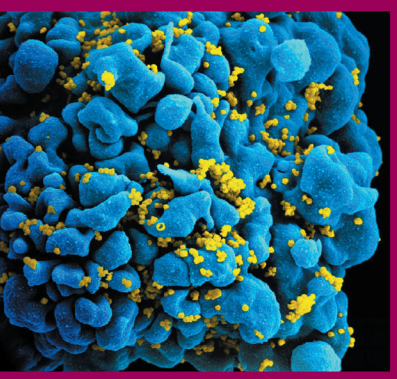
researchfish®
capture • evidence • share • inform

MRC Medical Research Council

Outputs, outcomes and impact of MRC research 2016




ISBN 978-0-903730-25-9

© Medical Research Council 2018

Cover Images attributions (clockwise from top left); (i)(c) ThinkStock, (ii) CC0 Creative Commons, (iii) Credit: NIAD, Creative Commons 2.0, (iv to vi) (c) Thinkstock, (vii) Credit: NIAD, Creative Commons 2.0.

You may re-use this information (not including logos and images) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit http://www.nationalarchives.gov.uk/doc/open-government-licence/ or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or e-mail: psi@nationalarchives.gsi.gov.uk

When providing a citation for this document we recommend the following:

Medical Research Council (2018) *Outputs, Outcomes and Impact of MRC Research 2016*. Publisher: Medical Research Council, Swindon, UK. ISBN: 978-0-903730-25-9

Any enquiries related to this publication should be sent to us at:

Medical Research Council, Polaris House, North Star Avenue, Swindon, SN2 1FL or corporate@headoffice.mrc.ac.uk

This publication is available at http://www.mrc.ac.uk/publications/browse/outputs-report/

Introduction

This report forms part of the MRC's *Investing for Impact* series, which provides both qualitative and quantitative analysis of the outputs, outcomes and impact of MRC research.

The outputs data from the MRC portfolio of awards included in this report were collected during the 2017 researchfish® data gathering period (Feb to Mar 2017). The new outputs reported in 2017 combine with those from past submission periods to provide more than 10 years of researchfish® data from all MRC awards active between April 2006 and October 2016. In total the compliance rate for 2017 was 95%, with returns from 5,955 awards of 6,269 awards expected to complete. This equates to 91% of MRC spend (5,955 awards incurred £5.6 billion of the £6.1 billion total spend of 6,269 eligible awards). All data in this analysis is correct as at 10 November 2017.

Evaluation and analysis of the outputs, outcomes and impact of MRC research require a detailed understanding of how data are collected and interpreted. Data on awards and their associated outputs also come from a variety of sources which need to be integrated to allow more direct comparisons between the support for research and its collective impact.

This report presents data from the various outputs as both:

- **Quantitative analysis** – the figures and charts displaying the outputs data from All MRC (the total MRC portfolio) awards[1].
- **Tabulated data** – a series of tables containing the numerical data used in the figures of the main quantitative analysis.

We recommend using the quick link tabs along the right hand margin for navigating this document, but you can also use the links to specific output types in the list below:

- **Publications** – Figures and Tables
- **Collaborations** – Figures and Tables
- **Further funding** – Figures and Tables
- **Next destinations** – Figures and Tables
- **Engagement activities** – Figures and Tables
  - Includes *Artistic and creative products*
- **Policy influences** – Figures and Tables
- **Research materials** – Figures and Tables
  - Includes *Tools and methods*,
  - *Databases and models* and
  - *Software and technical products*
- **Intellectual property** – Figures and Tables
- **Medical products, interventions and clinical trials** – Figures and Tables
- **Awards and recognition** – Figures and Tables

If you have any queries regarding these data, please contact the MRC Evaluation Team.

1 For further information on portfolio analysis, see the methodology pages of the MRC website.

Quantitative Analysis

Publications

Peer-reviewed publications are an important output from research and the most frequently reported. Their main functions — communicating information, building a knowledge base and validating research quality — have remained largely unchanged since they first came into existence, around 350 years ago[1].

Journal articles represent half of all output reports made via researchfish®. It takes time for researchers to publish their results and so there will naturally be fewer publications resulting from more recent awards. However, publications tend to be produced before any other type of output such as policy influence or intellectual property.

researchfish® question: Publications arising from research funded.

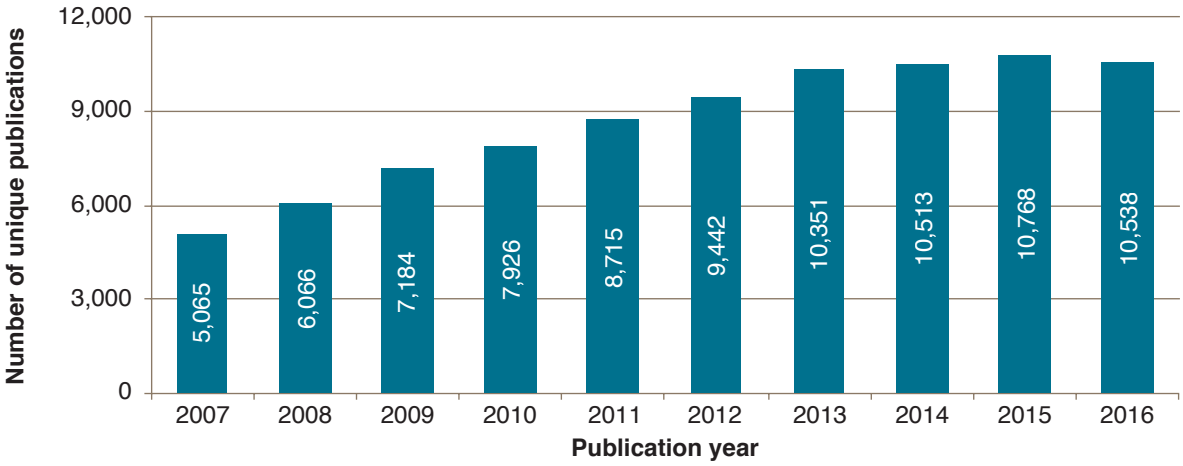


Figure 1: Number of unique publications for each year since 2007 (data in Table 1)
Researchers report approximately 10,300 new publications to the MRC each year.

[1] Solomon (2007) *The Role of Peer Review for Scholarly Journals in the Information Age*. J ePub 10(1). DOI: 10.3998/3336451.0010.107

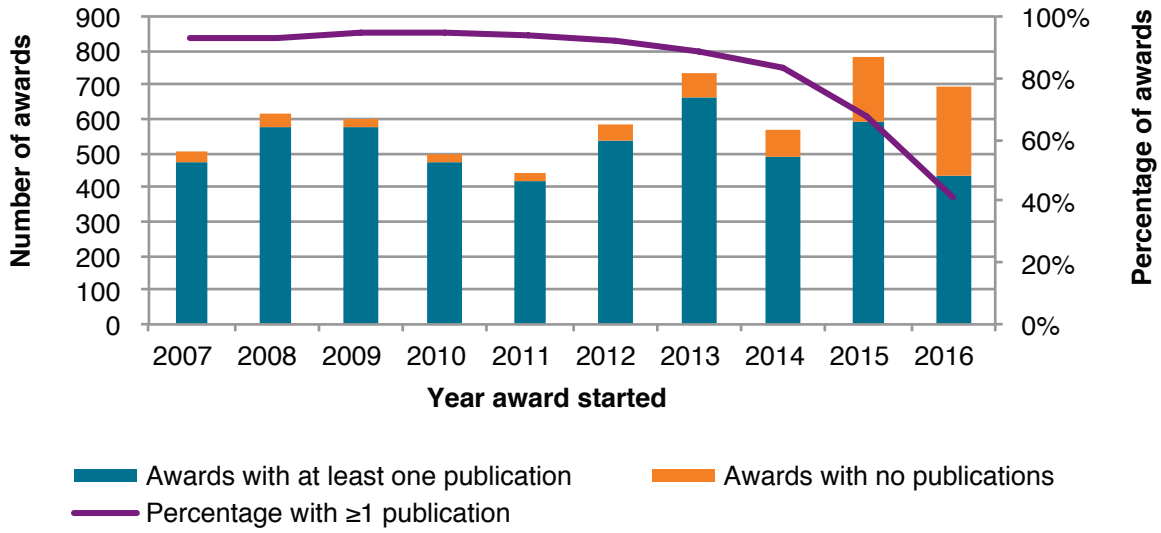


Figure 2: Distribution of publications by award start year (data in Table 2)
Between 90-95% of awards produce at least one publication over time, although this usually requires a year or two of work before results are ready to publicise.

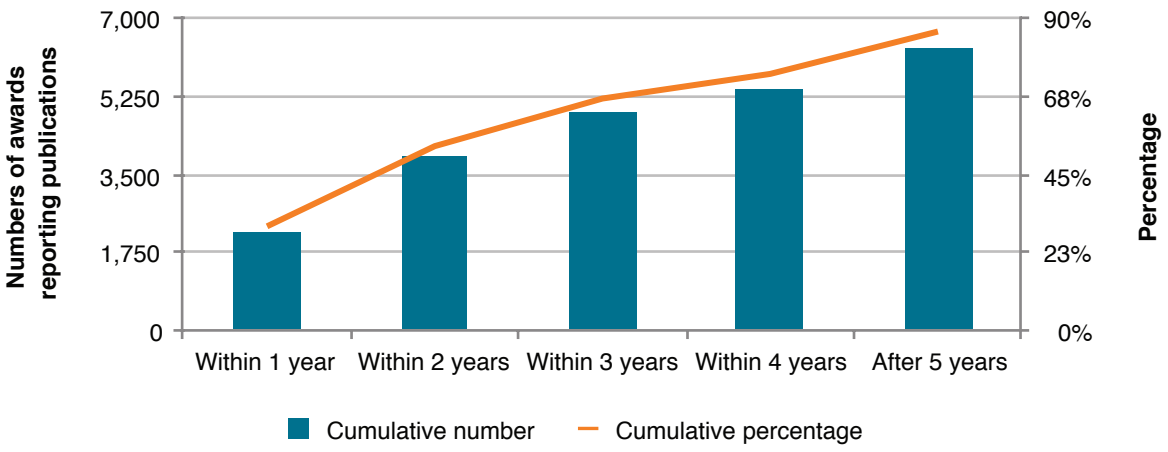


Figure 3: Time to report first publication by number of awards (data in Table 3)
Almost a third of awards produce a publication within the first year of research, while 86% of awards produce a publication within five years.

Open Access

Free and open access to publicly-funded research offers significant social, academic and economic benefits. As well as improving research efficiency through ready access to the most current research data, Open Access promotes a new model of scholarly communications embracing openness and accountability.

Since 2006, the MRC has requested that researchers make publications free to read at the point of access. Due to time lags in publishing, ID assignment and Europe PubMed Central (Europe PMC) processing, the most recent year of data collection will have a lower rate of publications. These would be expected to increase with the next data gathering period.

We work with Europe PMC to obtain further information about whether these papers were openly accessible within six months of publication and to filter our results with respect to publication types that have to comply with the Open Access policy.

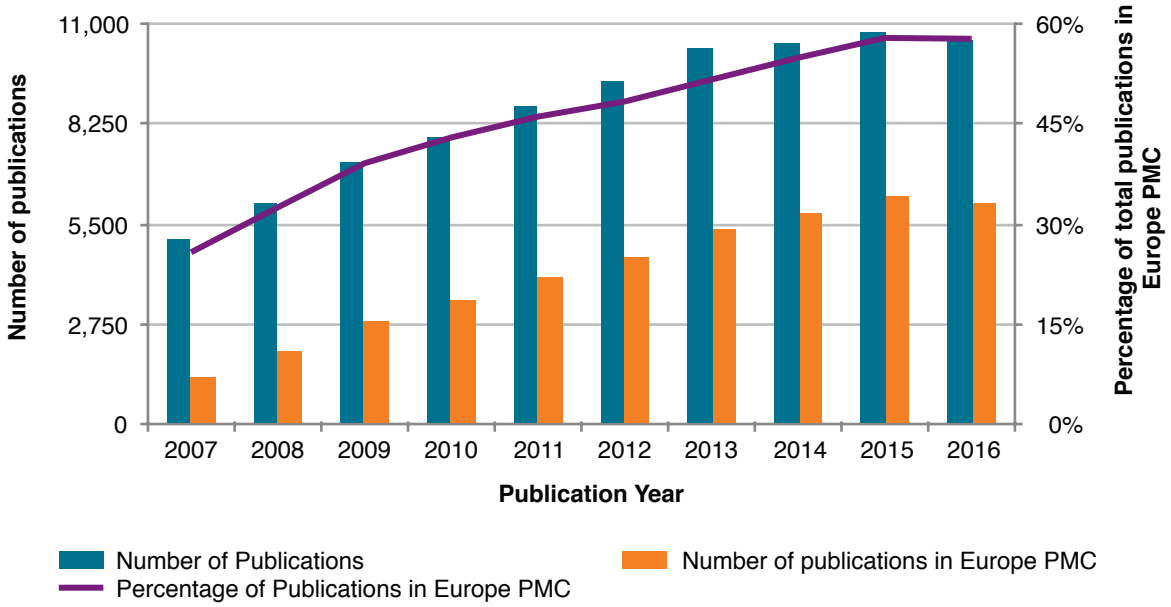


Figure 4: Europe PMC availability by publication year (data in Table 4)
In the past 10 years, the proportion of publications available through Europe PMC has more than doubled, from 22% in 2006 to 58% in 2016.

Collaborations

Research collaborations might take the form of joint funding, exchanging expertise, staff and facilities, accessing datasets (for example when conducting meta-analyses), or simply bringing together the critical mass required to tackle complex multidisciplinary problems. Collaboration as measured by co-authorship, particularly international co-authorship, has been shown to increase citation impact. Feedback from researchers via researchfish® shows that collaborations are frequently global, cross-sector and interdisciplinary, and are essential to maximise translational impact from research. During a period of constrained public finances it is even more important for researchers to pool resources and expertise to enable access to wide-ranging facilities and equipment.

It takes time for researchers to set up collaborations and so there will naturally be fewer collaborations resulting from more recent awards.

researchfish® question: Collaborations or partnerships which develop as a result of research funded.

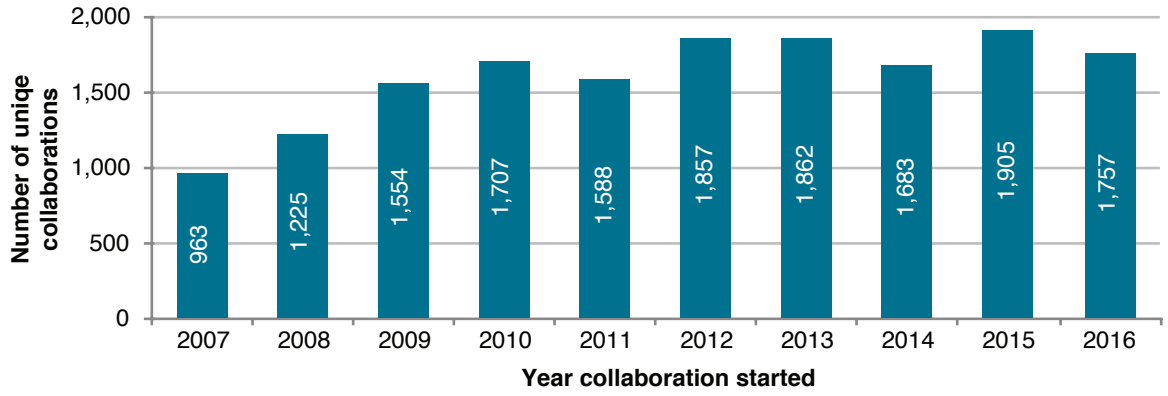


Figure 5: Number of unique collaborators by award start date (data in Table 5)
MRC researchers report approximately 1,800 new collaborations each year.

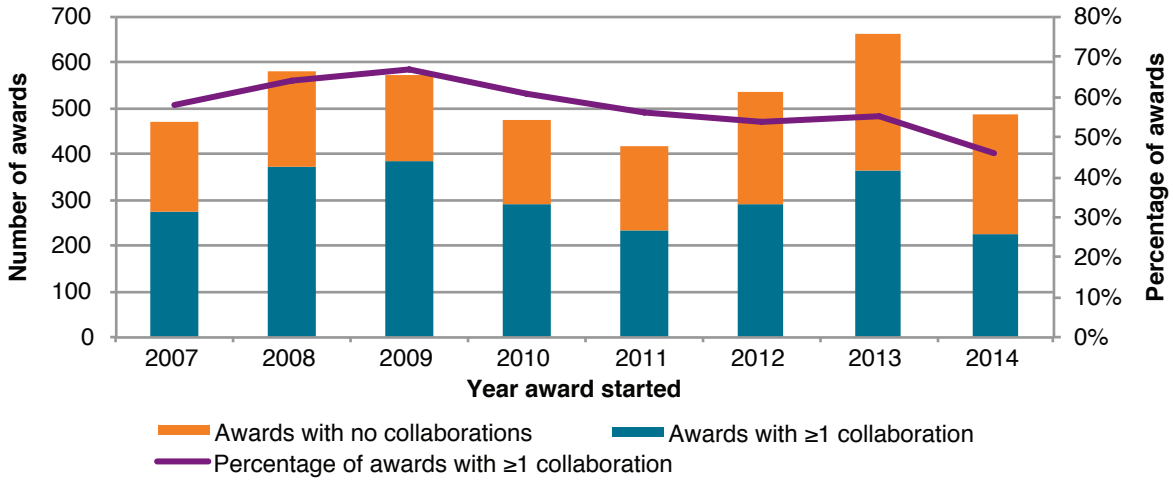


Figure 6: Number of collaborators by award start date (data in Table 6)
Approximately 58% of MRC awards report a new collaboration over time.

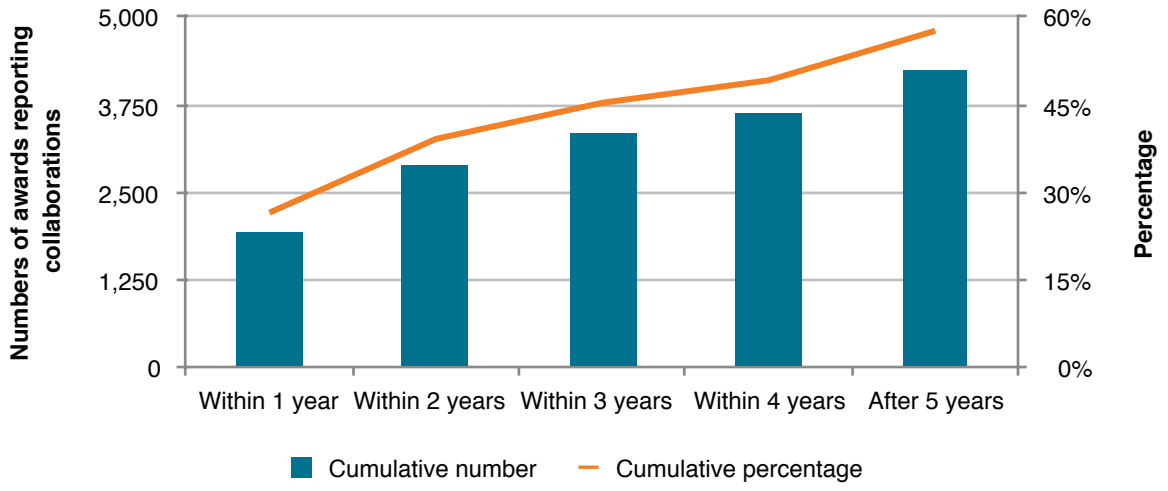


Figure 7: Time between award start date and start of collaboration (data in Table 7)
A quarter of awards (27%) have new collaborations reported within the first year of active research. More than half of awards (58%) have new collaborations reported after five years.

Collaborations by location

While the majority of the new collaborations made are within the UK, 43% of collaborations are with international partners. The most common collaboration locations are within Europe (16%) or the United States (12%). The remaining 15% account for a further 2,412 new collaborations across 196 countries.

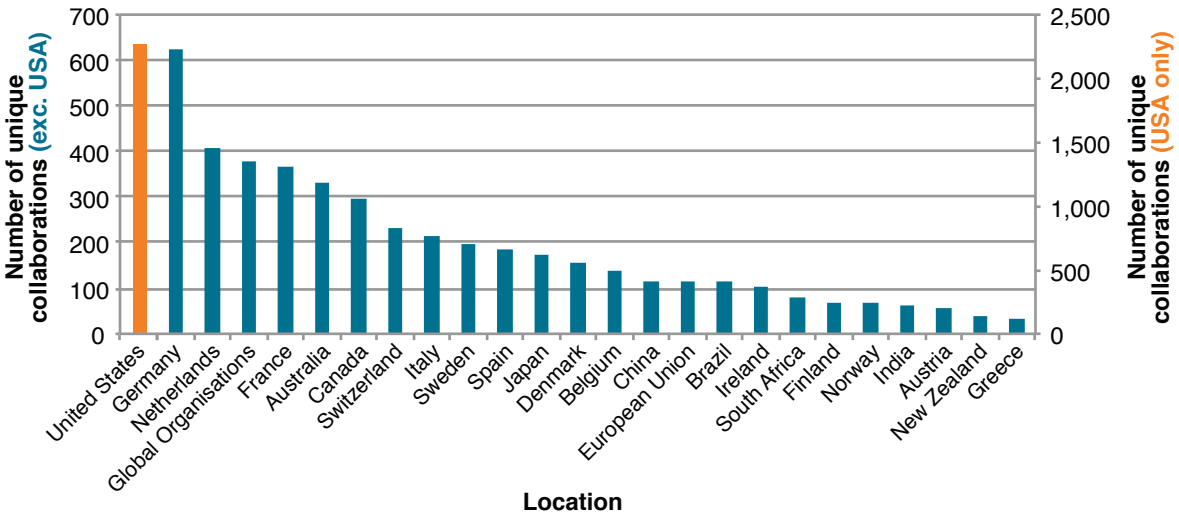
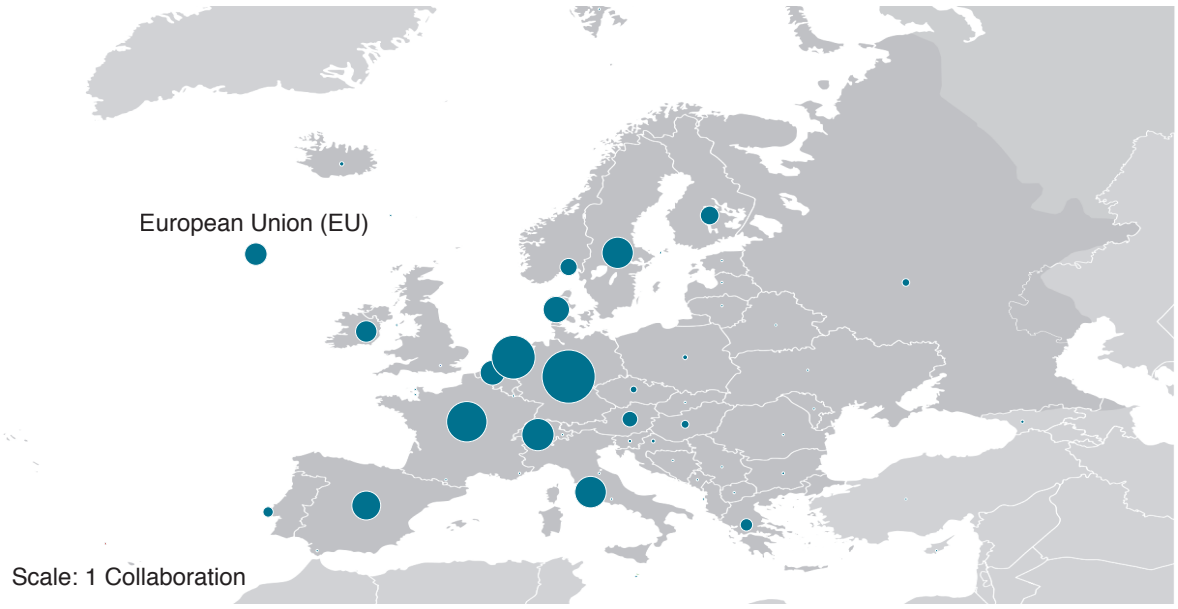
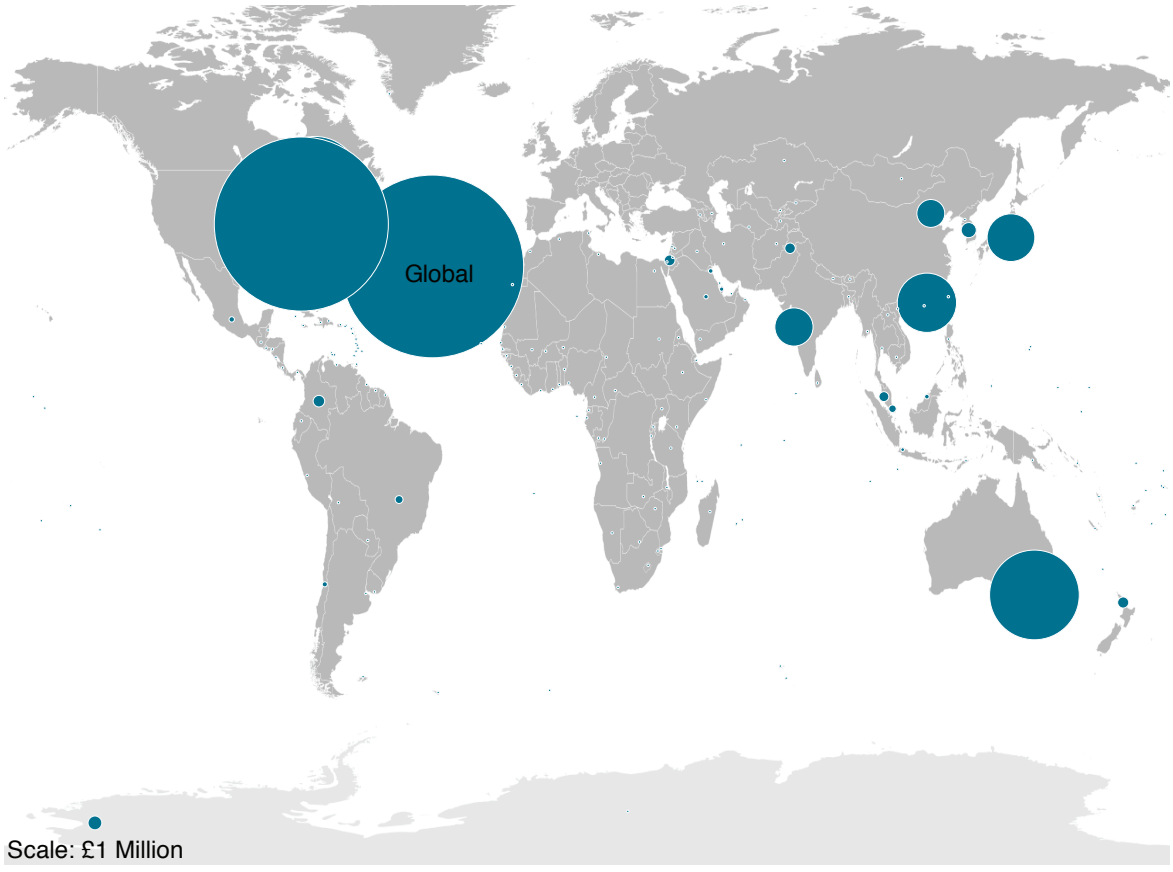


Figure 8: Top 25 countries (excluding UK) for number of unique collaborators (data in Table 8)
While most new collaborations are made within the UK, 43% of collaborations are with international partners. The most common countries outside of the UK where collaborations are made are the United States (21%) and Germany (6%).



Graphic 1: Distribution of European (excluding UK) collaborators

Collectively, European collaborations account for 16% of all new collaborations reported.



Graphic 2: Distribution of international (excluding Europe) collaborators

The remaining 15% of all collaborations reported constitutes a further 2,412 new collaborations across 196 countries. This includes global organisations such as the United Nations and World Health Organisation.

Collaborations by sector

researchfish® provides data on the extent to which MRC researchers are engaging with collaborators from different sectors, including from the private sector.

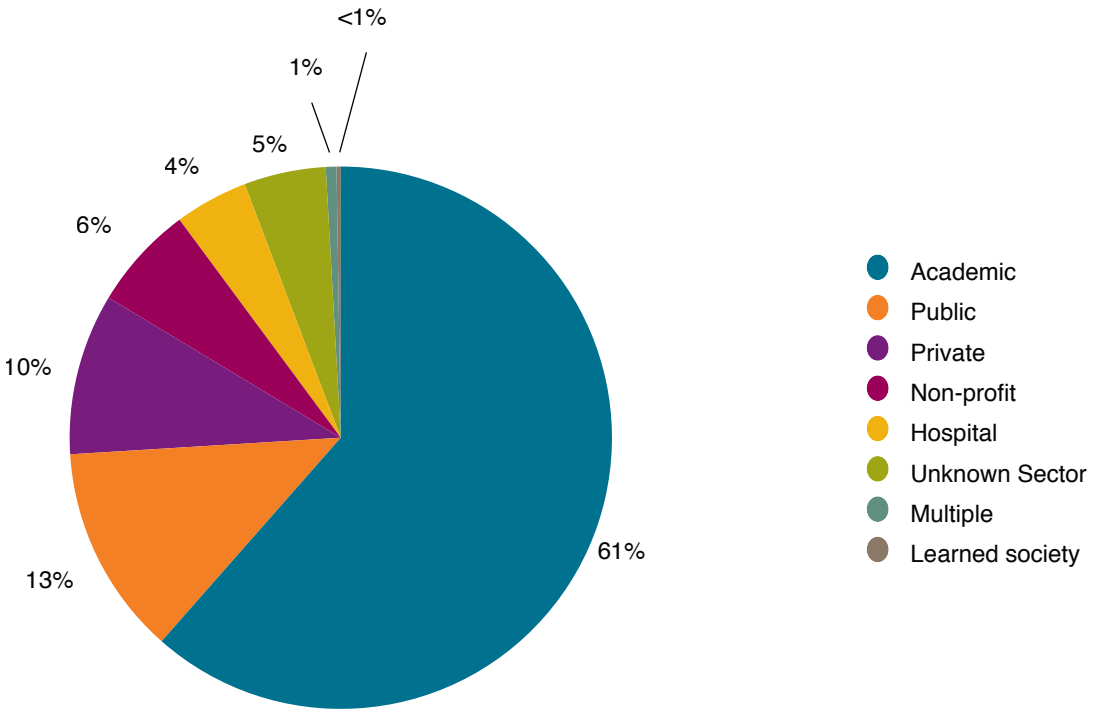


Figure 9: Number of collaborators by research sector (data in Table 9)
Almost two thirds of new collaborations reported are within academia (61%). Publicly-funded organisations (13%) and the private sector (10%) are also frequent sectors for collaboration.

Further funding

In addition to establishing and maintaining collaborations, researchers obtain funding to continue or expand on their work. This further funding may be competitively won, at least in part, because of MRC support. Success in obtaining further funding may indicate that the research group has established a high-quality track record and is therefore able to present attractive proposals for future research.

researchfish® question: Additional funding which develops as a result of research funded.

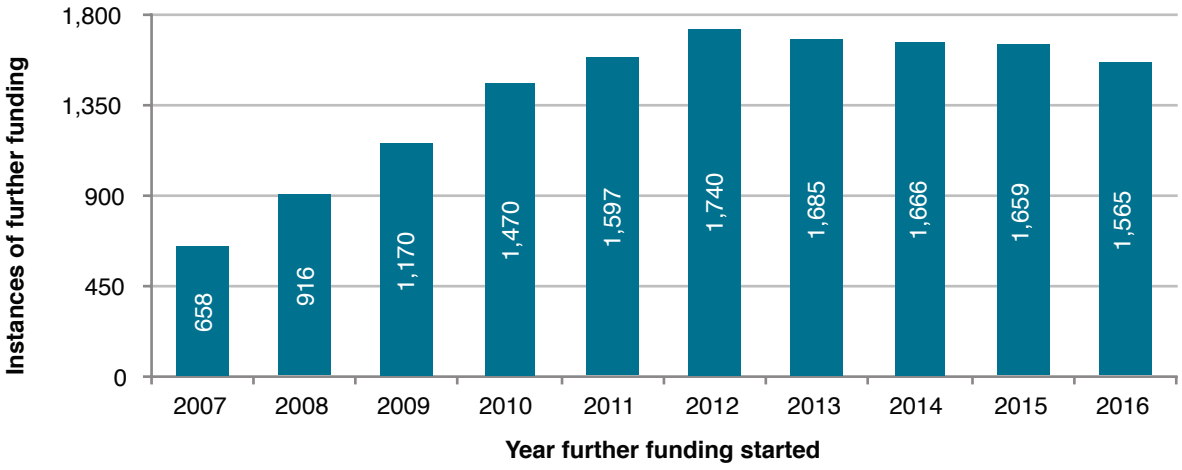


Figure 10: Instances of further funding by start date (data in Table 10)
Researchers report around 1,600 new instances of further funding each year.

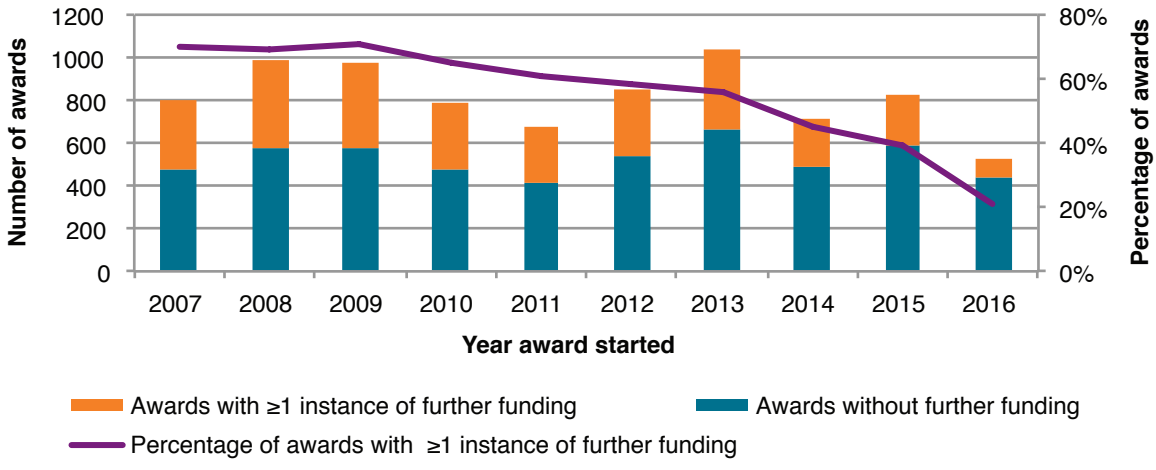


Figure 11: Number of awards reporting further funding by award start date (data in Table 11)
Recipients from more than two thirds of MRC awards gain further funding as a result of their MRC support over time, although this may take some years to obtain.

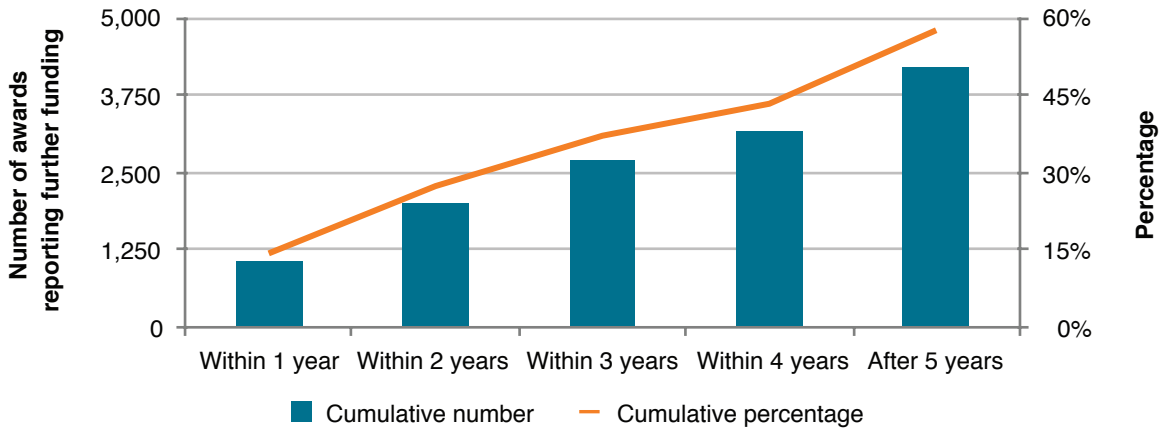


Figure 12: Time between start of the award and further funding (data in Table 12)
Gaining additional financial support takes time; 58% of awards have further funding reported after five years.

Value of further funding

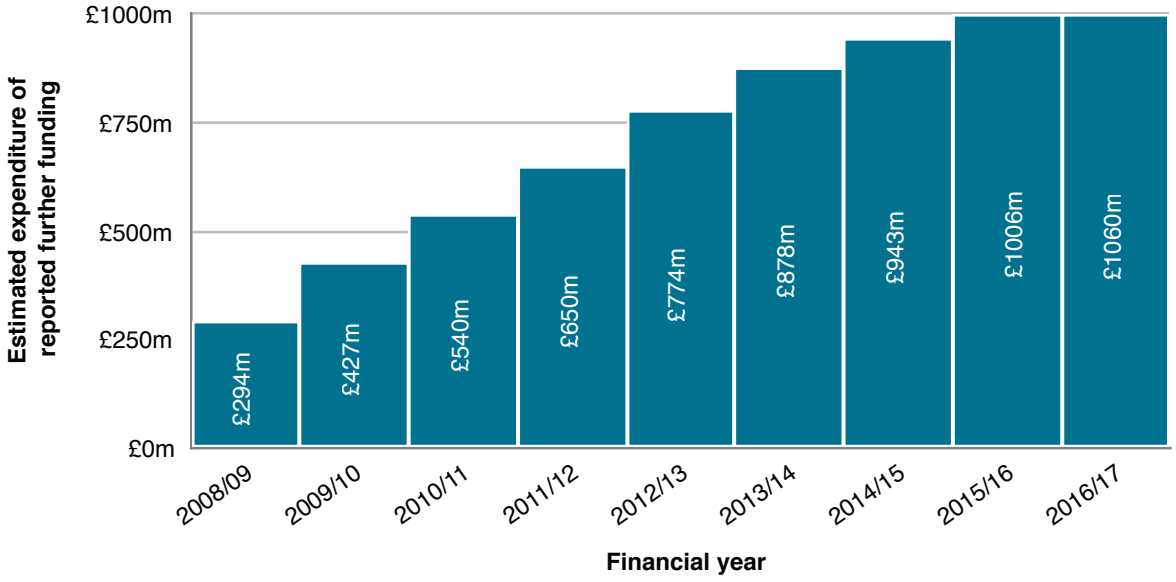
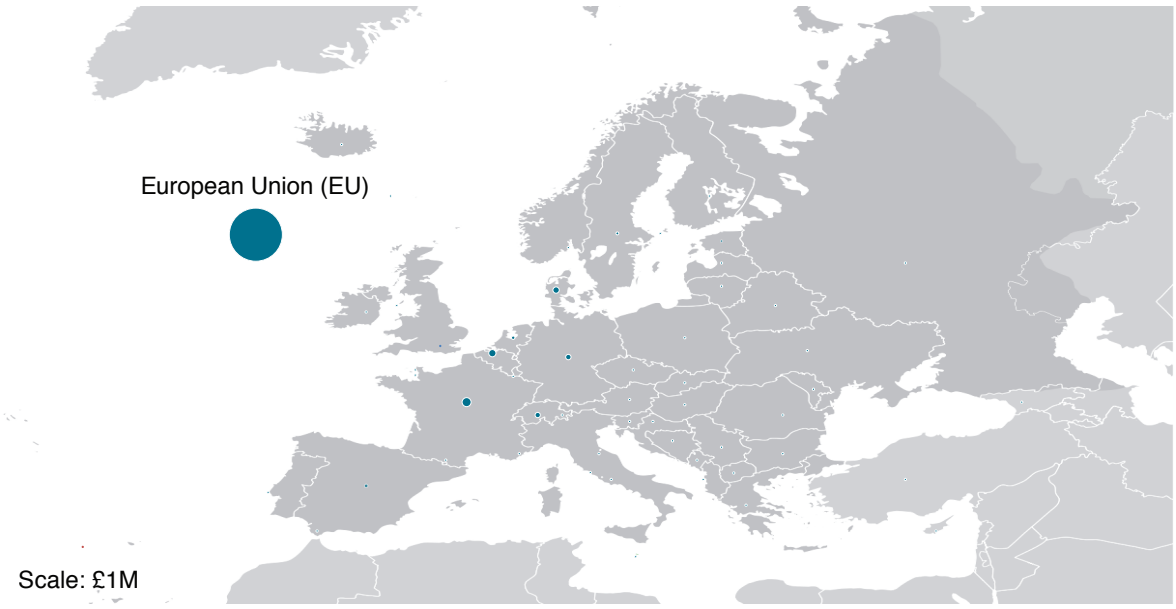
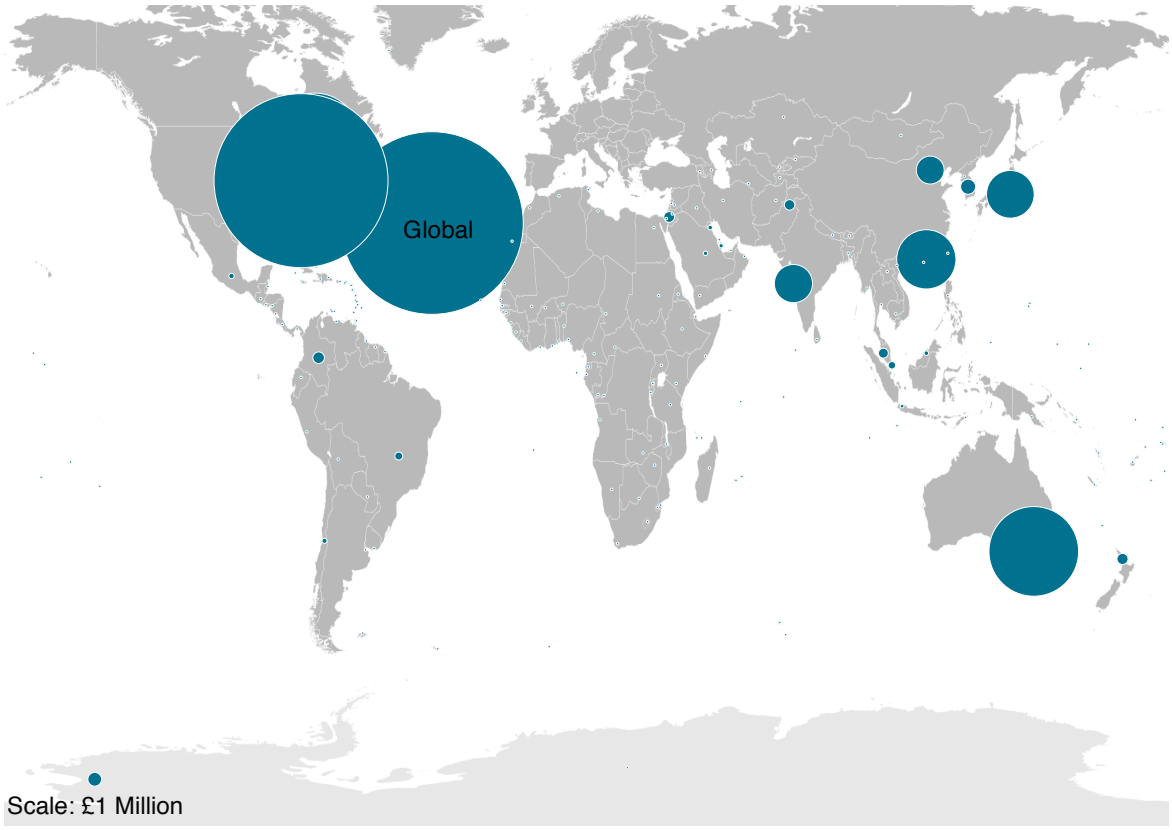


Figure 13: Value of further funding by financial year (data in Table 13)
The 'crowding in' of funding by MRC researchers is estimated at £4.66 billion of expenditure in the last five years.



Graphic 3: Amount of further funding by location (European, excluding UK)
Within Europe, the main provider of further funding for MRC researchers is the European Union, with £1.14 billion since 2006.



Graphic 4: Amount of further funding by location (International, excluding Europe)
Further funding obtained from the United States and global organisations (for example UN, WHO) by MRC researchers accounts for a further £710 million and £149 million respectively.

Further funding sources by sector

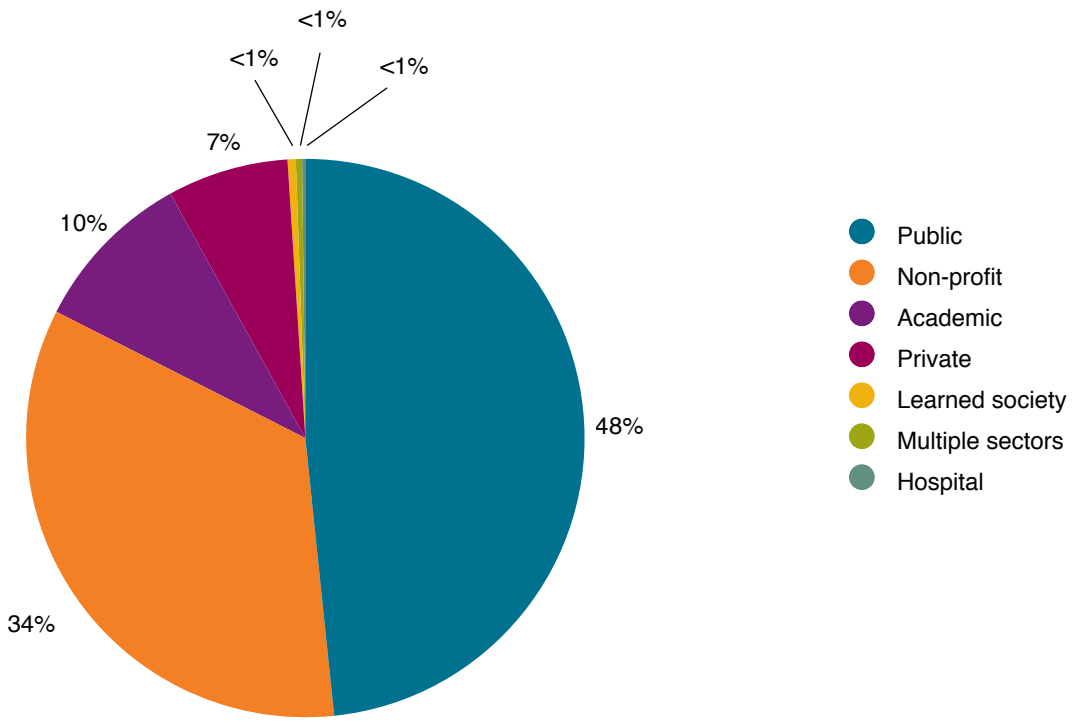


Figure 14: Percentage of further funding by sector (data in Table 14)
Awards from public and charitable/non-profit organisations accounts for 82% of all further funding reported by MRC researchers.

Next destinations

The MRC is interested in tracking the career progression of those who have been supported either wholly or partially by MRC funding. Data on the next role taken by those leaving indicates a logical career progression.

Note: due to changes in the researchfish® common question set, we no longer collect data on specific roles staff leaving MRC support move to. As a vresult, this section differs from previous *Outputs, outcomes and impacts* reports.

researchfish® question: PI-reported employment sector of all people funded by the grant at the end date or when they otherwise cease to be employed by the grant.

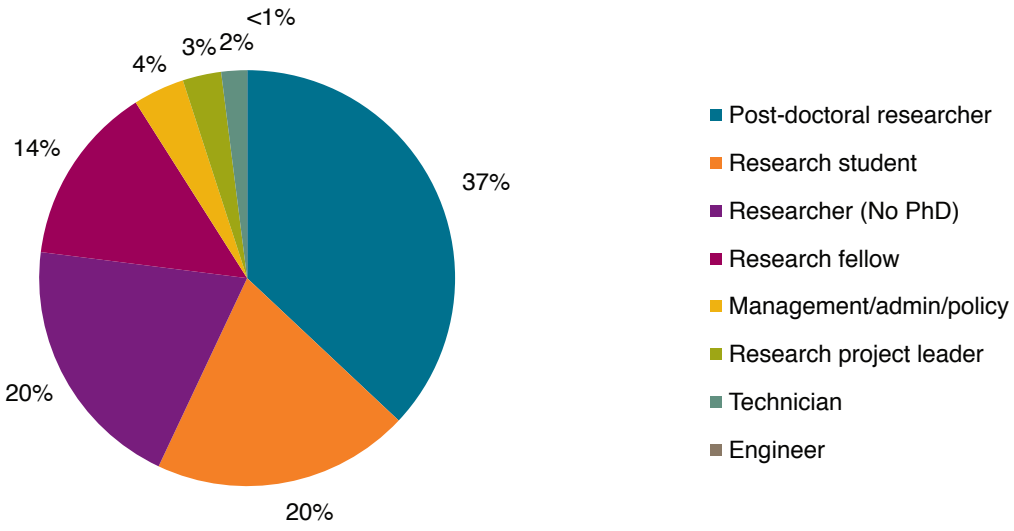


Figure 15: Distribution of roles held by staff leaving MRC support (data in Table 15)
The majority of these data (94%) refers to staff members in direct research roles.

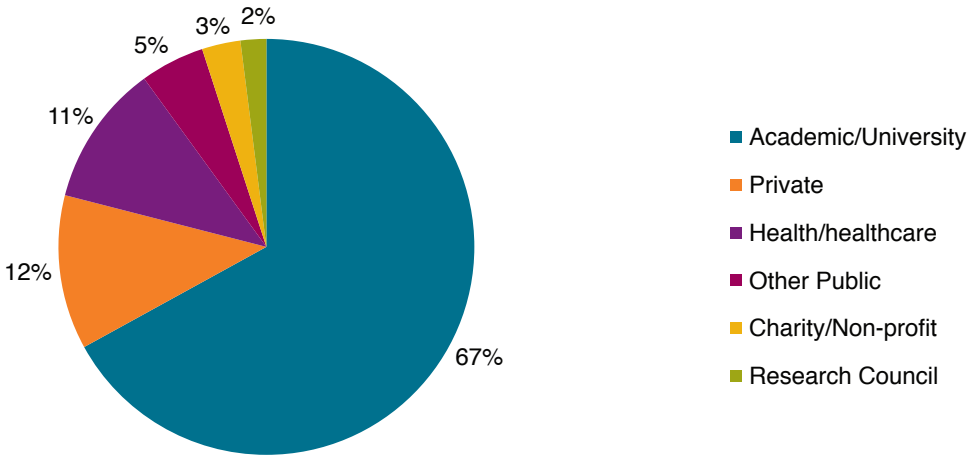


Figure 16: Distribution of next destinations of research students by sector (data in Table 16)

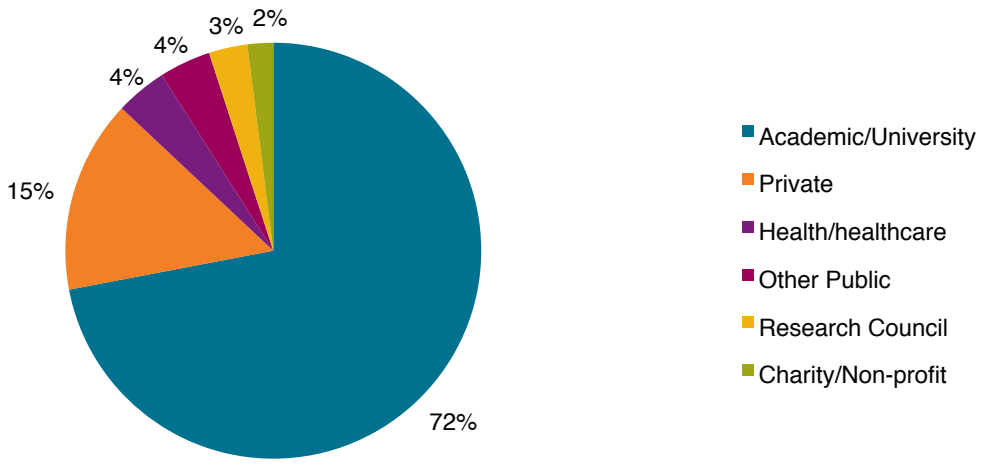


Figure 17: Distribution of next destinations of post-doctoral researchers by sector (data in Table 17)

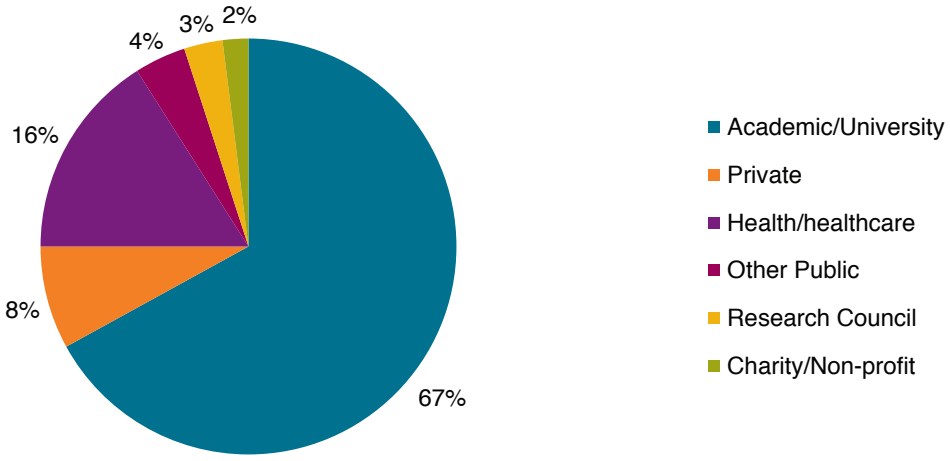


Figure 18: Distribution of next destinations research fellows and researcher leaders by sector (data in Table 18)

Most MRC awards are made to academic institutions, and the majority of research staff leaving MRC support will continue in academia (63-72%). A further 12% to 15% move to positions in the private sector.

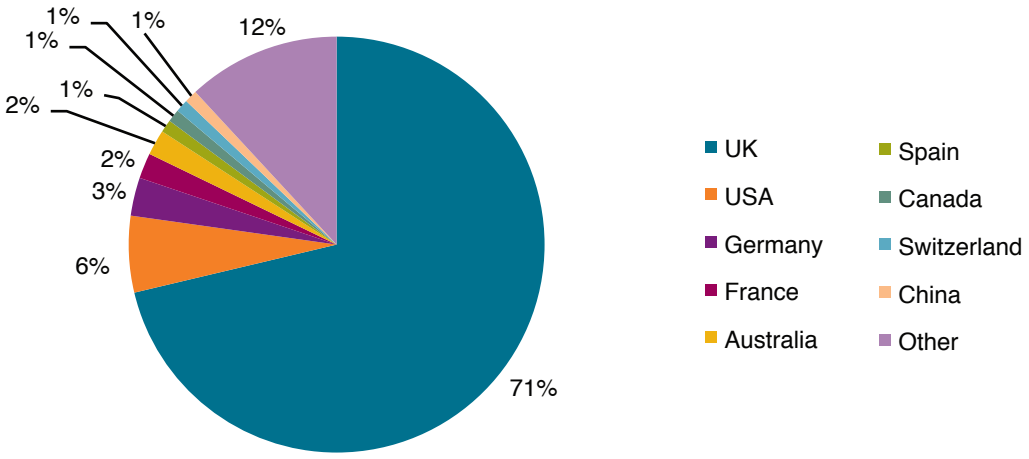


Figure 19: Distribution of staff leaving MRC support by destination country (data in Table 19)

The majority of MRC-supported staff remain in the UK, however 28% move internationally spanning 106 different countries.

Engagement activities

Engaging with audiences outside of academia is an important part of the research process. It helps to enhance public understanding of complex research topics, communicate the importance of the research carried out and inspire future careers in science. The MRC runs a varied public engagement programme involving many researchers, from open days and participation in science festivals to our annual Max Perutz science writing competition. However public engagement is not limited to these MRC-run events. The MRC recognises the importance of public engagement: helping the public to understand our scientific findings, reflecting their views in our decision-making and effectively communicating these policies. This is why the MRC encourages our scientists to engage, educate and inspire the public through various mediums, exhibitions, workshops, lectures or the media and to report on their activities.

researchfish® question: Forms of communication of research results and science communication activities.

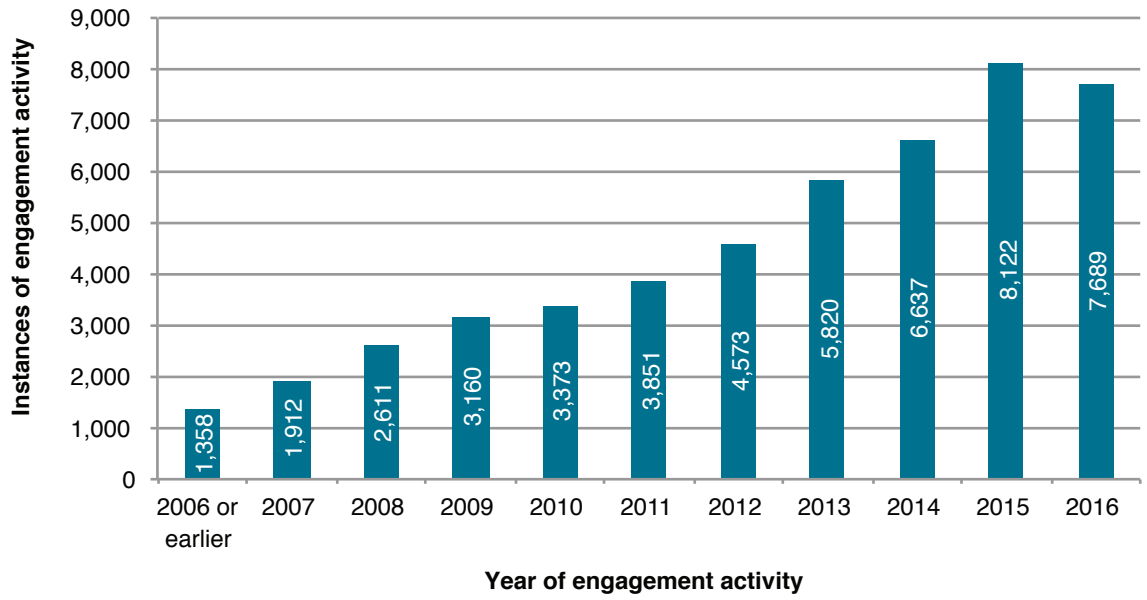


Figure 20: Instances of engagement activities by year activity was first reported (data in Table 20)

In the last five years, MRC researchers have reported more than 6,500 engagement activities per annum on average.

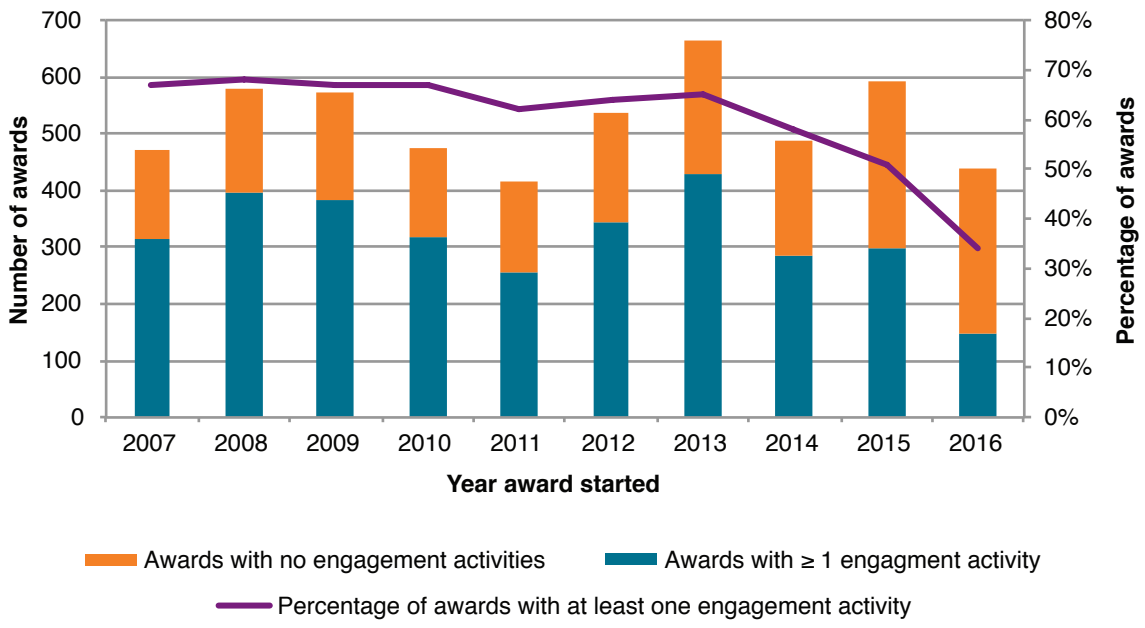


Figure 21: Number of awards reporting at least one engagement activity by start award year (data in Table 21)

Approximately two thirds of MRC awards report engagement activities over time. These data suggest it takes around three years to reach this average reporting rate.

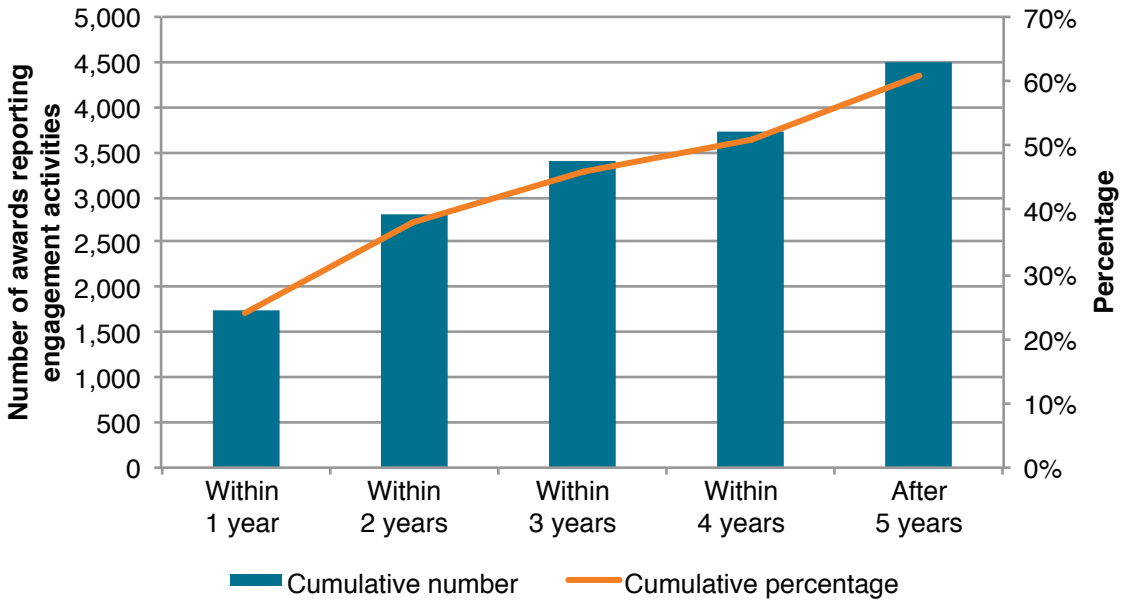


Figure 22: Time between the award starting and engagement activity taking place (data in Table 22)

Across all MRC awards since 2006, 24% report engagement activity within the first year, rising to 61% within five years. In comparison, 34% of awards begun in 2016 have already reported engagement activities.

Engagement activity by audience and type

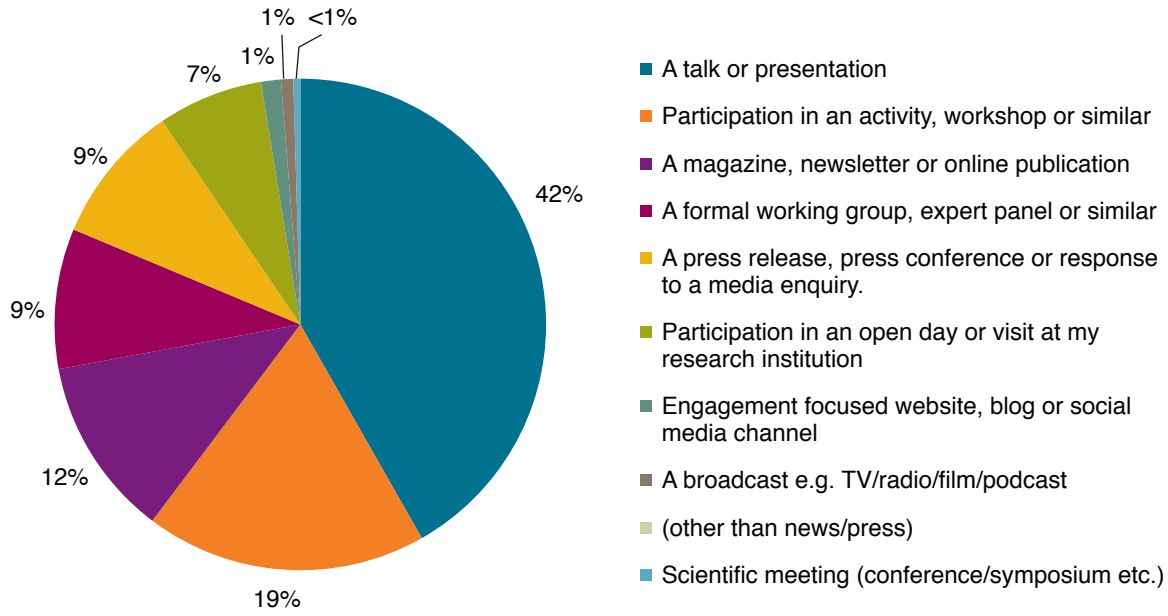


Figure 23: Engagement activities by type (data in Table 23)

There are many mechanisms by which MRC researchers disseminate their work, with a talk or presentation the most frequent (42%). Both traditional media (for example, press releases, magazines, newspapers, TV/radio) and 'new' media (such as blogs, social media, podcasts) feature prominently (23% combined).

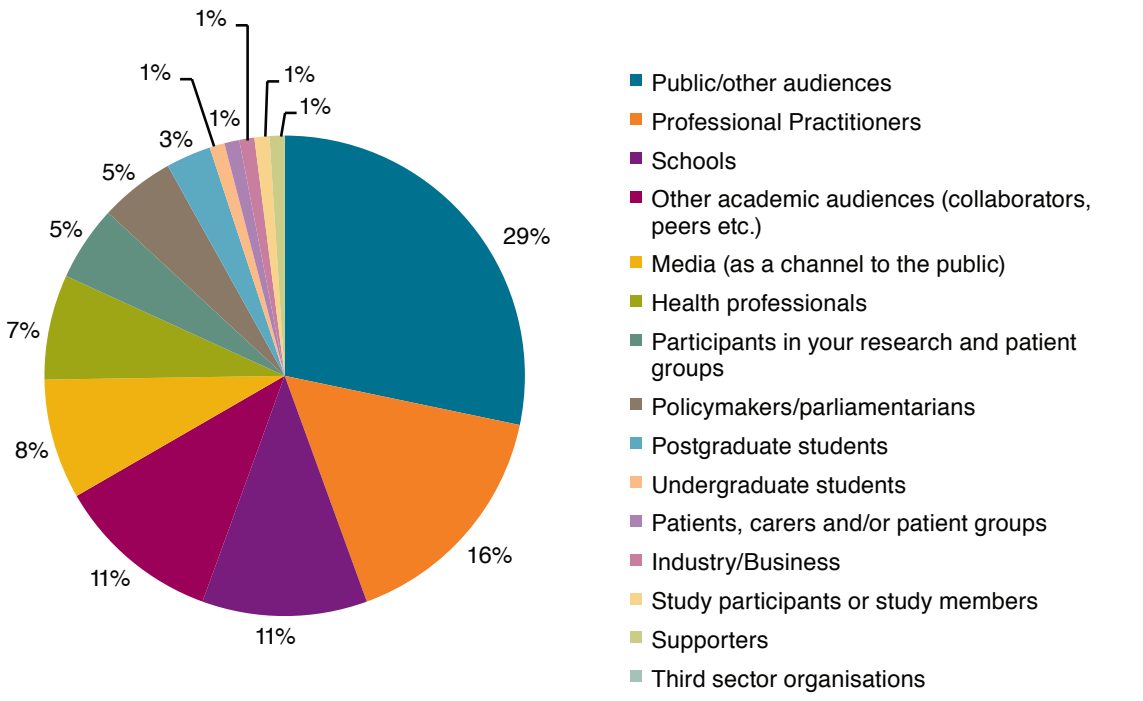


Figure 24: Engagement activities by audience type (data in Table 24)

The audience for engagement activities from MRC researchers are also mixed. The general public is most frequently reported (28%), but schools, professionals, policymakers and research participants are also featured.

Artistic and creative products

For many, the pairing of medical research and artistic products seems unlikely. However, over the past two years, the combined use of researchfish® across both medical and arts/humanities research funders has provided MRC researchers with the opportunity to report on their more creative endeavours. While relatively few, just 222 in the past five years, it has been interesting for the MRC to follow how research can be viewed in different, more widely accessible artistic means. Scientists are creative individuals and it has been interesting to observe novel ways in which scientific achievements can be expressed.

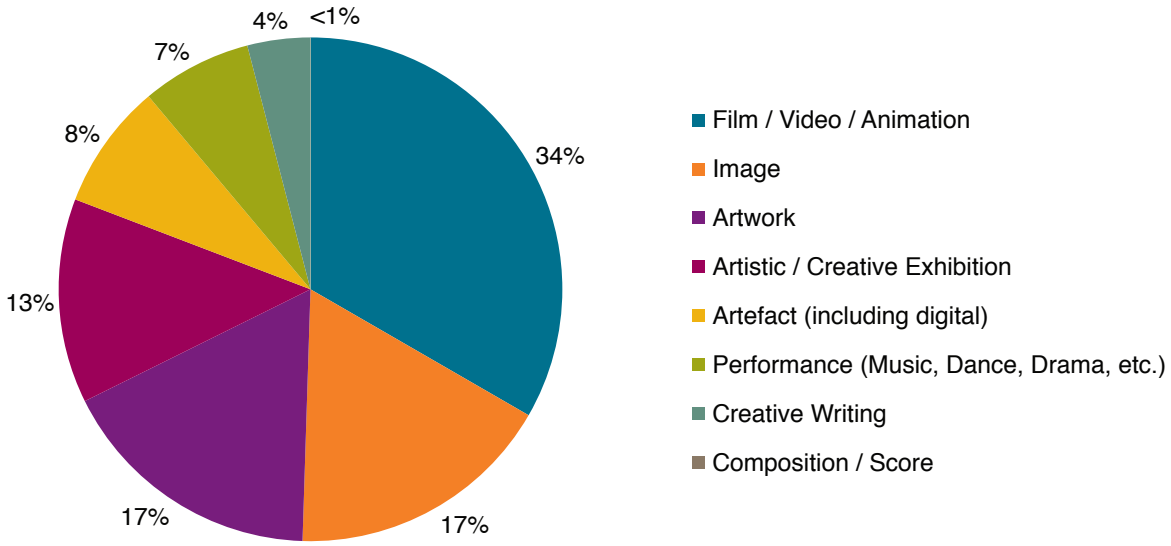


Figure 25: Number of instances of artistic and creative products by type (data in Table 25)
Around 33% of artistic products reported are films, videos or animations. These include advocacy work, often created directly by researchers themselves, on social media video channels like YouTube. Also included are exhibits in science museums and artistic installations. Photographs, often taken for the purposes of research (for example captured by microscopy) can be subsequently used for more artistic purposes, such as the cover of books or magazines, or public display.

Policy influence

Translating research evidence into improved policy occurs via many different routes, but engagement — communicating and exchanging information and expertise — between researchers, the public and policymakers is crucial. Policymakers, including politicians, regulatory organisations and arms-length bodies, have a duty to use the best possible evidence to benefit society's health and wellbeing. Researchers are therefore encouraged to maximise opportunities for their findings to inform policy decisions. MRC researchers play a critical part in shaping and influencing national and international policy, ensuring that public policy decisions and health interventions are based on research of the highest quality. Researchers contribute regularly to developing and revising clinical guidelines; recommendations to clinicians on the diagnosis, management and treatment in specific areas of healthcare based on systematic evidence, such as NICE and WHO clinical guidelines. MRC researchers also have an influence on policy through membership of guideline committees, participation in national consultations, and the training of practitioners.

However, this is not always a straightforward pathway and academic research is not always ready for application or can easily be put into practice by policymakers. This is why the MRC requires researchers to consider including ways to engage with the public, policymakers and other potential beneficiaries in their research design. Extending and improving this exchange is at the heart of our strategic plan.

researchfish® question: influence on policy or practice resulting from research outcomes.

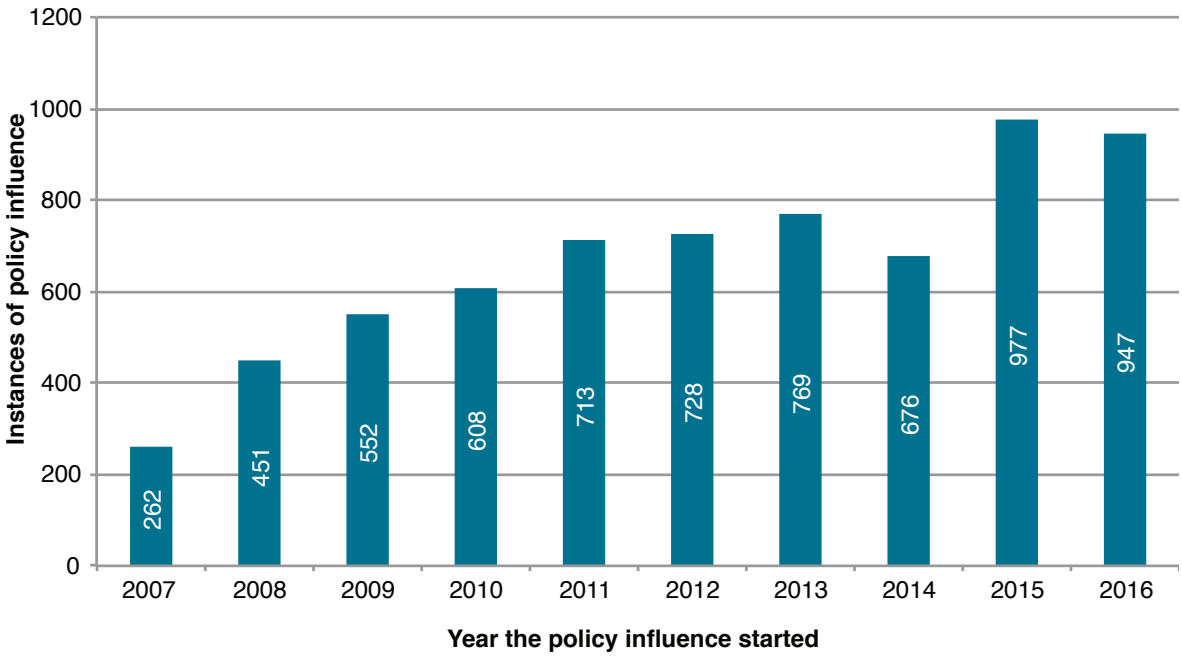


Figure 26: Number of instances of policy influence by year policy influence started (data in Table 26)

MRC researchers report ~810 new policy influences each year.

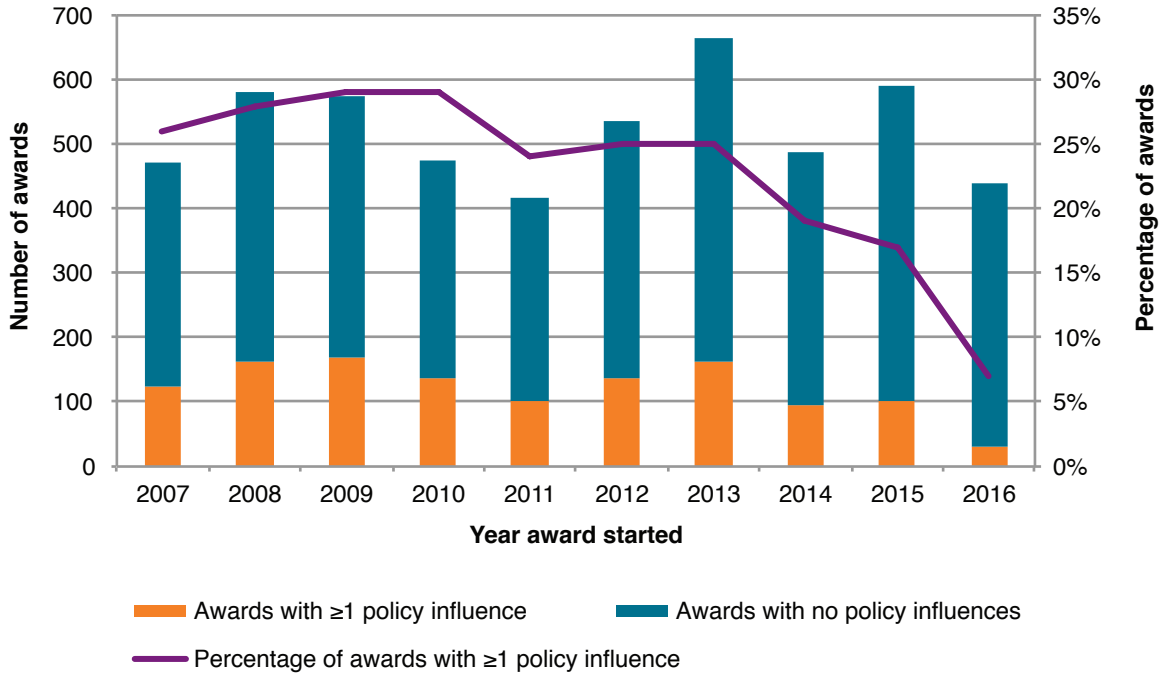


Figure 27: Policy influence by award start year (data in Table 27)

Overall, approximately 25% of MRC awards will report at least one policy influence over time, although these may take some time to accrue.

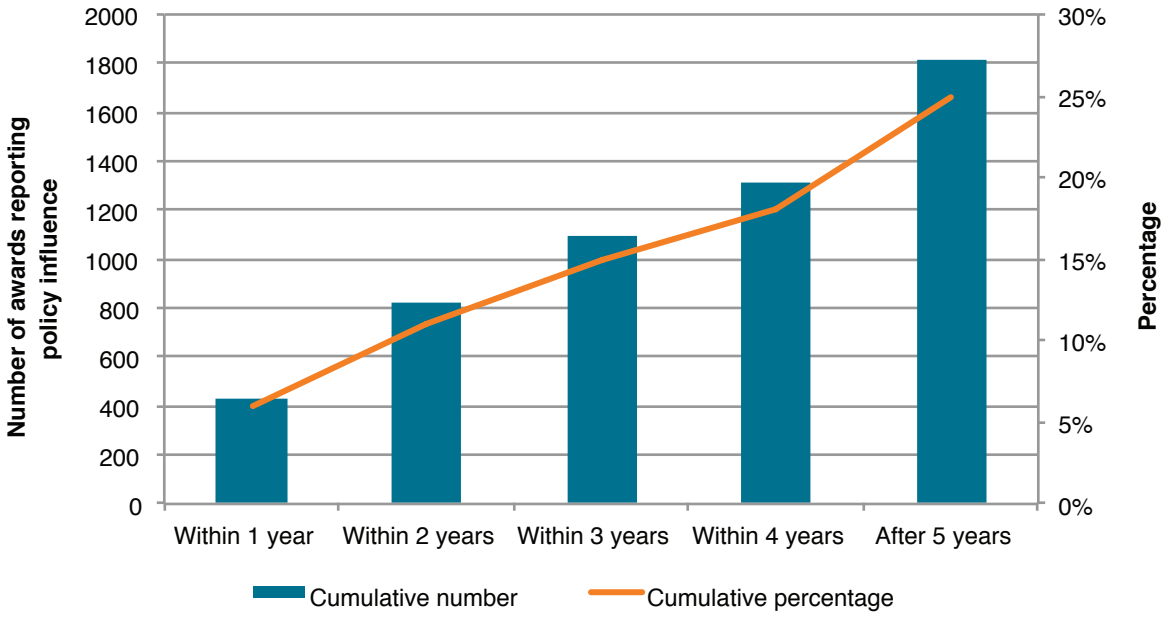
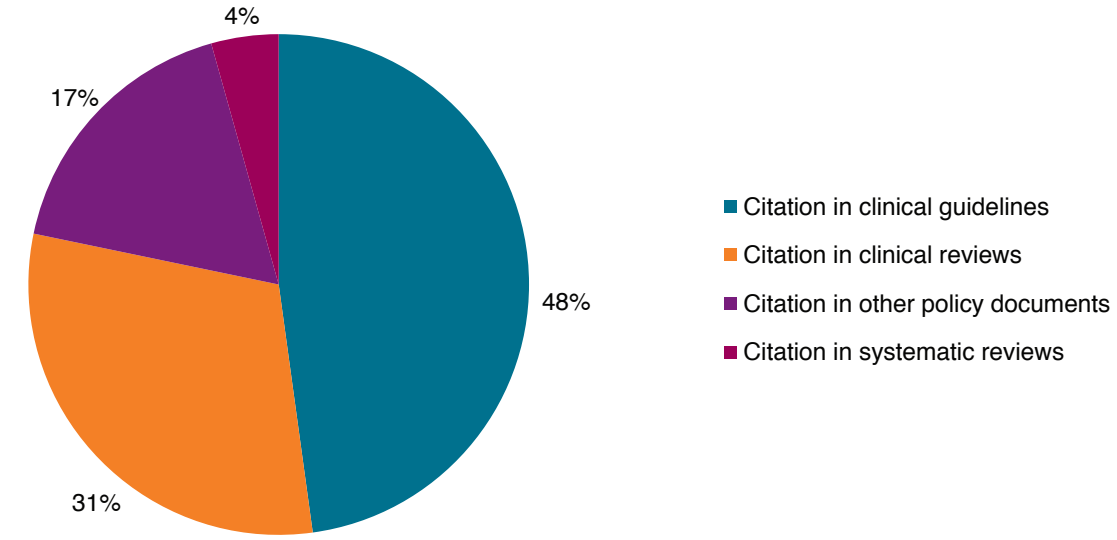


Figure 28: Time taken to report first policy influence (data in Table 28)

Only 6% of MRC awards report policy influences within the first year. After five years, the proportion of MRC awards reporting policy influences rises to 25%.

(A) Citations



(B) Other Policy Influence

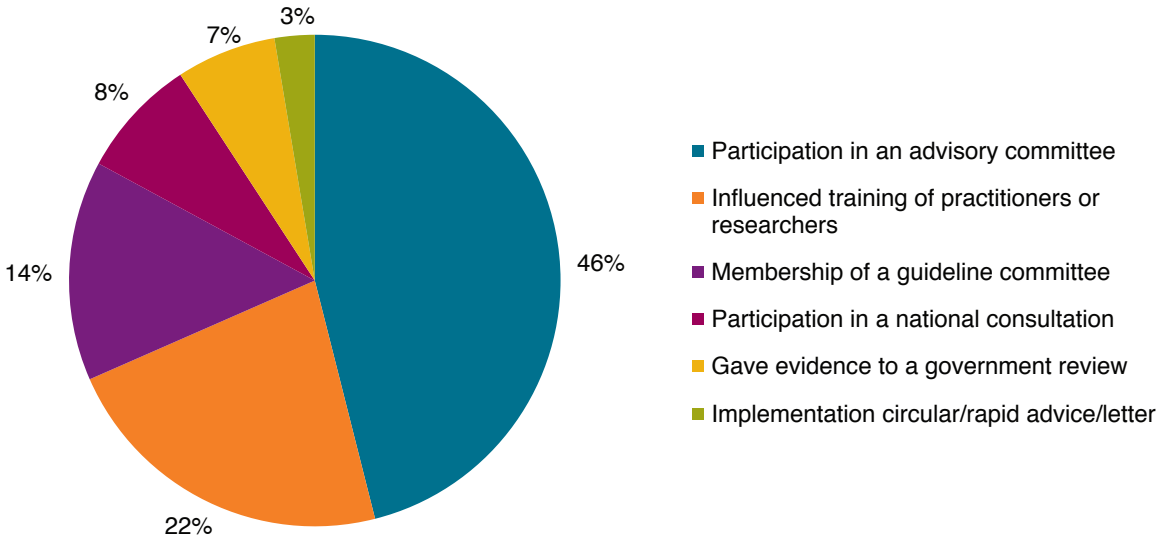


Figure 29: Instances of policy influence by type, divided by citations (a) and other types (b) (data in Table 29)

Citations (a) account for 23% of policy influences reported, the most frequent type being citations in clinical guidelines. Other types of policy influence (b) tend to focus on researcher expertise directly, as members of advisory groups, developing training or as part of committees, consultations or reviews that shape wider organisational / national policies.

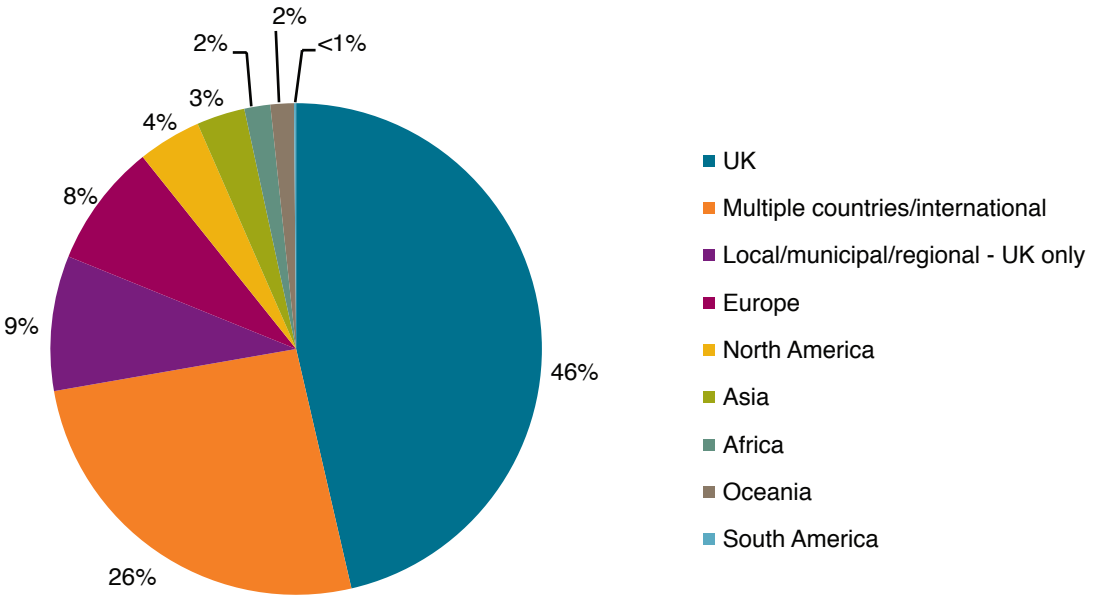


Figure 30: Instances of policy influence by location (data in Table 30)
Just over half of policy influences reported occur exclusively in the UK (46% nationally, 9% on a more local level). The remaining 45% are international in nature, of which more than half (26% of total) affect multiple countries.

Research materials

The materials generated in the course of research are many and diverse. They may include new biological models (which may be whole living organisms or cell cultures engineered for a particular purpose), databases containing information about experimental observations or instructions for new techniques. These materials are tangible evidence of the research process and, although usually generated exclusively for the original research programme, they may be used more widely in other research projects. Using these materials may open up entirely new lines of enquiry and/or accelerate research in closely-related fields or even entirely different disciplines. These spill-over benefits are important outputs of MRC-supported research. Feedback captured via researchfish® aims to identify where studies have generated research materials and, importantly, where these have been used by others.

researchfish® question: Research materials developed during the funded project.

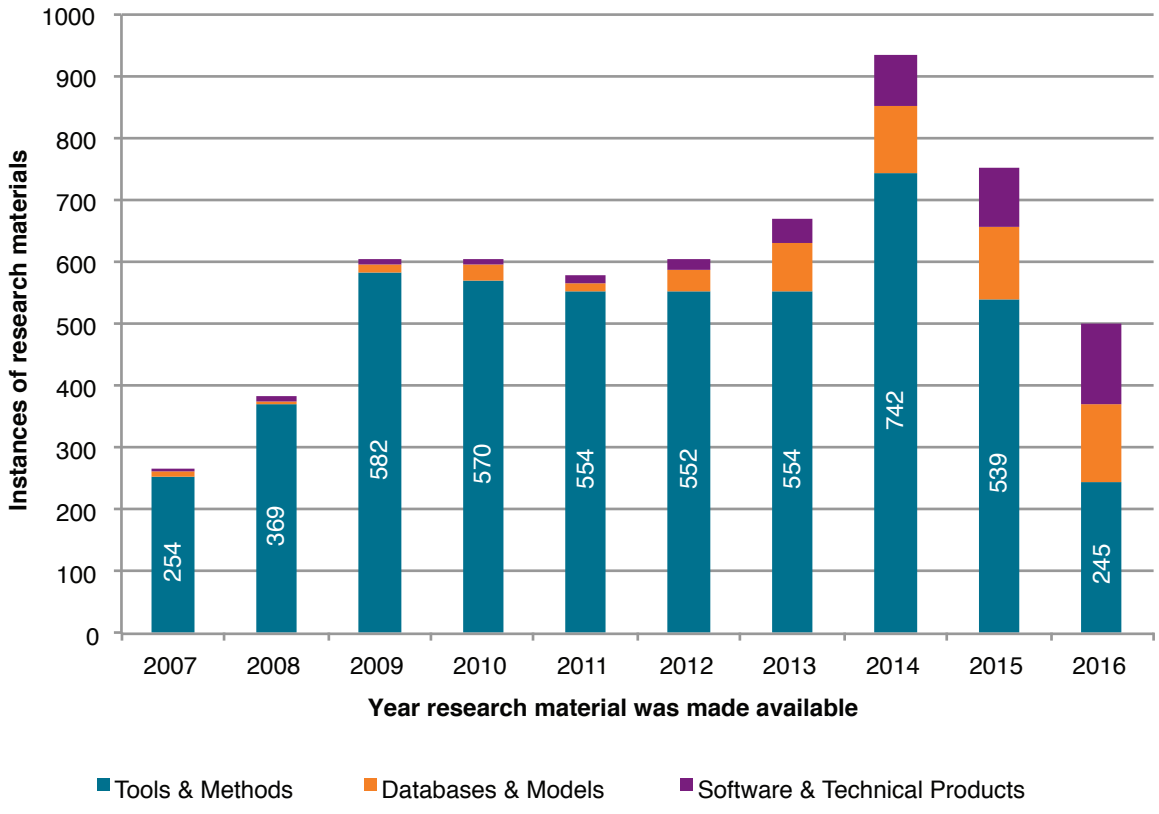


Figure 31: Number of instances of research materials, including new researchfish® questions, by year when research material was made available (data in Table 31)
MRC researchers report around 520 new research materials each year.

Tools and methods by type

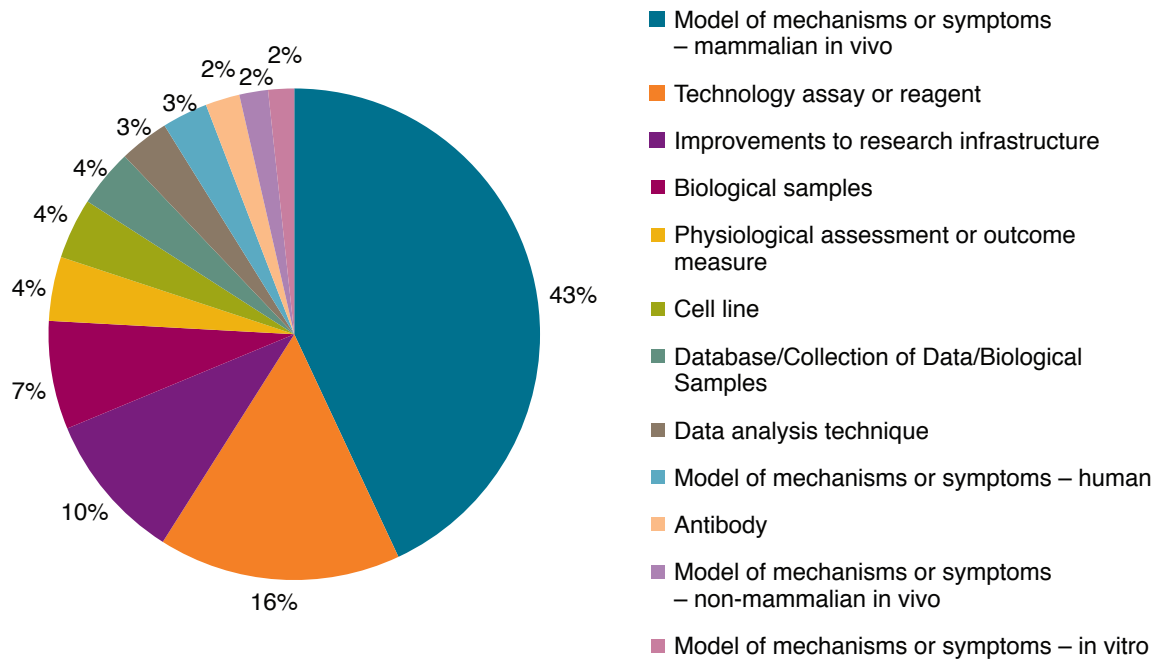


Figure 32: Instances of research tools and methods by type (data in Table 32)
The most frequently reported type within research tools and methods are mammalian in vivo models (43%), followed by new technology assays or reagents (16%).

Databases and models

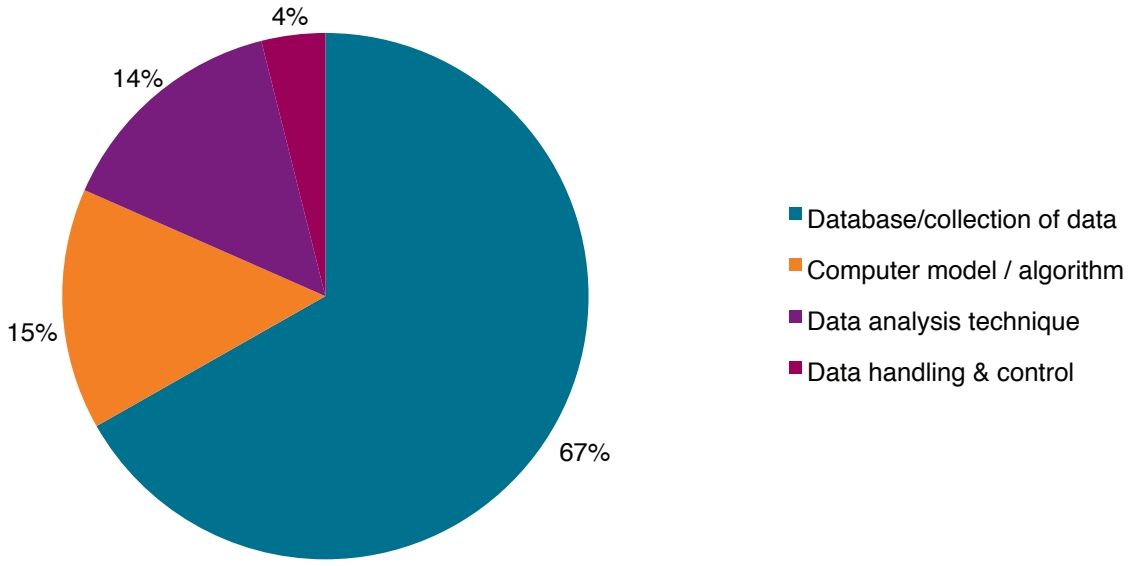


Figure 33: Instances of research databases and models by type (data in Table 33)
MRC researchers have reported 470 new research databases and models in the last five years.

Software and technical products

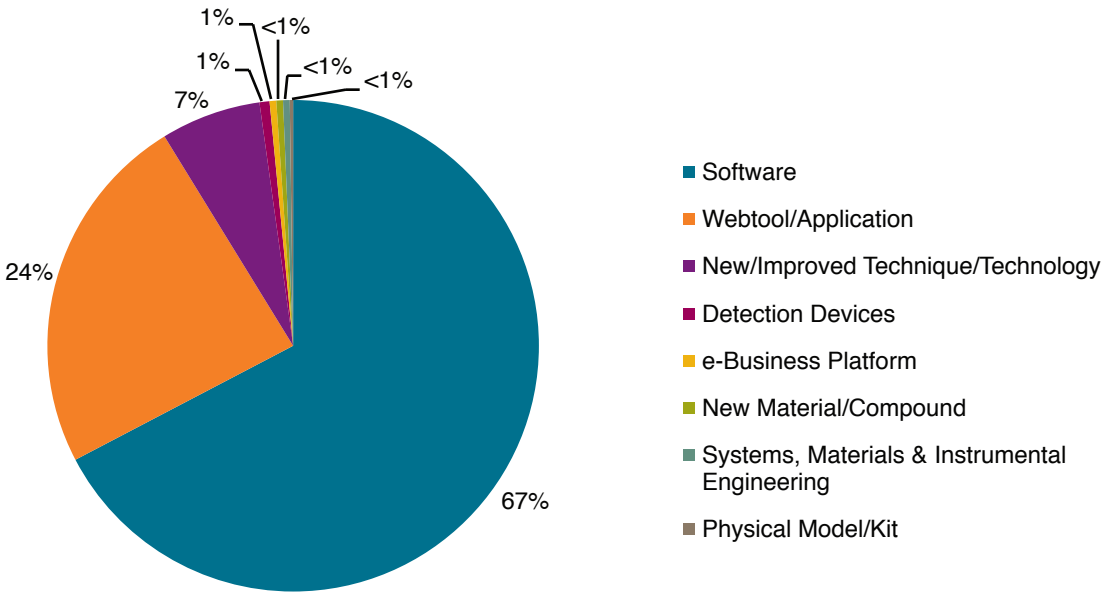


Figure 34: Instances of software or technical products by type (data in Table 34)
MRC researchers have reported 359 new research software and technical products in the last five years.

Intellectual property

In instances where a medical product or interventions cover 'new' functional or technical aspects, researchers take steps to ensure their discoveries are recognised as intellectual property. Creating intellectual property can take a long time and therefore the longer that an award has been active, the greater number of opportunities there are to create a patentable idea.

researchfish® question: Patents or licencing arising from funded research outputs.

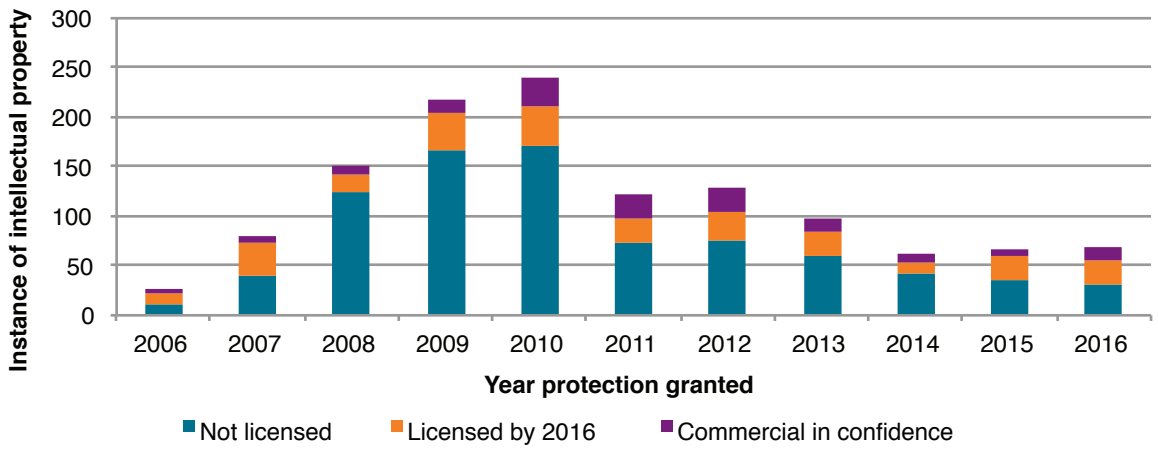


Figure 35: Number of instances of Intellectual property (IP) by category and year in which IP was realised (data in Table 35)

MRC researchers have reported 1,384 items of intellectual property since 2006, with 425 in the past five years.

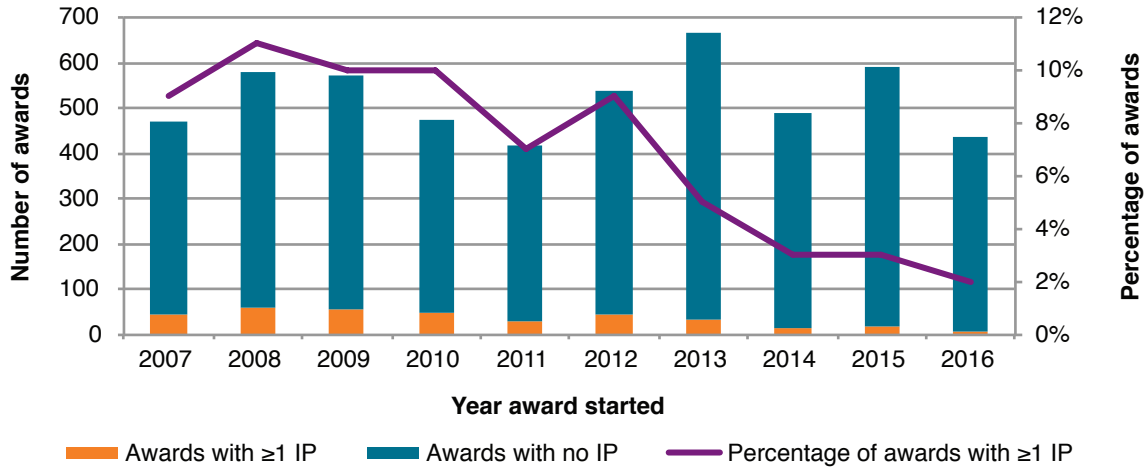


Figure 36: Intellectual property (IP) by award start date (data in Table 36)

Creating intellectual property can take a long time and therefore the longer that an award has been running for, the greater number of opportunities there are to create a patentable idea. 13% of awards starting in 2006 or earlier reported at least one item of intellectual property, compared to 3% of awards starting in 2015 and 2% from awards starting in 2016.

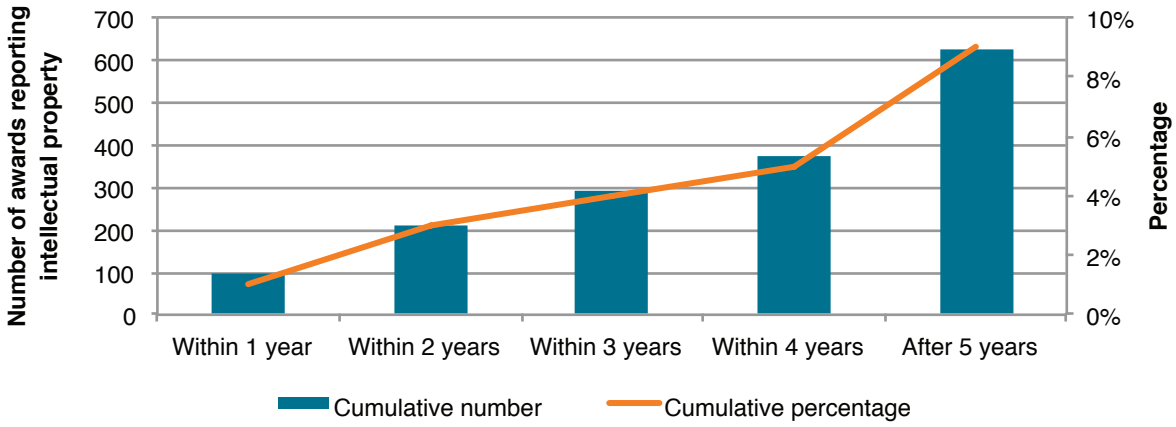


Figure 37: Time taken to report the first instance of intellectual property (data in Table 37)
After five years, 9% of MRC awards have reported items of intellectual property.

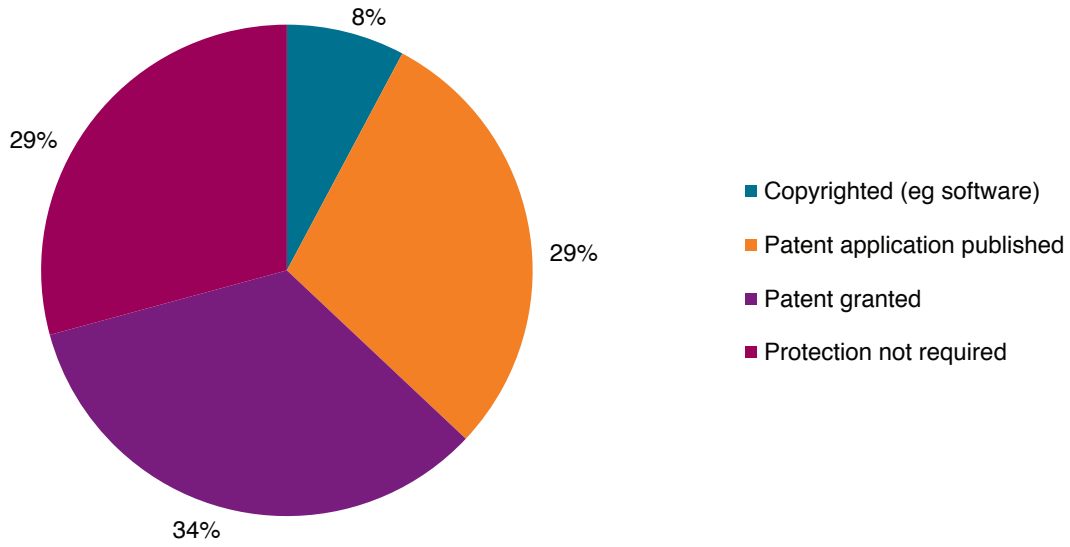


Figure 38: Type of intellectual property protection reported (data in Table 38)
Just over one third of items of IP are granted patents (34%), with a further 29% as patents in application.

Medical products, interventions and clinical trials

New products, from vaccines and other therapies to technological advances for disease monitoring and diagnostics, are important and direct impacts from MRC-supported research. There is a long history of MRC discovery science leading to new products, interventions and clinical trials that have widespread impact, from the early development of the first antibiotic, penicillin, through to stem cells and monoclonal antibodies. The MRC provides sustained support for significant and pioneering research and has done much in partnership with others to ensure important UK discoveries can be rapidly translated into practice.

researchfish® question: Products, interventions or clinical trials arising from the funded research outcomes.

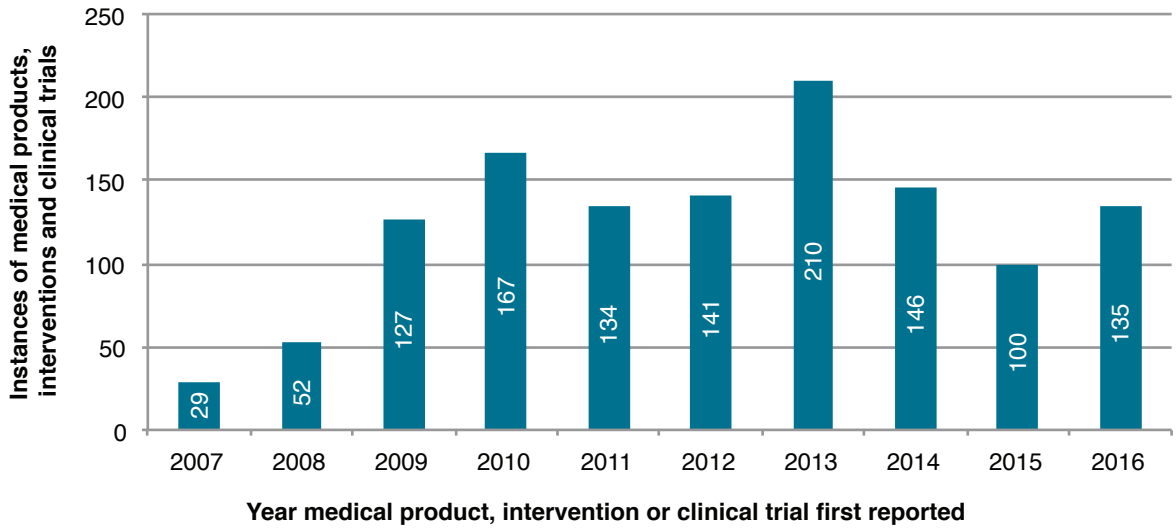
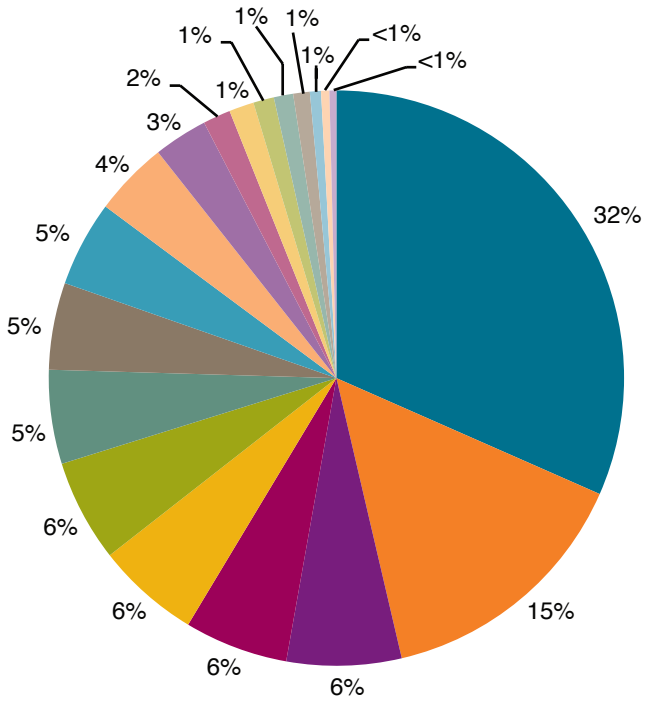


Figure 39: Number of instances of medical products, interventions, and clinical trials by year product was first reported (data in Table 39)
MRC researchers report around 140 new medical products each year, with 1,282 reported since 2006.



- Therapeutic intervention - drug
- Diagnostic Tool - Non-imaging
- Support tool - for fundamental research
- Diagnostic Tool - imaging
- Therapeutic (psychological/behavioural)
- Management of diseases and conditions
- Therapeutic (cellular and gene therapies)
- Therapeutic intervention - vaccines
- Support tool - for medical intervention
- Preventative (behavioural risk modification)
- Therapeutic intervention - medical devices
- Preventative (nutrition and chemoprevention)
- Therapeutic intervention - surgery
- Health and social care services
- Therapeutic intervention - physical
- Therapeutic intervention - radiotherapy
- Preventative (physical/biological risk modification)
- Products with applications outside of medicine
- Therapeutic intervention - complementary

Figure 40: Instances of medical products, interventions and clinical trials by type (data in Table 40)

There are many different types of therapeutics which MRC researchers contribute towards, the most frequently reported being new drugs (32%) and non-imaging diagnostic tools (15%).

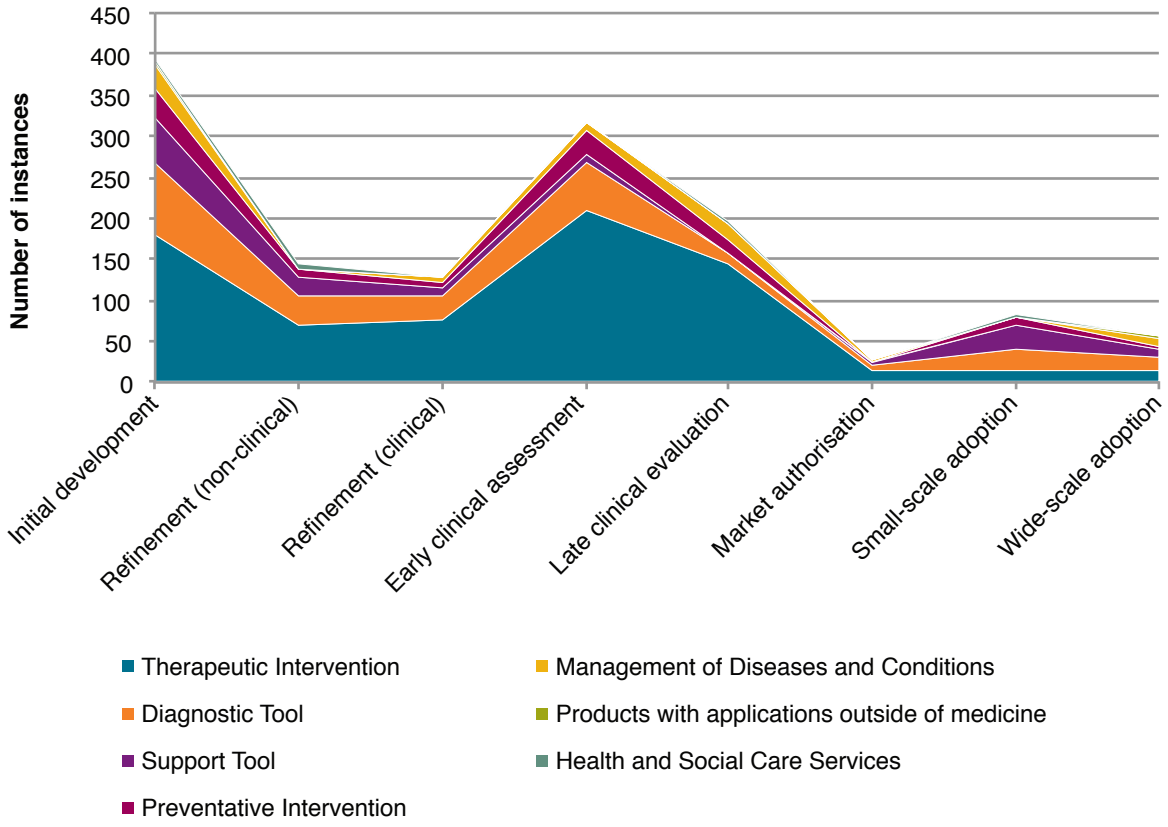


Figure 41: Distribution of medical products, interventions, and clinical trials by development stage and type (data in Table 41)

This figure highlights the complexity of therapeutic development. Each new product must progress through a series of refinement stages before being ready to be tested in a clinical trial. From here, a new product must show effectiveness in early pilot studies and in larger trials, often in competition with existing treatments. If successful, and once approval has been given, the new product must then compete in a difficult market to become adopted as a widely-used treatment.

Awards and recognition

The MRC celebrates the awards and wider recognition won by our researchers. Awards, prizes and other means of recognition in part acknowledge the quality of research undertaken by MRC scientists. Certain 'markers of esteem', such as being appointed to the editorial board of a journal or attracting visiting staff, can also be seen to have a wider impact on the research and teaching community. Measures of esteem are used internationally by some funders alongside citation analysis, peer review and research income as indicators of research quality.

researchfish® question: Awards or recognition received as result of the funded research outcomes.

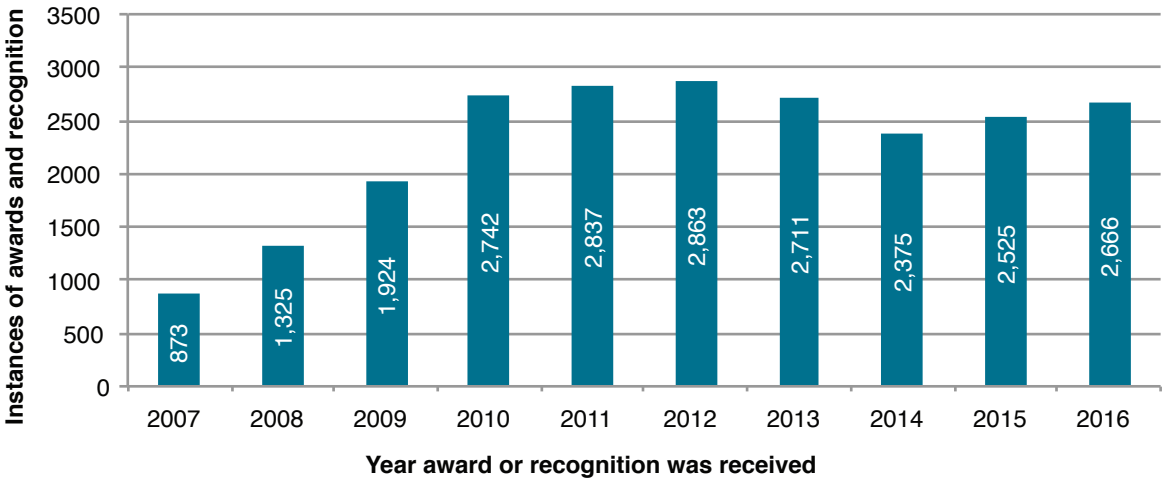


Figure 42: Number of instances of awards and recognition by year output was received (data in Table 42)
MRC researchers report approximately 2,600 new instances of awards and recognition each year.

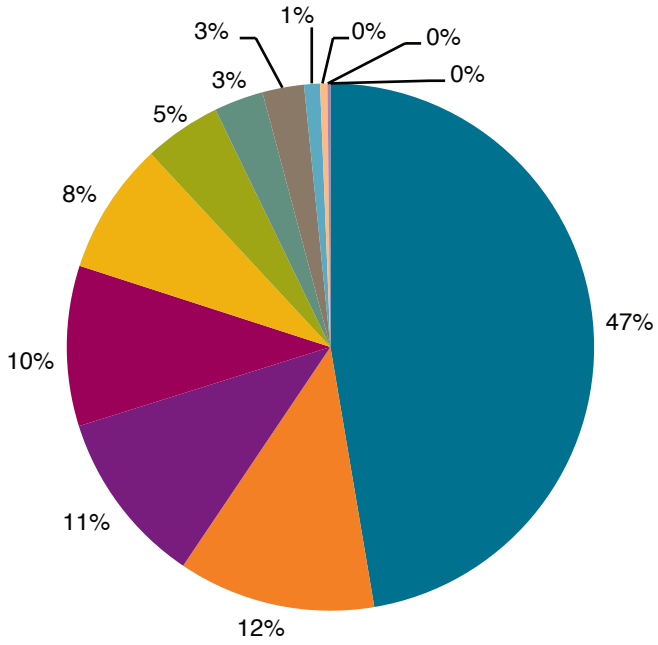


Figure 43: Instances of awards and recognition by type (data in Table 43)
Half the awards and recognition reported (47%) are invitations to be a keynote speaker at a conference. Conferences are a primary source of rapid research dissemination within academia, where researchers present their latest findings. To be invited shows the researcher has gained considerable recognition within their field of research. Honorary and advisory positions, alongside awards made within the research community, also show how influential a researcher's body of work has become.

Tabulated Data

Publications data

Table 1: Number of unique publications reported by publication year (shown in Figure 1)

Publication year	Number of unique instances
2006 or earlier	5,384
2007	5,065
2008	6,066
2009	7,184
2010	7,926
2011	8,715
2012	9,442
2013	10,351
2014	10,513
2015	10,768
2016	10,538
TOTAL	**91,952**

Table 2: Distribution of publications by award start year (shown in Figure 2)

Year award started	Number of awards	Awards with ≥1 publication	Awards with no publications	Percentage with ≥1 publication
2006 or earlier	2,102	1,895	207	90%
2007	472	438	34	93%
2008	580	541	39	93%
2009	573	547	26	95%
2010	475	449	26	95%
2011	417	394	23	94%
2012	537	493	44	92%
2013	665	592	73	89%
2014	489	408	81	83%
2015	592	404	188	68%
2016	438	179	259	41%
TOTAL	**7,340**	**6,340**	**1,000**	**86%**

Table 3: Time to report first publication by number of awards (shown in Figure 3)

First publication	Number of awards	Cumulative number	Cumulative percentage
Within 1 year	2,208	2,208	30%
Within 2 years	1701	3,909	53%
Within 3 years	1010	4,919	67%
Within 4 years	522	5,441	74%
After 5 years	899	6,340	86%
TOTAL	**6,340**	-	-

Table 4: Europe PMC availability by publication year (shown in Figure 4)

Publication year	Number of Publications	Number in Europe PMC	Percentage of Publications in Europe PMC
2006 or earlier	5,384	1,062	20%
2007	5,065	1,305	26%
2008	6,066	1,972	33%
2009	7,184	2,812	39%
2010	7,926	3,409	43%
2011	8,715	4,022	46%
2012	9,442	4,572	48%
2013	10,351	5,353	52%
2014	10,513	5,782	55%
2015	10,768	6,243	58%
2016	10,538	6,096	58%
TOTAL	**91,952**	**42,628**	**46%**

Collaborations data

Table 5: Number of unique collaborations reported by collaboration start year (shown in Figure 5)

Year collaboration started	Number of unique collaborations
2006 or earlier	1,553
2007	963
2008	1,225
2009	1,554
2010	1,707
2011	1,588
2012	1,857
2013	1,862
2014	1,683
2015	1,905
2016	1,757
TOTAL	**17,654**

Table 6: Number of collaborators by award start date (shown in Figure 6)

Year award started	Number of awards	Awards with ≥1 collaboration	Awards with no collaborations	Percentage of awards with ≥1 collaboration
2006 or earlier	2,102	1,331	771	63%
2007	472	274	198	58%
2008	580	373	207	64%
2009	573	384	189	67%
2010	475	292	183	61%
2011	417	233	184	56%
2012	537	292	245	54%
2013	665	365	300	55%
2014	489	226	263	46%
2015	592	301	291	51%
2016	438	161	277	37%
TOTAL	**7,340**	**4,232**	**3,108**	**58%**

Table 7: Time between award start date and collaboration (shown in Figure 7)

First collaboration	Number of awards	Cumulative number	Cumulative percentage
Within 1 year	1,947	1,947	27%
Within 2 years	926	2,873	39%
Within 3 years	454	3,327	45%
Within 4 years	283	3,610	49%
After 5 years	622	4,232	58%
TOTAL	**4,232**	-	-

Table 8: Top 25 countries (excluding UK) for number of unique collaborations (shown in Figure 8)

Country	Number of unique collaborations
United States	2,263
Germany	625
Netherlands	405
Global Organisations (e.g. WHO)	381
France	365
Australia	329
Canada	297
Switzerland	230
Italy	213
Sweden	197
Spain	184
Japan	171
Denmark	158
Belgium	136
China	115
European Union	112
Brazil	112
Ireland	105
South Africa	81
Finland	69
Norway	69
India	65
Austria	54
New Zealand	41
Greece	34
TOTAL	**6,811**

Table 9: Number of collaborators by sector (shown in Figure 9)

Collaborator sector	Number of instances	Percentage
Academic	11,649	61%
Public	2,375	13%
Private	1,821	10%
Non-profit	1,179	6%
Hospital	828	4%
Unknown Sector	925	5%
Multiple	120	1%
Learned society	48	<1%
TOTAL	**18,945**	**100%**

Further funding data

Table 10: Instances of further funding reported by year in which the further funding started (shown in Figure 10)

Year further funding started	Number of instances	Percentage
2006 or earlier	296	2%
2007	658	5%
2008	916	6%
2009	1,170	8%
2010	1,470	10%
2011	1,597	11%
2012	1,740	12%
2013	1,685	12%
2014	1,666	12%
2015	1,659	12%
2016	1,565	11%
TOTAL	**14,422**	**100%**

Table 11: Number of awards reporting further funding by award start date (shown in Figure 11)

Year award started	Number of awards	Awards with ≥1 instance of further funding	Awards without any further funding	Percentage with ≥1 instance of further funding
2006 or earlier	2,102	1,362	740	65%
2007	472	331	141	70%
2008	580	402	178	69%
2009	573	406	167	71%
2010	475	311	164	65%
2011	417	253	164	61%
2012	537	313	224	58%
2013	665	373	292	56%
2014	489	222	267	45%
2015	592	233	359	39%
2016	438	94	344	21%
TOTAL	**7,340**	**4,300**	**3,040**	**59%**

Table 12: Time between start of the award and further funding (shown in Figure 12)

First instance of further funding	Number of awards	Cumulative number	Cumulative percentage
Within 1 year	1,056	1,056	14%
Within 2 years	956	2,012	27%
Within 3 years	715	2,727	37%
Within 4 years	454	3,181	43%
After 5 years	1,044	4,225	58%
TOTAL	**4,225**	-	-

Table 13: Value of further funding reported by financial year (shown in Figure 13)

Financial year	Amount
2006/07	£80,631,267
2007/08	£162,514,563
2008/09	£294,346,141
2009/10	£427,173,126
2010/11	£540,729,080
2011/12	£650,192,989
2012/13	£774,669,375
2013/14	£878,424,723
2014/15	£943,521,198
2015/16	£1,005,990,320
2016/17	£1,060,921,251
TOTAL	**£6,819,114,033**

Table 14: Value of further funding by sector (shown in Figure 14)

Further funding sector	Amount	Percentage
Public	£3,261m	48%
Non-profit	£2,301m	34%
Academic	£641m	10%
Private	£472m	7%
Learned society	£32m	0.5%
Multiple sectors	£24m	0.4%
Hospital	£13m	0.2%
TOTAL	**£6,745m**	**100%**

Next destinations data

Table 15: Distribution of roles held by staff leaving MRC support (shown in Figure 15)

Role	Number leaving MRC support	Percentage
Post-doctoral researcher	5,133	37%
Research student	2,849	20%
Researcher (No PhD)	2,801	20%
Research fellow	1,922	14%
Management/admin/policy	580	4%
Research project leader	442	3%
Technician	240	2%
Engineer	8	0%
TOTAL	**13,975**	**100%**

Table 16: Distribution of next destinations of research students by sector (shown in Figure 16)

Destination sector	Number leaving MRC support	Percentage
Academic/University	1,726	67%
Private	308	12%
Health/healthcare	286	11%
Other Public	125	5%
Charity/Non-profit	65	3%
Research Council	58	2%
TOTAL	**2,568**	**100%**

Table 17: Distribution of next destinations of post-doctoral researchers by sector (shown in Figure 17)

Destination sector	Number leaving MRC support	Percentage
Academic/University	3,220	72%
Private	666	15%
Health/healthcare	183	4%
Other Public	189	4%
Research Council	142	3%
Charity/Non-profit	102	2%
TOTAL	**4,502**	**100%**

Table 18: Distribution of next destinations of research fellows and leaders by sector (shown in Figure 18)

Destination sector	Number leaving MRC support	Percentage
Academic/University	1,450	67%
Private	169	8%
Health/healthcare	337	16%
Other Public	92	4%
Research Council	67	3%
Charity/Non-profit	51	2%
TOTAL	**2,166**	**100%**

Table 19: Distribution of staff leaving MRC support by destination country (shown in Figure 19)

Destination country (top 10)	Number leaving MRC support	Percentage
UK	9,273	72%
USA	741	6%
Germany	344	3%
France	260	2%
Australia	245	2%
Spain	167	1%
Canada	149	1%
Switzerland	136	1%
China	110	1%
Other	1,510	12%
TOTAL	**12,935**	**100%**

Engagement activities data

Table 20: Instances of engagement activities by year activity was first reported (shown in Figure 20)

Year engagement activity first reported	Number of instances	Percentage
2006 or earlier	1,358	3%
2007	1,912	4%
2008	2,611	5%
2009	3,160	6%
2010	3,373	7%
2011	3,851	8%
2012	4,573	9%
2013	5,820	12%
2014	6,637	14%
2015	8,122	17%
2016	7,689	16%
TOTAL	**49,106**	**100%**

Table 21: Number of awards reporting at least one engagement activity by award start year (shown in Figure 21)

Year award started	Number of awards	Awards with ≥1 engagement activity	Awards with no engagement activities	Percentage with ≥1 engagement activity
2006 or earlier	2,102	1,327	775	63%
2007	472	314	158	67%
2008	580	395	185	68%
2009	573	383	190	67%
2010	475	316	159	67%
2011	417	257	160	62%
2012	537	343	194	64%
2013	665	429	236	65%
2014	489	285	204	58%
2015	592	299	293	51%
2016	438	147	291	34%
TOTAL	**7,340**	**4,495**	**2,845**	**61%**

Table 22: Time between the award starting and engagement activity taking place (shown in Figure 22)

First public engagement activity	Number of awards	Cumulative number	Cumulative percentage
Within 1 year	1,757	1,757	24%
Within 2 years	1,056	2,813	38%
Within 3 years	581	3,394	46%
Within 4 years	337	3,731	51%
After 5 years	764	4,495	61%
TOTAL	**4,495**	**-**	**-**

Table 23: Engagement activities by type (shown in Figure 23)

Engagement activity type	Number of instances	Percentage
A talk or presentation	19,707	42%
Participation in an activity, workshop or similar	8,732	19%
A magazine, newsletter or online publication	5,571	12%
A formal working group, expert panel or similar	4,350	9%
A press release, press conference or response to a media enquiry.	4,339	9%
Participation in an open day or visit at my research institution	3,267	7%
Engagement focused website, blog or social media channel	617	1%
A broadcast e.g. TV/radio/film/podcast (other than news/press)	377	1%
Scientific meeting (conference/symposium etc.)	217	<1%
TOTAL	**47,177**	**100%**

Table 24: Engagement activities by audience type (shown in Figure 24)

Audience type	Number of instances	Percentage
Public/other audiences	13,226	28%
Professional Practitioners	7,718	16%
Schools	5,391	11%
Other academic audiences (collaborators, peers etc.)	5,118	11%
Media (as a channel to the public)	3,914	8%
Health professionals	3,299	7%
Participants in your research and patient groups	2,398	5%
Policymakers/parliamentarians	2,389	5%
Postgraduate students	1,376	3%
Undergraduate students	603	1%
Patients, carers and/or patient groups	594	1%
Industry/Business	417	1%
Study participants or study members	323	1%
Supporters	307	1%
Third sector organisations	101	<1%
TOTAL	**47,174**	**100%**

Artistic and creative products data

Table 25: Number of instances of artistic and creative products by type (shown in Figure 25)

Type of artistic and creative product	Number of instances	Percentage
Film / Video / Animation	88	33%
Image	45	17%
Artwork	46	17%
Artistic / Creative Exhibition	35	13%
Artefact (including digital)	22	8%
Performance (Music, Dance, Drama, etc.)	18	7%
Creative Writing	10	4%
Composition / Score	1	<1%
TOTAL	**265**	**100%**

Policy influence data

Table 26: Number of instances of policy influence by year policy influence started (shown in Figure 26)

Year policy influence started	Number of Instances	Percentage
2006 or earlier	299	4%
2007	262	4%
2008	451	6%
2009	552	8%
2010	608	9%
2011	713	10%
2012	728	10%
2013	769	11%
2014	676	10%
2015	977	14%
2016	947	14%
TOTAL	**6,982**	**100%**

Table 27: Policy influence by award start year (shown in Figure 27)

Year award started	Number of awards	Awards with ≥1 policy influence	Awards with no policy influences	Percentage with ≥1 policy influence
2006 or earlier	2,102	595	1,507	28%
2007	472	123	349	26%
2008	580	164	416	28%
2009	573	168	405	29%
2010	475	136	339	29%
2011	417	102	315	24%
2012	537	136	401	25%
2013	665	163	502	25%
2014	489	94	395	19%
2015	592	100	492	17%
2016	438	32	406	7%
TOTAL	**7,340**	**1,813**	**5,527**	**25%**

Table 28: Time taken to report first policy influence (shown in Figure 28)

First instance of policy influence	Number of awards	Cumulative number	Cumulative percentage
Within 1 year	435	435	6%
Within 2 years	392	827	11%
Within 3 years	266	1,093	15%
Within 4 years	223	1,316	18%
After 5 years	497	1,813	25%
TOTAL	**1,813**	**-**	**-**

Table 29: Instances of policy influence by type, divided by citations (a) and other types (b) (shown in Figure 29)

Policy influence type	Number of instances	Percentage
Citation in clinical guidelines	947	11%
Citation in clinical reviews	560	7%
Citation in other policy documents	326	4%
Citation in systematic reviews	122	1%
Participation in an advisory committee	3,016	35%
Influenced training of practitioners or researchers	1,475	17%
Membership of a guideline committee	939	11%
Participation in a national consultation	524	6%
Gave evidence to a government review	400	5%
Implementation circular/rapid advice/letter	203	2%
Other	1	<1%
TOTAL	**8,513**	**100%**

Table 30: Instances of policy influence by location (shown in Figure 30)

Location of policy influence	Number of instances	Percentage
UK	3,342	46%
Multiple countries/international	1,864	26%
Local/municipal/regional - UK only	640	9%
Europe	586	8%
North America	300	4%
Asia	229	3%
Africa	123	2%
Oceania	111	2%
South America	10	<1%
TOTAL	**7,205**	**100%**

Research materials data

Table 31: Number of instances of research materials, including new researchfish® questions, by year when research material was made available (shown in Figure 31)

Year research material was made available	Tools & Methods	Databases & Models	Software & Technical Products
2006 or earlier	408	1	3
2007	254	7	2
2008	369	8	6
2009	582	13	12
2010	570	25	9
2011	554	14	9
2012	552	36	18
2013	554	76	39
2014	742	111	82
2015	539	120	93
2016	245	127	127
TOTAL	**5,369**	**538**	**400**

Table 32: Instances of research tools and methods by type (shown in Figure 32)

Type of research tool or method	Number of instances	Percentage
Model of mechanisms or symptoms – mammalian in vivo	2,347	43%
Technology assay or reagent	870	16%
Improvements to research infrastructure	532	10%
Biological samples	389	7%
Physiological assessment or outcome measure	230	4%
Cell line	218	4%
Database/Collection of Data/Biological Samples	207	4%
Data analysis technique	178	3%
Model of mechanisms or symptoms – human	164	3%
Antibody	123	2%
Model of mechanisms or symptoms – non-mammalian in vivo	103	2%
Model of mechanisms or symptoms – in vitro	93	2%
TOTAL	**5,454**	**100%**

Table 33: Instances of research databases and models by type (shown in Figure 33)

Type of research database or model	Number of instances	Percentage
Database/collection of data	392	67%
Computer model / algorithm	87	15%
Data analysis technique	85	14%
Data handling & control	23	4%
TOTAL	**587**	**100%**

Table 34: Instances of software or technical products by type (shown in Figure 34)

Type of research software or technical material	Number of instances	Percentage
Software	307	67%
Webtool/Application	109	24%
New/Improved Technique/Technology	30	7%
Detection Devices	3	1%
e-Business Platform	2	<1%
New Material/Compound	2	<1%
Systems, Materials & Instrumental Engineering	2	<1%
Physical Model/Kit	1	<1%
TOTAL	**456**	**100%**

Intellectual property data

Table 35: Number of instances of Intellectual property (IP) by category and year in which IP was realised (shown in Figure 35)

Year IP was Realised	Protection Type			TOTAL
	Not licensed	Licensed by 2016	Commercial in confidence	
Unknown	75	39	8	122
2006	11	12	4	27
2007	40	33	8	81
2008	124	19	7	150
2009	166	39	13	218
2010	172	40	27	239
2011	74	24	24	122
2012	75	29	25	129
2013	59	25	14	98
2014	42	12	9	63
2015	36	23	8	67
2016	30	26	12	68
TOTAL	**904**	**321**	**159**	**1,384**

Table 36: Intellectual property (IP) by award start date (shown in Figure 36)

Year award started	Number of awards	Awards with ≥1 IP	Awards with no IP	Percentage with ≥1 IP
2006 or earlier	2,102	264	1,838	13%
2007	472	44	428	9%
2008	580	61	519	11%
2009	573	58	515	10%
2010	475	49	426	10%
2011	417	29	388	7%
2012	537	46	491	9%
2013	665	32	633	5%
2014	489	16	473	3%
2015	592	17	575	3%
2016	438	8	430	2%
TOTAL	**7,340**	**624**	**6,716**	**9%**

Table 37: Time taken to report the first instance of intellectual property (shown in Figure 37)

First instance of intellectual property	Number of awards	Cumulative number	Cumulative percentage
Within 1 year	100	100	1%
Within 2 years	111	211	3%
Within 3 years	82	293	4%
Within 4 years	78	371	5%
After 5 years	253	624	9%
TOTAL	**624**	**-**	**-**

Table 38: Type of intellectual property protection reported (shown in Figure 38)

Type of IP protection	Number of instances	Percentage
Copyrighted (e.g. software)	105	8%
Patent application published	394	29%
Patent granted	455	34%
Protection not required	394	29%
TOTAL	**1,348**	**100%**

Medical products, interventions and clinical trials data

Table 39: Number of instances of medical products, interventions and clinical trials by year product was first reported (shown in Figure 39)

Year medical product, intervention or clinical trial first reported	Number of instances	Percentage
2006	41	3%
2007	29	2%
2008	52	4%
2009	127	10%
2010	167	13%
2011	134	10%
2012	141	11%
2013	210	16%
2014	146	11%
2015	100	8%
2016	135	11%
TOTAL	**1,282**	**100%**

Table 40: Instances of medical products, interventions and clinical trials by type (shown in Figure 40)

Product type	Number of instances	Percentage
Therapeutic intervention - drug	407	32%
Diagnostic Tool - Non-imaging	190	15%
Support tool - for fundamental research	83	6%
Diagnostic Tool - imaging	75	6%
Therapeutic (psychological/behavioural)	75	6%
Management of diseases and conditions	74	6%
Therapeutic (cellular and gene therapies)	68	5%
Therapeutic intervention - vaccines	63	5%
Support tool - for medical intervention	62	5%
Preventative (behavioural risk modification)	54	4%
Therapeutic intervention - medical devices	39	3%
Preventative (nutrition and chemoprevention)	20	2%
Therapeutic intervention - surgery	18	1%
Health and social care services	15	1%
Therapeutic intervention - physical	14	1%
Therapeutic intervention - radiotherapy	12	1%
Preventative (physical/biological risk modification)	8	1%
Products with applications outside of medicine	6	<1%
Therapeutic intervention - complementary	5	<1%
TOTAL	**1,288**	**100%**

Table 41: Distribution of medical products, interventions, and clinical trials by development stage and type (shown in Figure 41)

Product Development Stage	Therapeutic Intervention	Diagnostic Tool	Support Tool	Preventative Intervention	Management of Diseases and Conditions	Products with applications outside of medicine	Health and Social Care Services	TOTAL	
Initial development	181	87	55	35	30	3	5	396	29%
Refinement (non-clinical)	71	36	22	9	0	1	5	144	11%
Refinement (clinical)	75	32	9	7	5	0	0	128	9%
Early clinical assessment	208	59	10	30	11	0	0	318	24%
Late clinical evaluation	144	14	1	14	19	1	4	197	15%
Market authorisation	13	7	5	0	1	0	0	26	2%
Small-scale adoption	16	24	29	9	3	0	2	83	6%
Wide-scale adoption	16	16	10	3	9	3	0	57	4%
TOTAL	**724**	**275**	**141**	**107**	**78**	**8**	**16**	**1,349**	
	54%	**20%**	**10%**	**8%**	**6%**	**1%**	**1%**		

Awards and recognition data

Table 42: Number of instances of awards and recognition by year output was received (shown in Figure 42)

Year award or recognition was received	Number of instances	Percentage
2006	714	3%
2007	873	4%
2008	1,325	6%
2009	1,924	9%
2010	2,742	13%
2011	2,837	14%
2012	2,863	14%
2013	2,711	13%
2014	2,375	11%
2015	2,525	12%
2016	2,666	13%
TOTAL	**20,889**	**100%**

Table 43: Instances of awards and recognition by type (shown in Figure 43)

Award or recognition type	Number of instances	Percentage
Invited speaker at conference	9,899	47%
Prestigious/honorary/advisory position	2,530	12%
Research prize	2,241	11%
Editorial board/advisor to journal / book series	2,056	10%
Learned society membership/fellowship	1,695	8%
Poster/abstract prize	990	5%
Attracted visiting staff or internships to lab	632	3%
Medal	534	3%
NIHR Senior Investigator/Clinical Excellence Award	203	1%
National honour e.g. Order of Chivalry, OBE	94	<1%
Honorary Degree	36	<1%
Other award	2	<1%
TOTAL	**20,912**	**100%**

researchfish®
capture • evidence • share • inform

MRC Medical Research Council

Medical Research Council
Polaris House
North Star Avenue
Swindon, SN2 1FL

ISBN: 978-0-903730-25-9
9 780903 730259