holders continue to be successful in terms of career progression, with increasing numbers of Clinician Scientist Fellowships, senior post-doctoral clinical fellowships and promotions to research-active roles secured. This continues to align with the purpose of the Starter Grant scheme in facilitating retention of early-career clinical lecturers in research-active roles. Grantees also widened their research networks by establishing numerous collaborations linked to their Starter Grant, across different sectors and locations worldwide.

Almost half of the Starter Grant holders were rewarded and recognised for the contribution they made to the research landscape, and many reported completing activities which influenced or will influence policy and practice.

The scheme has developed over time and has benefited from an expanding consortium of funders, which has collectively responded to the evolving landscape and has ensured the scheme remains fit for purpose.



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