

Executive summary

In 2008, the Wellcome Trust and the Academy of Medical Sciences launched the Starter Grants for Clinical Lecturers funding scheme; the first awards were made in 2009. These awards of up to £30,000 over two years meet an important need and occupy a unique niche in biomedical funding in the UK, allowing doctors in training to maintain their research momentum following their PhD. The Starter Grants scheme provides much-needed financial support to enable trainees to secure preliminary data to develop further applications for substantive, prestigious awards. The funding consortium currently supporting the scheme comprises the Wellcome Trust, Medical Research Council, British Heart Foundation, Arthritis Research UK, Prostate Cancer UK and Royal College of Physicians, to whom we are grateful for their continued support.

The Academy adopted Researchfish in 2013 as the sole means of reporting on grants. Researchfish is a research outcomes system that allows researchers to track and report the outcomes of all their research. It is important for the Academy and its partner funding organisations to capture the outcomes of the research we fund, to ensure that our schemes are fit for purpose. This report summarises the impact and outputs of the Starter Grants for Clinical Lecturers scheme, with data captured during the Academy's first submission window in 2014.

Since 2009, 272 Clinical Lecturers have been supported through the scheme. In this submission window, 143 current Starter Grant holders, some of whom had only recently received their grants, reported outputs of their awards. In summary, award holders reported:

- £19,519,658 in follow-on funding
- 337 publications
- 11 Clinician Scientist Fellowships or equivalent level awards
- 94 awards, prizes and other types of recognition
- 111 collaborations, including 22 collaborations with international partners
- 124 public engagement activities
- 20 examples of influencing policy

The data presented in this report provide a baseline, which will be enriched after future submissions are completed. The Academy requires researchers to submit information annually via Researchfish throughout the lifetime of the award and for at least three years afterwards, which will allow us to capture outcomes and impacts resulting after completion of an award.

The Academy plans to commission an independent evaluation of the scheme and will aim to include all award holders funded through the scheme and also applicants that were not successful in obtaining an award.

1. Introduction

Researchfish

The Academy of Medical Sciences adopted Researchfish in 2013 as the sole reporting system for its grant schemes, replacing the use of end of grant reports. Researchers are required to submit information annually via Researchfish throughout the lifetime of the award and for at least three years afterwards. Submission periods will take place from January to March each year.

Aim of report

This report aims to convey, in numbers and narrative, the variety, progress, and significant impact delivered by our grants schemes. The focus of this report is the Starter Grants for Clinical Lecturers scheme.

Reported outcomes were taken from the Academy's first submission year in 2014, which was split into two submission windows: January-March 2014 and July 2014. Having two submission windows in the first year enabled us to better engage with our award holders and inform them of the changes in reporting in their grants conditions involving the use of Researchfish.

This report provides a snapshot of the Starter Grants scheme outputs at 31 March 2014. Award holders invited to use Researchfish were asked to submit research outputs that were a direct consequence of their Starter Grant award and had taken place up to the 31 March 2014 (which was the original submission deadline). Those who submitted their research outputs later in July 2014 were also asked to only inform us of outputs that had been produced up to that date. Consequently, the data presented here do not include awards that were made in 2014 (at the June and December 2014 Panels) as these will be captured in the 2015 submission period.

Starter Grants for Clinical Lecturers

Starter Grants for Clinical Lecturers offer modest 'starter' funds to enable research-active Clinical Lecturers to pursue their research. Clinical Lecturer posts provide a salary but often do not come with the funding to support the costs of the research. This scheme was designed to help bridge this gap by providing Clinical Lecturers with access to modest research funds. Each Starter Grant provides up to £30,000 for a maximum duration of two years. As part of the overall package of support, award holders can take advantage of the Academy's mentoring scheme and other career development activities.

The scheme was launched in October 2008 as a partnership between the Academy and the Wellcome Trust, and since then the Medical Research Council, British Heart Foundation, Arthritis Research UK, Prostate Cancer UK and the Royal College of Physicians have joined the funding consortium. To date, we have supported 272 Clinical Lecturers through twelve rounds of funding, with grants totalling over £7.5 million.

The Starter Grants scheme supports on average 45 new Clinical Lecturers each year and awards over £1.3 million annually (Figure 1), split between two Selection Panel meetings. Figure 2 shows the geographical distribution of awards this far.

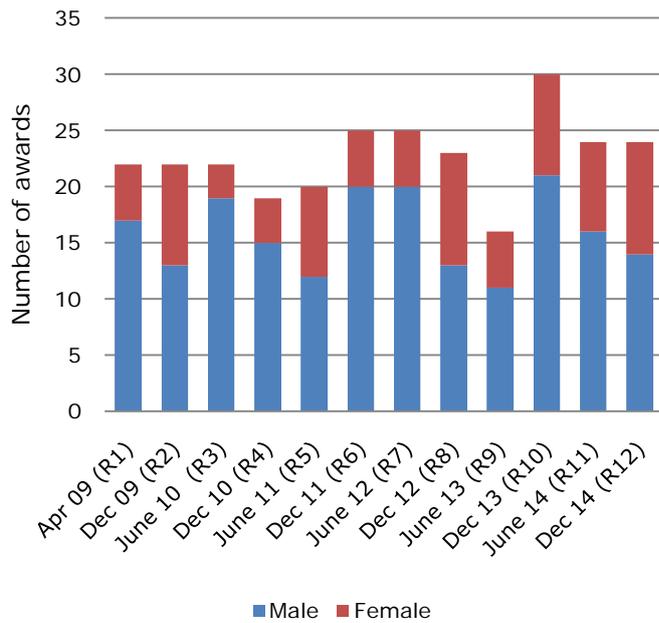


Figure 1: Award holders by gender

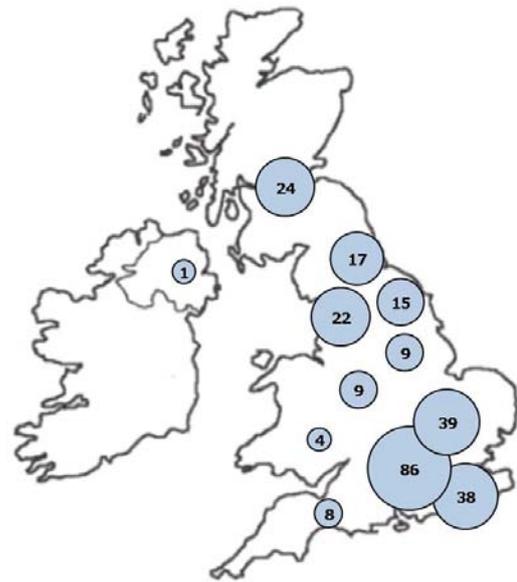


Figure 2: Distribution of award holders

2014 data-gathering statistics

Grant holders were asked for the first time in 2014 to submit their research outcomes and other outputs through Researchfish. 143 live awards, out of the 272 in total, were added on to Researchfish and awardees asked to submit in January 2014. Our first submission year saw a 100% compliance rate.

Figure 3 displays the distribution of the awardees who submitted information to Researchfish and are therefore included in this report. Annex 1 lists the medical specialties from which Starter Grant holders are reporting in 2014.

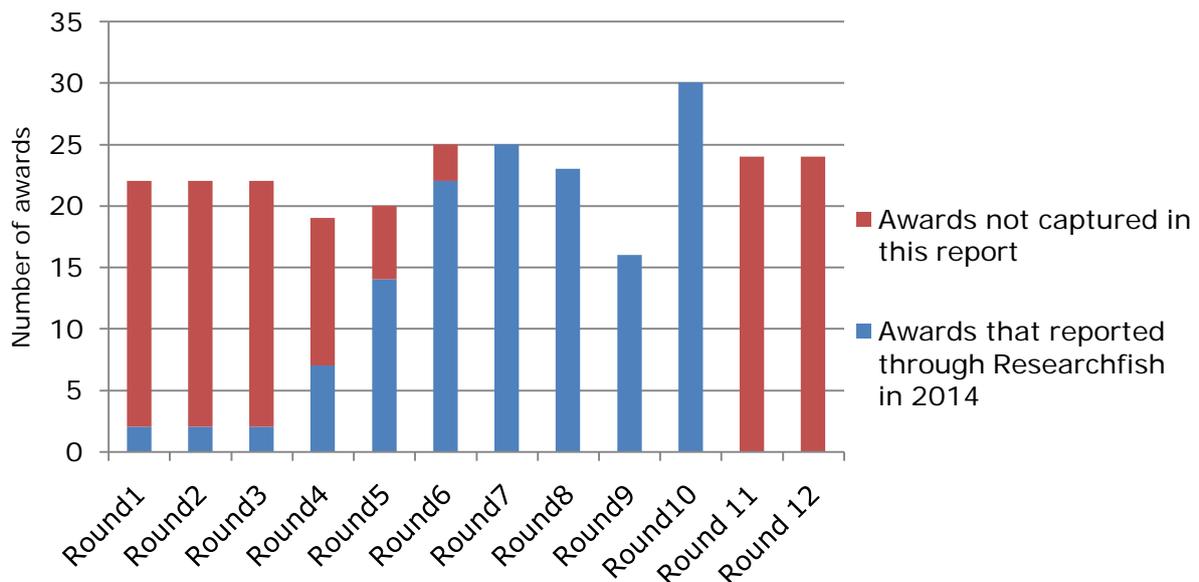


Figure 3: Distribution of the awards that submitted information to Researchfish (in blue). In red, are the awards that have not reported through Researchfish, thus their outputs are not captured in this report.

2. Outputs - Nurturing the next generation of medical researchers

The Academy is an authoritative voice on the development of training and career pathways and a source of personal support for early-career biomedical researchers. Our Starter Grants for Clinical Lecturers scheme aims to fund early-career researchers and thus nurture the next generation of leading medical researchers.

In this section, we discuss outputs that were reported through Researchfish and demonstrate the impact of the scheme in nurturing our Starter Grant holders. Impact has been primarily measured through the publications produced, further funding leveraged as a result of this scheme and career progression.

2.1 Publications

Scientific papers published in peer reviewed journals are an important primary output of research. Publications are validated through expert peer review and are widely read by the scientific community; these contribute to the knowledge pool and feed into future research.

- 337 publications were attributed to Starter Grant awards (Figure 4).
- 78 award holders produced at least one publication.
- Generally those without publications were in their first year of award.

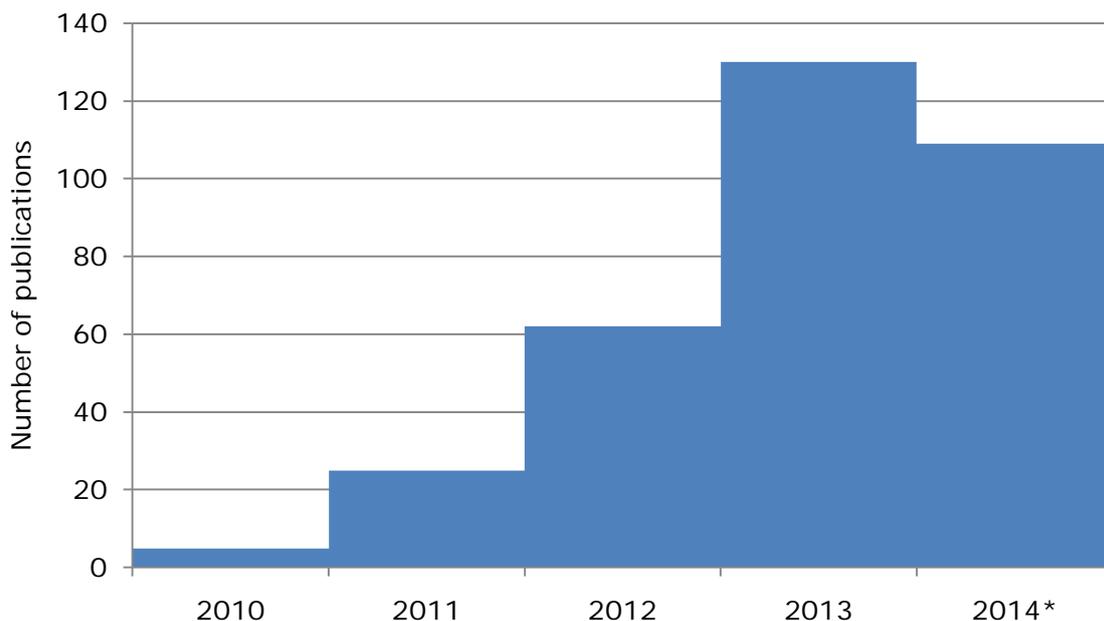


Figure 4: Articles and reviews published each year. *Note that in 2014, 45 articles were reported as published and 64 were accepted for publication but still 'in press'.

Journals in which articles were published

- Publications in 213 different journals.
- Journals listed most frequently were PLOS One and the Investigative Ophthalmology & Visual Science. Table 1 shows the journals that Starter Grant award holders were published in most frequently.

Table 1: Journals in which Starter Grant holders' work was published most frequently

Journal Title	Number of papers
Investigative Ophthalmology & Visual Science	8
PLOS One	8
British Journal of Cancer	7
Ophthalmology	7
Psychoneuroendocrinology	6
Retina (Philadelphia, Pa.)	5
JAMA Ophthalmology	4
Journal of the American College of Cardiology	4
Nature Genetics	4
Schizophrenia Research	4
Seminars in Pediatric Neurology	4
The Journal of Clinical Endocrinology and Metabolism	4
Annals of Surgery	3
Archives of Disease in Childhood	3
BJOG : An International Journal of Obstetrics and Gynaecology	3
Brain : a journal of neurology	3
Cancer Research	3
Clinical Endocrinology	3
Graefe's Archive for Clinical and Experimental Ophthalmology	3
Human Reproduction Update	3
Journal of Ophthalmology	3
Nature Medicine	3
Proceedings of the National Academy of Sciences of the United States of America (PNAS)	3
Thorax	3

Research areas in which Starter Grants articles were published

Data were received from award holders working in 30 different medical specialties/research areas. Annex 1 lists the number of awards reporting from each specialty.

- Publications reported from award holders fall within 23 medical specialties. Table 2 shows the number of papers published within each speciality.
- Publications in surgery, ophthalmology and psychiatry together comprise almost half of the produced publications.
- In particular research areas, there are certain very productive individuals who increase the number of publications in that area (for example ophthalmology), whereas in other areas the high number of publications is reflective of the large number of individuals working in that area (for example, surgery where there are 24 award holders).

Table 2: Categorisation of papers by medical specialty

Medical Specialties	Number of papers	Proportion of papers (%)	Awardees reporting
Surgery	65	19.3	24
Ophthalmology	57	16.9	7
Psychiatry	48	14.2	7
Oncology	26	7.7	14
Respiratory Medicine	25	7.4	9
Neurology	21	6.2	12
Renal medicine	14	4.2	9
Endocrinology	13	3.9	3
Obstetrics and gynaecology	10	3.0	4
Gastroenterology	9	2.7	5
Hepatology	9	2.7	2
Dentistry	6	1.8	5
Paediatrics	5	1.5	6
Clinical Immunology	5	1.5	1
Clinical Pharmacology	5	1.5	4
Cardiology	4	1.2	7
Histopathology	4	1.2	3
Haematology	3	0.9	3
Rheumatology	3	0.9	4
Public Health	2	0.6	1
Clinical Genetics	1	0.3	3
Orthopaedics	1	0.3	1
General Practice	1	0.3	1
Total	337	100	143

2.2 Further funding leveraged

There are many potential sources of funding for research; applying for funding and gaining a funding body's support involves a very competitive process. Being successful in this process indicates that the Starter Grant holders are establishing a high quality track record and are submitting attractive proposals for follow-on studies.

Value of further funding leveraged

- A total value of £19,519,658 in follow-on funding was reported by the 143 starter Grant award holders who submitted through Researchfish.
- In other words, £1 of Starter Grant consortium funding (relating to the grants that reported in this submission window) has enabled the awardees to leverage an additional £4.42 of follow-on funding. Figure 5 shows the value of further funding leveraged per year, as per the start dates of these awards.
- The majority of follow-on funding corresponds to small grants under £50,000 (Figure 6).

- Approximately 20% of funding received corresponds to large grants of over £500,000 (Figure 6). This was higher than expected given that the Starter Grant holders reporting have yet to complete their awards.
- These large grants correspond to post doctoral Clinician Scientist Fellowship awards or equivalent.

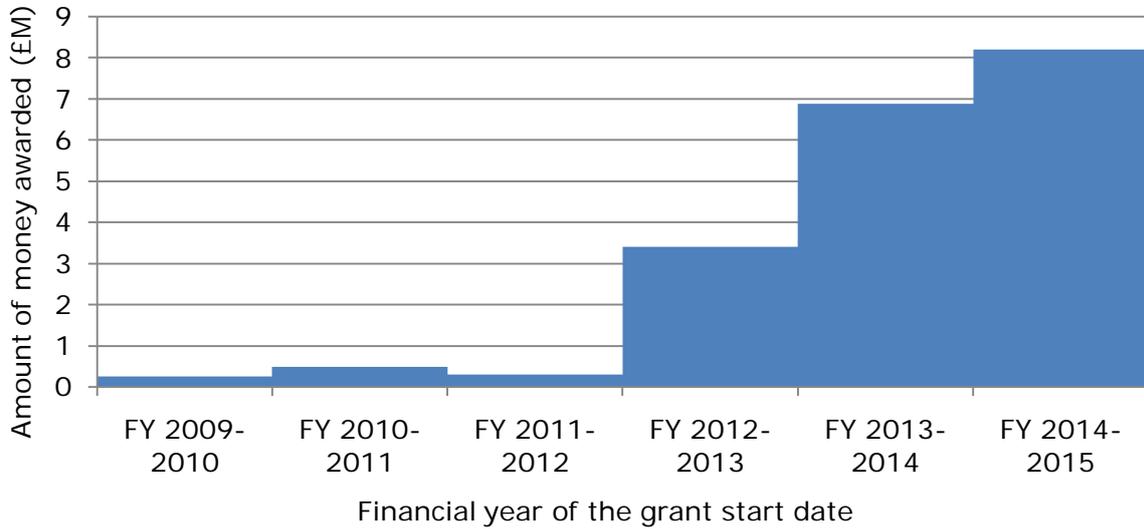


Figure 5: Value of further funding leveraged, by financial year.

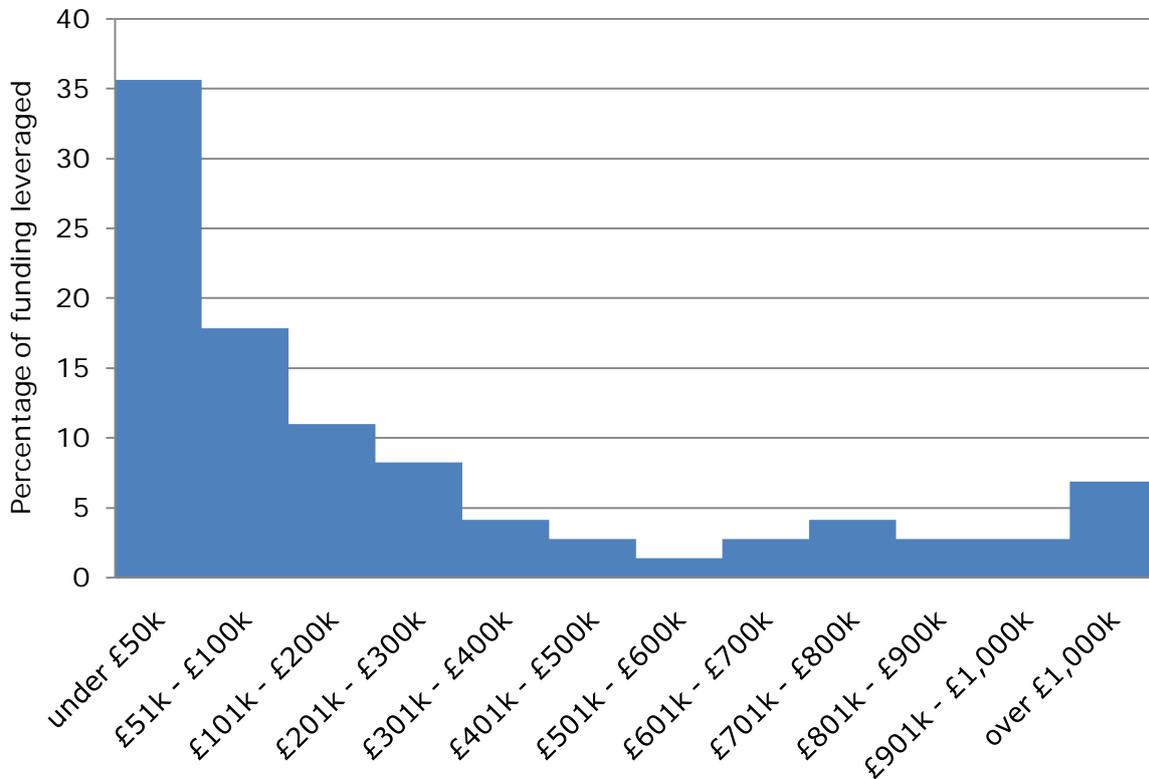


Figure 6: Distribution of further funding by value

Value of further funding by sector

The sources of follow-on funding received by Starter Grant holders have been categorised by sector, to allow us to gain a greater understanding of the nature of this funding (Figure 7).

- Largest amount of further funding secured from the public sector (£11,719,700; 60% of total further funding), specifically the Medical Research Council and the National Institute for Health Research.
- The charity sector contributed 34% of further funding (£6,589,071).
- Smaller contributions of follow-on funding came from hospitals, pharmaceutical companies, universities, the private sector and learned societies.
- The Medical Research Council was the largest funder (£7,838,154), followed by the Wellcome Trust (£3,150,019) and the National Institute for Health Research (£3,061,546).
- In total, funding was awarded to Starter Grant holders by 46 different organisations; however, funding awarded by the ten most common funders (ranked by value, as shown in Figure 8) constitutes almost 93% of the overall value of funding.

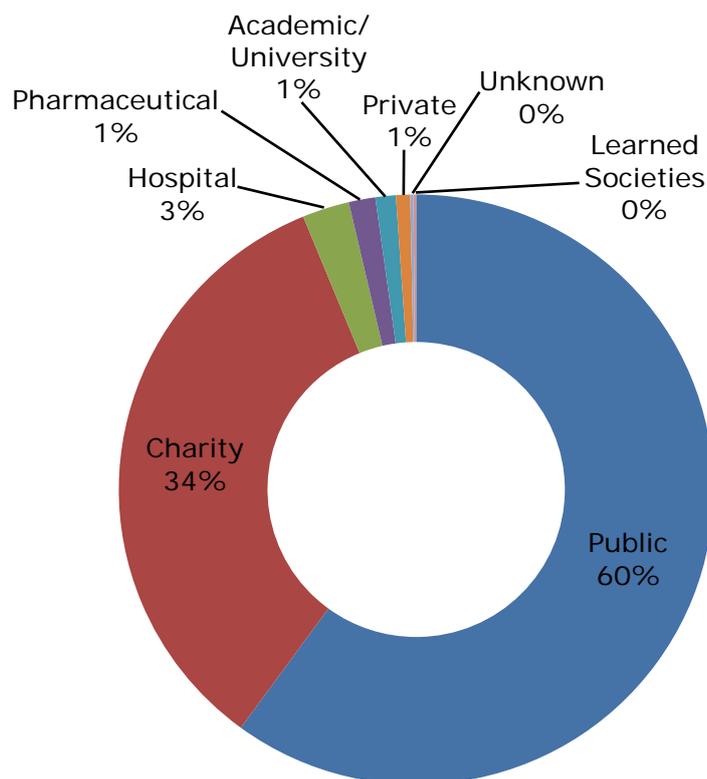


Figure 7: Value of further funding by sector

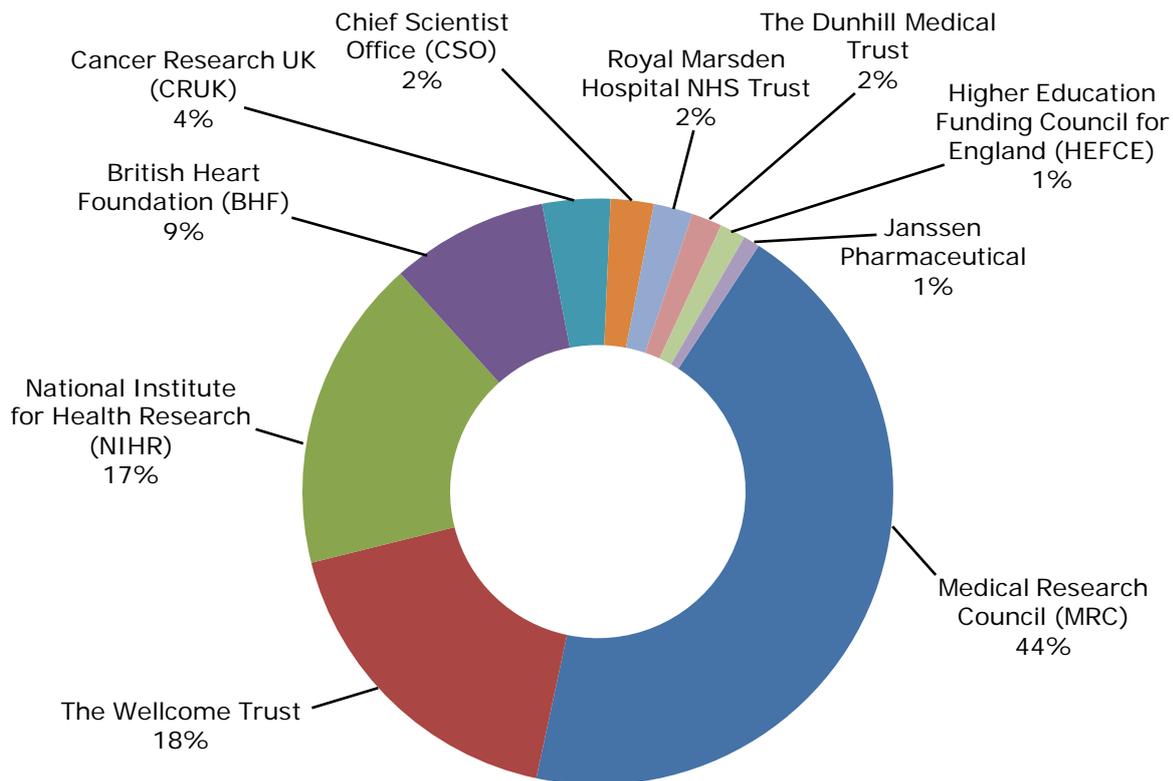


Figure 8: Top ten funders (ranked by value)

2.3 Next destination

The Academy is interested in tracking the career progression of its award holders, including the Starter Grant holders. There is not a specific question covering this area in Researchfish, so we have taken this information indirectly from interpretation of the 'further funding' section. Eleven award holders reported that they have been successful in securing Clinician Scientist Fellowship or equivalent awards.

As this is the Academy's first Researchfish submission period, and only included current award holders, it is difficult to measure the longer-term impact of the scheme in terms of the next destination of its award holders at this stage. We expect to be able to capture this information in the future, as award holders will be invited to report through Researchfish for up to 3 years after their award has finished.

3. Outputs - Promoting excellence

As one of the National Academies, the Academy of Medical Sciences is committed to celebrating individuals and their achievements. Awards, prizes and other forms of recognition, such as being appointed to the editorial board of a journal or holding a prestigious position to an external body are indicators of research quality and esteem. The emphasis was on collecting details of recognition that had an element of peer review and award on the basis of merit.

- 94 awards, prizes and other types of recognition were reported by Starter Grant holders.
- Recognition significantly increases as award holders reach towards the end of their awards (Figure 9).
- Receiving a research prize recognising work in their particular specialty was the most frequently reported type of recognition (28%), which was closely followed by being personally invited to present at a conference (26%). Figure 10 shows the detailed distribution of types of recognition.

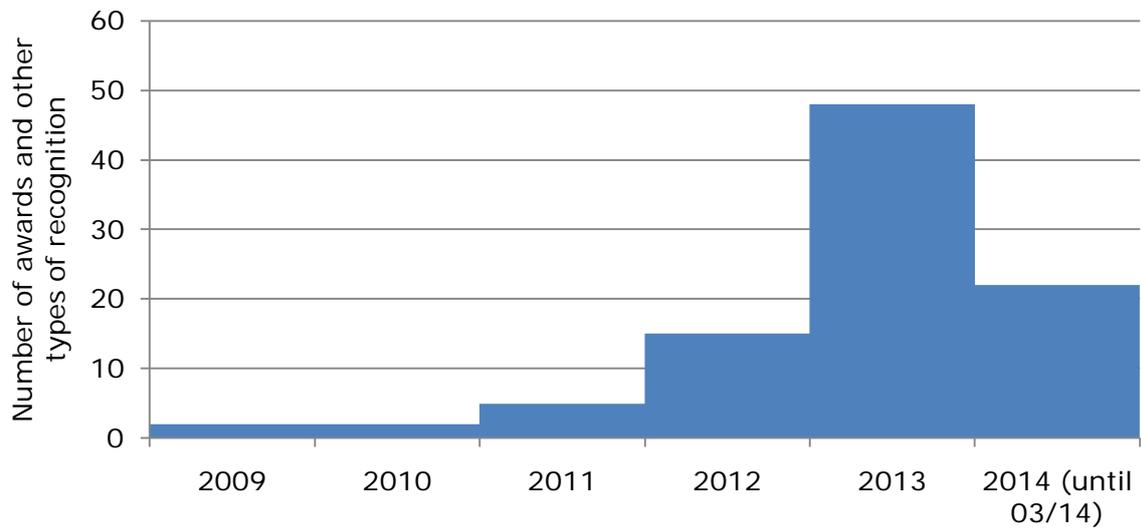


Figure 9: Awards and recognition per year

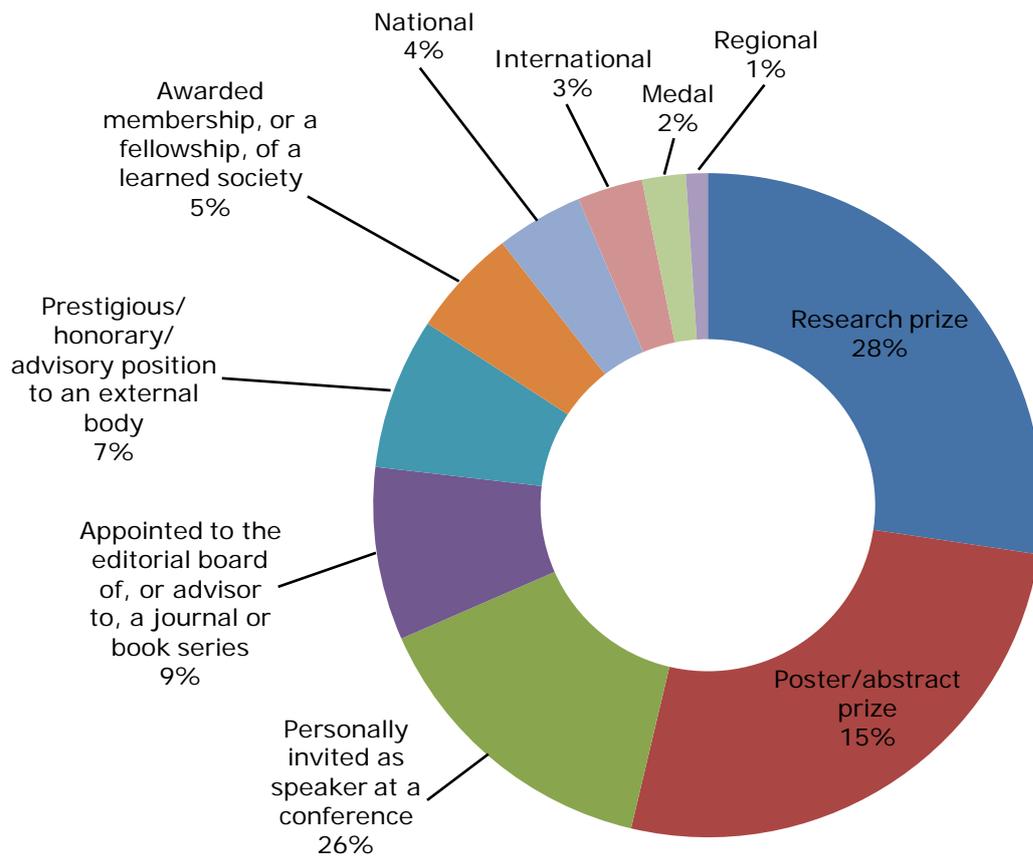


Figure 10: Type of awards and recognition received

4. Outputs - Influencing policy to improve health and wealth

One of the Academy's greatest strengths is its ability to convene the best medical scientists to address some of the most significant challenges facing society. Responding to the policy agenda is an important part of our portfolio of activities.

Starter Grant holders reported 20 examples of activities that may influence policy, including participation on committees, working groups etc.

- Half of Starter Grant holders that are involved in policy work do so through the participation in advisory committees (Figure 12).
- 20% of Starter Grant holders that are involved in policy work are members of guideline committees.
- 25% of Starter Grant holders that are involved in policy work have influenced other practitioners or researchers' training through their own practise.
- The majority of these influences affect individuals at national level (45%), whereas a similarly large proportion (40%) affects policies at international level in Europe and other continents (Figure 13).

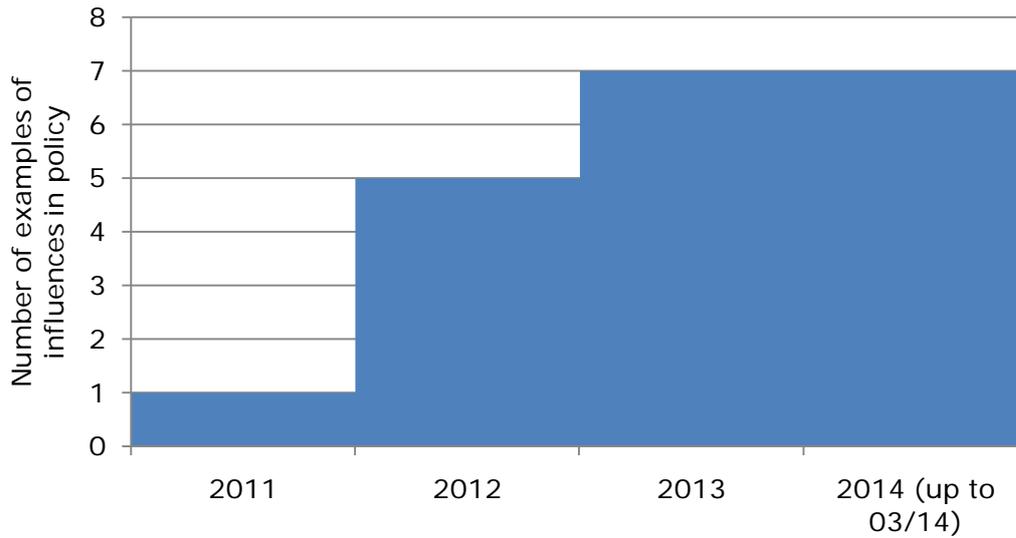


Figure 11: Influences on policy by year

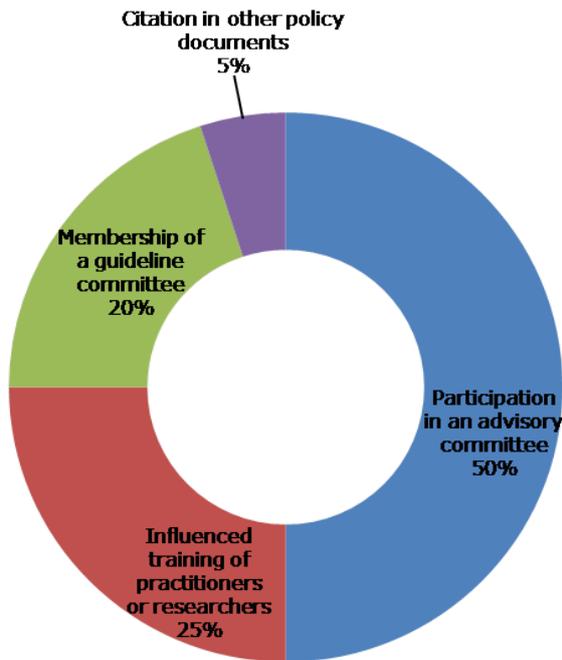


Figure 12: Influences on policy by type of processes

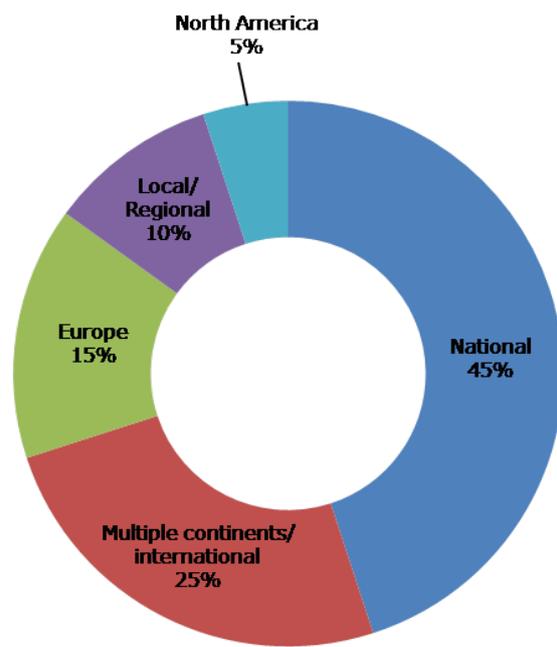


Figure 13: Influences on policy by geographical impact

5. Outputs - Linking academia, industry and the NHS

Facilitating strong and equitable partnerships between academia, industry and the NHS is a major focus of the Academy's activities. As part of their projects, the Starter Grant award holders often form collaborations within the academic sector and with colleagues working in industry and the NHS. As a result of these collaborations, they are involved in clinical trials, produce products that can be patented and in some cases founded spin out companies.

5.1 Collaborations

Collaborative work is becoming increasingly common across all fields of research. Teams spanning different specialties/disciplines and geographical centres are often needed to tackle contemporary research questions in biomedical science. The Starter Grants scheme encourages the establishment of collaborations between researchers in academia, industry, the NHS and other sectors, which can potentially improve the health and wealth of the nation.

- Recipients of the Starter Grants reported 111 collaborations as a result of this grant. Figure 14 shows the number of collaborations initiated per year.
- 98% of these collaborations are still active and 35% of those are formally governed.
- The majority of collaborations reported were with academia (77%), followed by a smaller percentage of collaborations with hospital units (16%).
- 10% of the collaborations are with the pharmaceutical, non-profit, private and public sectors. Figure 15 shows the distribution of collaborations by sector.

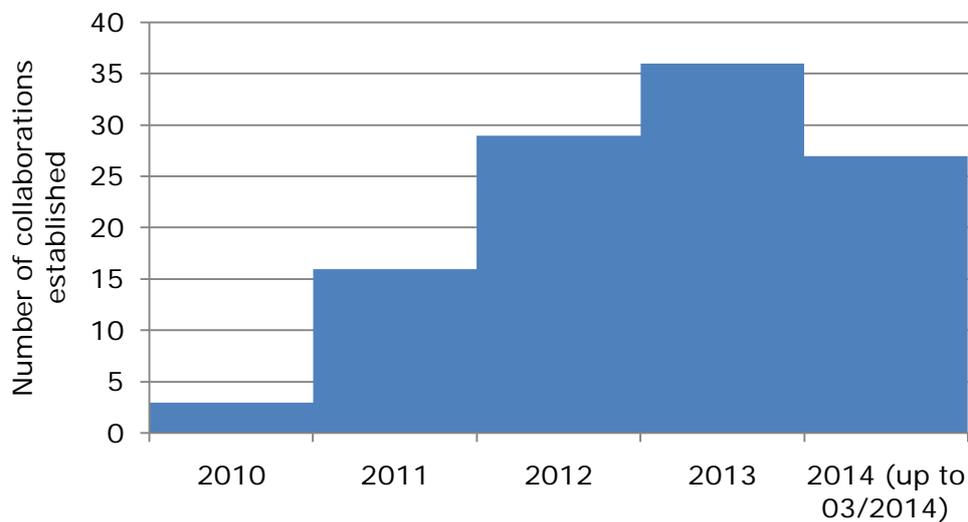


Figure 14: Distribution of collaborations per year commenced.

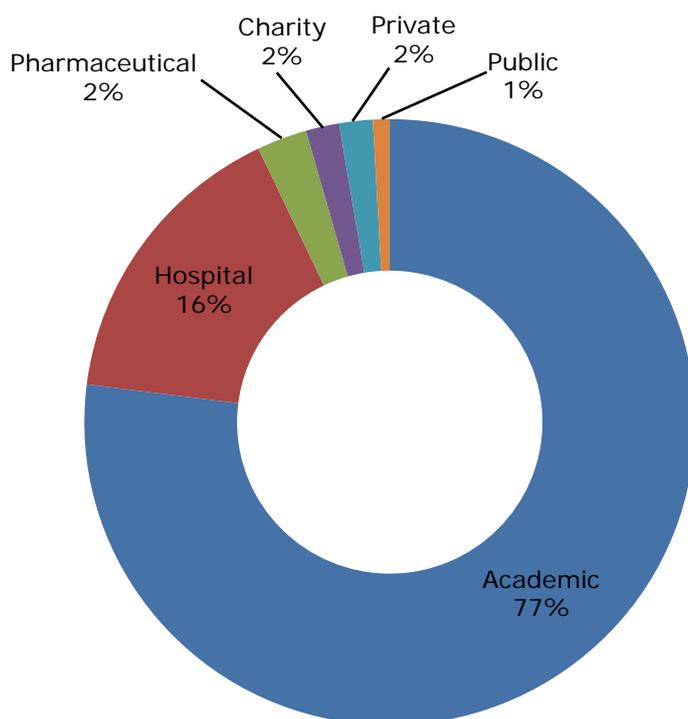


Figure 15: Distribution of collaborations by sector

5.2 Other outputs related to intra-sector collaborations

Through Researchfish we are also able to capture information about intellectual property and patents that our award holders have been granted as well as new products and interventions that they have developed.

Three Starter Grant holders have reported patents that were granted to them for parts of their projects. In addition, there were eight reports for the development of products and interventions.

6. Outputs - Seizing international opportunities

The Academy strives to ensure that the UK takes a leadership role in tackling global challenges and in enabling excellent people to move and collaborate across national boundaries. We sought information on collaborations that were formed with researchers outside of the UK, including funding received from international bodies.

- Award holders reported 22 collaborations with international partners.
- The majority of international collaborations are with researchers in Africa (32%) – this is explained by the fact that we fund several projects that investigate global health issues, with a specific interest in Malawi and Uganda (table 3). The figures below show the distribution of collaborations by continent, with (Figure 16) and without (Figure 17) taking into account the UK-based collaborations.
- Four award holders reported collaborations with American institutions, specifically: Harvard, UCLA, Albert Einstein University and the National Institute of Health.

- 2% of the total funding (measured in British Pounds) leveraged by Starter Grant holders was obtained by non-UK organisations. This corresponds to five awards, totalling £387,000, two of which were awarded by European funding bodies and the other three by funding bodies from America.

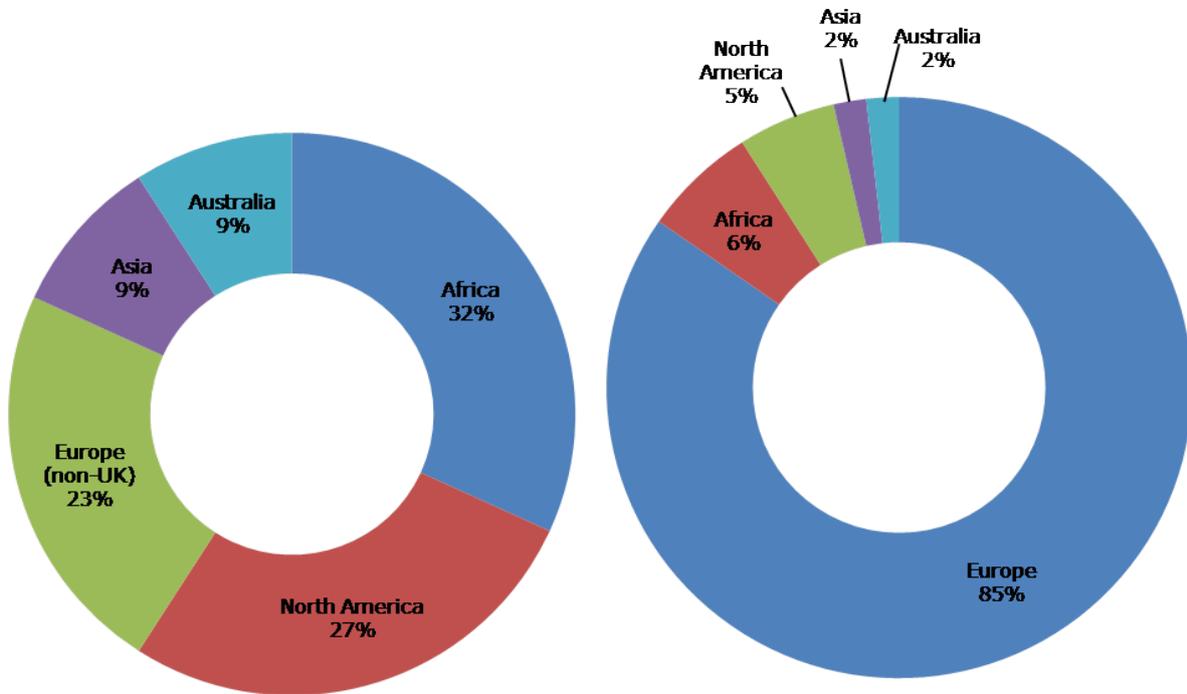


Figure 16: Distribution of collaborations by continent

Figure 17: Distribution of collaborations by continent (excluding collaborations within the UK)

Table 3: Breakdown of collaborations outside of the UK by country

Countries that UK researchers have collaborated with	Number
Malawi	5
USA	4
Uganda	2
Australia	2
Spain	2
Canada	2
Netherlands	1
Iceland	1
Turkey	1
Singapore	1
Denmark	1
Total	22

7 Outputs - Encouraging dialogue about medical science

The Academy is committed to maintaining effective dialogue with a range of stakeholders, especially patients and the public. We regularly encourage our AMS-funded researchers to talk about their work with non-scientific audiences. For example, at the Winter Science Meeting for Starter Grant holders, we hold a Communications Prize competition which encourages Starter Grant holders to explain their work to a non-scientific audience. We sought information on how our Starter Grant holders have engaged with audiences outside of academia (not through scientific publications).

- 124 engagement activities were reported and the distribution of these activities per year is shown in Figure 18.
- The most popular method of engagement was a talk or presentation (67%), followed by participation in a formal working group, expert panel or dialogue (10%). A breakdown of the type of the engagement activities is shown in Figure 19.
- Approximately one third (38%) of the engagement activities were aimed at health professionals and 27% at other academic audiences, whereas approximately 22% of the activities were aimed at patient groups and the public. A detailed breakdown of audience type is shown in Figure 20.

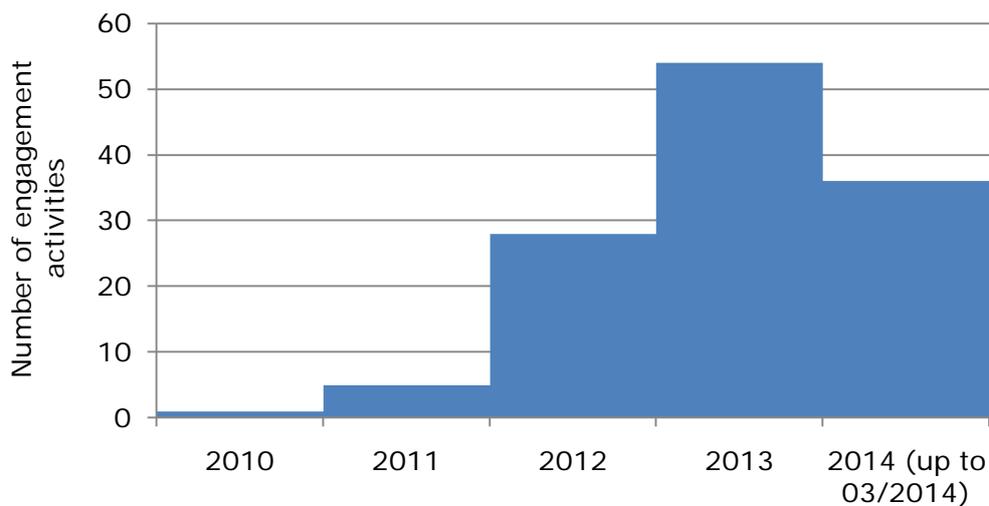


Figure 18: Number of engagement activities per year

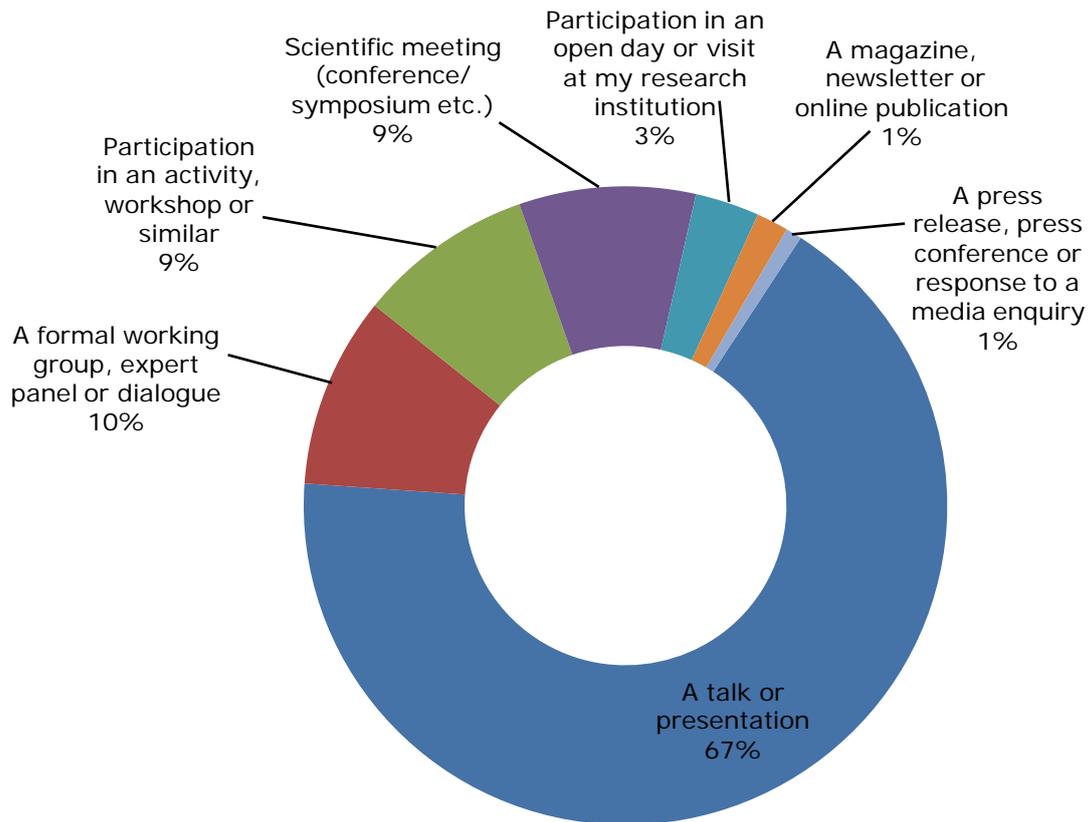


Figure 19: Engagement activity by type

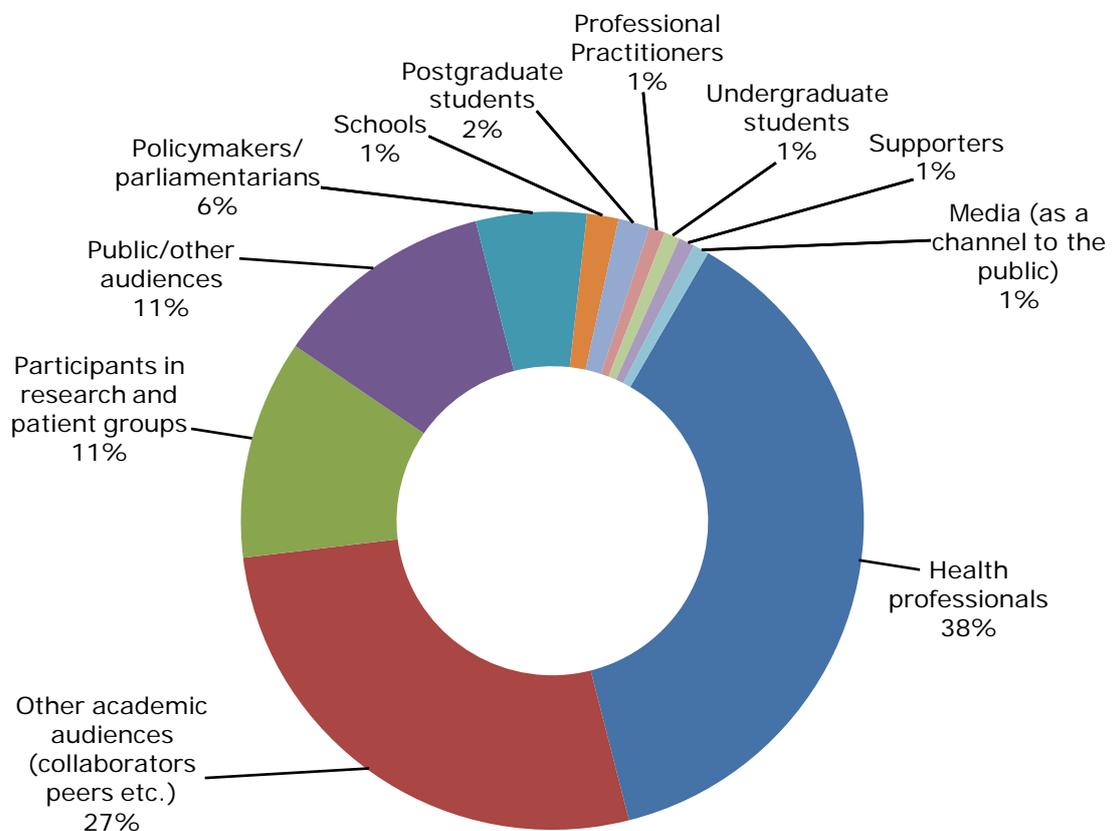


Figure 20: Engagement activity by audience

8 Closing remarks

In 2014, the Academy asked those researchers holding Starter Grants for Clinical Lecturers to submit their research outputs. The data presented in this report show a snapshot of these outputs and provides a baseline, which will be enriched after future submissions are completed. The Academy requires researchers to submit information annually via Researchfish throughout the life-time of the award and for at least three years afterwards. Therefore, we will be in a better position to follow the impact of the scheme's investment after the completion of an award, which is usually when most publications and other outputs are produced.

The data collected through this first submission period show great promise and indicate that the scheme is meeting its aims. Starter Grant holders have reported that they are establishing their research, creating collaborations, securing follow-on funds and producing publications. Their research is being recognised through awards and prizes, and some of those reaching the end of their Starter Grant award are also securing more senior positions to further their career.

This report, of course, only covers successful awardees; information on the progress of those applicants that were unsuccessful is not available for comparison. To address this, the Academy will be commissioning an independent evaluation of the Starter Grants scheme, which will not only include award holders, but will also explore the career progression of unsuccessful applicants.

Overall, the present report demonstrates the great progress made by Starter Grant holders and celebrates their achievements to date.

February 2015

Annex 1: Medical specialties of award holders reporting in Researchfich

Medical specialties	Number of awardees reporting in the 2014 submission period
Surgery	24
Oncology	14
Neurology	12
Respiratory Medicine	9
Renal medicine	9
Cardiology	7
Ophthalmology	7
Psychiatry	7
Paediatrics	6
Gastroenterology	5
Dentistry	5
Obstetrics and Gynaecology	4
Rheumatology	4
Clinical Pharmacology	4
Endocrinology	3
Haematology	3
Histopathology	3
Clinical Genetics	3
Neonatal Medicine	2
Hepatology	2
Intensive care medicine	1
Infectious Diseases and Medical Microbiology	1
Palliative Medicine	1
Radiology	1
Clinical Immunology	1
Geriatric Medicine	1
Public Health	1
General Practice	1
Trauma and Orthopaedics	1
Orthopaedics	1
Total	143