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Introduction

The NIHR’s mission is to improve the health and wealth of the nation through research. We deliver against this mission through five strategic workstreams:

- Partnering with other public funders, charities and industry to maximise the value of research to patients and the economy
- Funding, supporting and delivering high quality research that benefits the NHS, public health and social care
- Investing in world-class infrastructure and a skilled delivery workforce to translate discoveries into improved treatments and services
- Engaging and involving patients, carers and the public in order to improve the reach, quality and impact of research
- Attracting, training and supporting the best researchers to tackle the complex health and care challenges of the future

In addition to our national role, we also support applied health research for the direct and primary benefit of people in low and middle-income countries (LMICs), using Official Development Assistance (ODA) funding from the UK Government.

The information in this annual report represents the period from 1 April 2018 to 31 March 2019, unless otherwise stated.
1. Funding, supporting and delivering high-quality research
Introduction

In England, the NIHR is the largest funder of health and care research. Our work improves patients’ lives and the effectiveness of the NHS. It includes research that: translates basic scientific findings in laboratories into potential treatments for disease; determines the safety and effectiveness of medicines, devices, diagnostics and other treatments; and, addresses research needs to support prevention and improve social care.

We aim to strike a balance between providing a long-term research base and adapting to meet changing needs, including meeting challenges faced by the health and care system.

Funding through our research programmes

This year, we awarded over £317 million of funding to 334 research projects, increasing our investment into research programmes by £91 million (compared to £226 million to 302 projects in 2017/18).

<table>
<thead>
<tr>
<th>RESEARCH PROGRAMME</th>
<th>NEW PROJECTS FUNDED</th>
<th>FUNDING AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy and Mechanism Evaluation*</td>
<td>15</td>
<td>£21,118,004</td>
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<tr>
<td>Health Services and Delivery Research</td>
<td>39</td>
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<td>Health Technology Assessment</td>
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<td>Policy Research Programme</td>
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<td>Programme Grants for Applied Research and Programme Development Grants</td>
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<td>£13,068,577</td>
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<tr>
<td>Research for Patient Benefit</td>
<td>92</td>
<td>£19,341,076</td>
</tr>
<tr>
<td>Systematic Reviews</td>
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<td>£105,000</td>
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*In partnership with the Medical Research Council (MRC)
Funding through our research schools and units

<table>
<thead>
<tr>
<th>RESEARCH PROGRAMME</th>
<th>ACTIVE PROJECTS</th>
<th>FUNDING AMOUNT</th>
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<td>School for Primary Care Research</td>
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<td>School for Public Health Research</td>
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<tr>
<td>School for Social Care Research</td>
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Key highlights

- We developed a **Research Targeting Tool** that maps the prevalence of diseases against research activity. This will allow better decisions to be made about where in the country research should be conducted, so results reflect the needs of patients and the public in those areas of most need.

- We launched a **new funding competition** to allocate up to £56 million over five years to 14 new **NIHR Health Protection Research Units** (HPRUs). HPRUs provide high-quality research evidence for public health policy and practice, supporting Public Health England to deliver its objectives for public health protection.

- Our **Clinical Research Network** (CRN) has updated the eligibility criteria for its research support. This will ensure health and care research in care homes, hospices, schools, prisons and other social care and public health environments outside NHS settings is better supported.
Improving NHS care

Speeding up diagnosis of pregnancy complications

Pre-eclampsia is a common condition that can cause fatal complications in pregnancy for the mother and baby. It is suspected to occur in around 10% of UK pregnancies, affecting around 80,000 women annually.

NIHR-funded researchers have shown that a blood test for pre-eclampsia could reduce the time pregnant women wait for a diagnosis from 4.1 days to 1.9 days, reducing their risk of serious health problems.

Researchers funded by our Research for Patient Benefit programme measured the concentration of placental growth factor in a woman’s blood to diagnose pre-eclampsia. Previously, this test has never been tried out in a real-world setting. Just one day after the study was published in The Lancet, NHS England announced that the test would be made available across the NHS.

Determining the ‘sell by date’ of hip and knee replacements

Knowing how long a hip or knee replacement is likely to last is important for patients, orthopaedic surgeons and commissioners when they are deciding whether surgery should be done and when. Where revision surgery can be avoided, there are positive consequences for patients and for the NHS.

To date, clinicians have not had access to reliable data on the performance of hip and knee replacements. Our researchers, supported by the NIHR Bristol Biomedical Research Centre (BRC), have changed this.

After reviewing thousands of case studies going back 25 years across six countries, they found that 8 out of 10 knee replacements and 6 out of 10 hip replacements will still be in place and functioning after 25 years. This is longer than had been believed.

The findings, published in The Lancet, will help patients and surgeons decide when to carry out surgery.
Guiding policy and public health

Reducing inequality
The Department of Health and Social Care (DHSC) has a legal duty to reduce health inequalities in England. People living in the least deprived areas of the country live around 20 years longer in good health than people in the most deprived areas.

This year our Policy Research Programme issued a call for research projects between £250,000 and £750,000 to inform policy aimed at reducing health inequalities. This funding will be used to understand how, where and when interventions to address inequalities can make a difference. It will support people that are trying to improve access to and/or uptake of existing programmes and services.

Incentivising the development of new antimicrobials
Researchers at the NIHR Policy Research Unit in Economic Methods of Evaluation in Health and Social Care Interventions have proposed a new system for drug assessment that could incentivise manufacturers to develop more new antimicrobials.

The current payment method used to fund antimicrobials is based on how much the NHS uses the drug. The framework, analysed by our researchers, delinked payment and the amount of times a drug is used, allowing drug development through an insurance-based approach to reimbursement.

They recommended that the National Institute for Health and Care Excellence (NICE) pay for these drugs based on the long-term impact they will have on people’s health.

Preparing for a mass casualty incident
An accidental or deliberate release of chemicals is, thankfully, rare – although the consequences may be severe. Such incidents can be extremely resource-intensive for health services as well as other emergency services, and the time taken to respond may be critical in the success of interventions.

The NIHR HPRU in Emergency Preparedness and Response tested the efficacy of hospital “blue roll” (a standard disposable paper towel), microfibre cloths and wet wipes for the decontamination of skin exposed to chemicals. Current guidance recommends using any available dry material for decontamination, with blue roll likely the most readily available in the health system.

The researchers, working in partnership with Public Health England, found that microfibre cloths provide greater protection from inadvertent secondary contamination.

In line with the advice given to the public during the incident in Salisbury, the research also showed that wet wipes are a practical option for removing chemicals from the skin without increasing the risk of wider contamination.

These findings were communicated with Public Health England staff involved in the response to the Novichok incident in Salisbury in July 2018.

Social care research

Increased investment in School for Social Care Research
Social care professionals and academics are being supported by £20 million of new NIHR funding to carry out research to improve adult social care across the country.

The investment funds five years of the NIHR School for Social Care Research, which brings together leading academic centres for social care research to undertake world-class research to improve the way social care is delivered.
The funding will allow the School, made up of seven partner organisations, to build on their work in areas such as mental health, dementia and providing effective support in care homes.

**NIHR launches new project funding competition dedicated to social care**

We’re supporting social workers, occupational therapists and social care staff to work in partnership with researchers on ideas to improve their practice.

Our Research for Patient Benefit programme launched a dedicated social care funding call, demonstrating the NIHR’s commitment to further developing research in this area.

The call invited research proposals on a diverse range of topics including, but not limited to, how to improve end-of-life care; the best way to support someone to transition from services for children and young people to adult care services; and interventions to tackle loneliness and isolation.

**Using data for research**

**Prioritising open data**

By accessing open data about the projects we have funded, researchers, clinicians, decision and policymakers can make more informed decisions to improve patients’ lives.

We published our first licensed dataset on the research we funded since 1 April 2011 to help identify gaps and priorities in the funding landscape.

**NIHR Open Data** is a single source of up-to-date, accurate and reusable data about the research that NIHR has funded. The new tool will help us be a more transparent and efficient funder.

**Enhancing health and social care**

The recently established Health Data Research UK (HDRUK), which we co-fund, aims to enhance every health and care interaction and research endeavour with knowledge from large scale data and advanced analytics.

We co-hosted a conference with HDRUK and NHS Digital in December 2018 to celebrate how health and care data has been used for research to improve lives.

**Identifying new technologies to support national organisations**

The NIHR Innovation Observatory (NIHRIO) monitors and tracks new healthcare technologies and innovations from around the world which could benefit NHS patients.

Between 2018 and 2019 the Centre identified 1,444 new technologies with the potential to improve health and care. This added to the database of around 3,500 technologies that the NIHRIO tracks and monitors.

NIHRIO produced 485 reports for NICE to help it develop guidance for the NHS on using new or repurposed technologies.

The Centre also produced reports about trends in health technologies for NIHR researchers, as well as for NHS England’s specialised commissioning function and the Accelerated Access Collaborative.
Case study: Research on e-cigarettes is influencing policymakers

A clinical trial we funded concluded that e-cigarettes are almost twice as effective as nicotine replacement therapies (patches or gum) for people who want to quit smoking.

The study, funded by the NIHR’s Health Technology Assessment (HTA) programme, involved 886 smokers who attended NHS stop smoking services in Tower Hamlets, City of London, Leicester and East Sussex. They either received a nicotine replacement treatment for up to three months or an e-cigarette starter pack. All received weekly one-on-one behavioural support.

The results, published in the New England Journal of Medicine, found that e-cigarettes are almost twice as effective at helping smokers to quit as other nicotine replacement treatments such as patches and gum. After a year, 18% of e-cigarette users were smoke-free, compared to 9.9% of people who were using other nicotine replacement therapies.

Helping people make informed choices

“This is the first trial to test the efficacy of modern e-cigarettes in helping smokers quit,” says NIHR-funded lead researcher Professor Peter Hajek.

“Although a large number of smokers report that they have quit smoking successfully with the help of e-cigarettes, health professionals have been reluctant to recommend their use because of the lack of clear evidence from randomised controlled trials. This is now likely to change.”

Professor Hywel Williams, Director of the HTA programme, said: “Cigarette smoking is still a major cause of ill health and death in the UK, so this study will provide much-needed evidence to help people and policymakers to make informed choices.”
2. Engaging and involving patients, carers and the public
Introduction

NIHR research would not be possible without the thousands of patients, carers and members of the public who are essential partners in our work. They help us to prioritise, design and deliver health and care research that is patient, public and carer-centred. Their involvement helps our research become adopted in policy and practice.

Providing opportunities to take part in research

1,015,487 people took part in NIHR-supported health and social care research studies (compared to 835,904 in the previous year, an increase of 21.5%).

870,250 Made up of... recruited by the Clinical Research Network and 145,237 through NIHR’s translational research centres and facilities.

90% of respondents to the Research Participant Experience Survey reported that they had a good experience of taking part in NIHR supported research.

415,832 visits were made to the UK Clinical Trials Gateway (relaunched as Be Part of Research). A website by people looking for opportunities to take part in research.

29,778 people signed up to the NIHR BioResource, bringing the total number of volunteers to 119,619.

6,764 new users registered with Join Dementia Research, which matches people with dementia to suitable studies, and 30% went on to take part in research.

Over 380 Patient Research Ambassadors (now Research Champions) worked with us as partners, engaging their peers and communities to encourage involvement in research and promote the patients’ point of view.
Involving patients, carers and the public in our work

356 members of the public reviewed 953 research funding proposals

109 members of the public served on our funding committees and advisory boards

79% of people who took part in the NIHR public contributors’ feedback survey were satisfied or very satisfied with their experience of being involved with the NIHR.

205 opportunities for people to get involved in NHS, public health and social care research were advertised on the People in Research website.
**Key highlights**

- “Give me more to do!” was one of the themes of the [NIHR public contributors’ feedback survey](#). It was clear that most of the 809 public contributors who responded to the survey want to do more and know how to find out about opportunities to get involved. Of these, 79% were satisfied with their experience of working with us and over two thirds felt their contribution was making a difference. Most wanted their work to focus on improving the quality and relevance of research in order to improve health services and the provision of care. This feedback is influencing how we are meeting the objectives set out in our public involvement strategy [Going the extra mile](#).

- Public involvement has gone global this year. Our [International Patient and Public Involvement (PPI) Network](#) has expanded to over 200 members around the world. The network held two webinars and an event to establish priorities.

- NIHR’s [INVOLVE](#) supports active public involvement in NHS, public health and social care research. In the reporting period it has been active in furthering equality, diversity and inclusion, co-production and learning and development.
Consulting communities

Diversifying voices in research

Reaching Out is a pilot project to get more diverse voices within patient and public involvement in research. It funds greater community engagement in determining research priorities and shaping research, and closer working between local NIHR organisations, communities and health delivery organisations.

Tracey Johns leads Reaching Out in North Essex. She was inspired after a councillor whispered to her at an event ‘I can now see that we simply should not design services for young people without them in the room’ at an event.

“It was so rewarding to witness the young people sharing their ideas with the audience in a very active and confident way.” said Tracey.

In addition, we funded the Research Design Service (RDS) South Central to work with a gaming café and charity that run storytelling workshops to reach groups that are not usually, or consistently, involved in health, social care and public health research.

Involving ‘seldom heard’ groups

It’s vital that under-represented and marginalised groups are involved in research to shape the services that support them. We engage and involve different groups of people to make sure their needs are represented in research.

We funded the RDS Yorkshire and Humber, the Clinical Research Network (CRN) and the Collaboration for Leadership in Applied Health Research and Care (CLAHRC) Yorkshire and Humber to start to build trust between the gypsy and traveller community and researchers, develop and share engagement methods and raise the views and profile of the community in the region.

A study by the NIHR School for Social Care Research looked at self-directed social care support for Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Intersex or who hold identities such as non-binary (LGBTQI+) disabled people, in partnership with the Norah Fry Centre for Disability Studies, University of Bristol, Social Care Institute for Excellence and the charities Regard and Stonewall.
The study found that LGBTQI+ disabled people who use self-directed support reported many positives from having more choice, control and power.

The project team recommended that assessments should emphasise the whole person, not ignore sexual orientation or gender identity and that there is a need for more targeted support and information.

Our School for Social Care Research has also prioritised involving seldom heard groups in research, including exploring:

- isolated mental health users and people who need supported accommodation
- the role of adult social care for vulnerable adults in police custody
- forced marriage of people with learning disability
- mental health recovery for African and Caribbean men.

Improving patient and public involvement in research

Going the Extra Mile

An independent audit of how we are putting our 10-year strategy Going the Extra Mile in place for PPI, engagement and participation recognised significant progress. It highlighted key areas to further enhance the coordination and monitoring of the strategy.

Now four years into the strategy, we will focus on four key areas:

1. Clarifying governance and oversight for public involvement and engagement in the NIHR, including formalising and strengthening arrangements for prioritising, monitoring and reporting activities.

2. Improving collaboration between our Coordinating Centres to share ownership for achieving objectives and recommendations in our 10-year engagement strategy.

3. Developing a consistent approach to agreeing and signing off individual and collective plans to meet objectives in the strategy.

4. Communicating feedback on how we are doing against objectives to partners, patients, carers and the public.

UK Standards for Public Involvement

More than 40 organisations, groups and individuals tested our six Public Involvement Standards, which aim to improve the quality and consistency of public involvement in research, and were overwhelmingly positive about their experience.

When asked to rate how the standards had influenced their own, or their organisations', practice, almost all of the 40 pilot projects (96%) said they had either improved it, started to improve, or created the ambition to improve.

Those involved in the testing phase used the standards in different ways, including as a framework to support reflective practice and future plans for public involvement activities. They also made suggestions around improving style, language and accessibility.

Their feedback is key to the iterative development of the Standards.
Learning and training for public involvement

We have developed a number of tools, learning resources and training to promote best practice in public involvement in research, including:

- Professionals involved in public involvement can now access 157 up-to-date resources and learn about useful training through the Learning for Involvement website launched in February 2018. The site has 157 active resources.

- In its first two months (from December 2018), our award winning online course for public reviewers had 3,000 visitors. The course covers skills such as providing constructive feedback and approaching complex documents.

- Following success in the East Midlands, we supported 11 other regions to develop a learning and development network for PPI in health and social care research. Sharebank is a low-cost, collaborative approach to developing and delivering training in this area. It has helped to share resources and increase access to training and development for members of the public, involvement and engagement leads and researchers.
Case Study: Campaign to celebrate public involvement in the NHS and its 70th birthday

Our annual I Am Research campaign celebrated the 70th birthday of the NHS. It encouraged patients, carers and the public to get involved in research.

A steering group led by NHS England and NHS Improvement coordinated the national NHS70 campaign. The group identified seven key pledges to encourage the public to ‘give a present’ to the NHS and ‘leave a legacy’ after the anniversary celebrations were over. We were part of the steering group and led the pledge to get involved in research.

Hearing from patients
More than 160 events were held at NHS trusts, GP surgeries, NIHR centres and community services across the country on International Clinical Trials Day on 20 May 2018 and the 70th birthday of the NHS on 5 July 2018.

The events were an opportunity for patients, carers and the public to speak to healthcare professionals about research and how they can get involved to help shape the next 70 years of the NHS.

Raising awareness
Our campaign reached 17.7 million people through media coverage ranging from BBC Breakfast to commercial radio stations and The Daily Mirror to trade press. The key messages included how research has improved health and care over the past 70 years and how NIHR research is helping to shape the future.

Our campaign reached 6.1 million people on Twitter. A Twitter ‘Thunderclap’ for International Clinical Trials Day also reached 2.35 million people. A Thunderclap involves posting the same positive message on social media accounts at the same time on the same day.
3. Attracting, training and supporting the best researchers
Introduction

A skilled research workforce is crucial to making research happen in the NHS and other health and care settings. At NIHR, we help to develop a skilled academic research workforce through a range of training programmes, career support and advice, leadership development opportunities, networking events and mentoring. This will ensure that the nation’s research workforce has the training and support they need to address future health and care needs.

As the largest funder of health research training in the UK, we have helped shape the careers of many of the nation’s health and care research leaders.

We continue to develop and innovate our programmes and initiatives to enhance research capacity and capability.
Developing a skilled research workforce

548 new personal training awards were awarded to develop and support the next generation of researchers and leaders.

7 research professorships were awarded, which includes five domestic and two global research professorships.

3,560 people had active NIHR-funded training awards, supporting them to develop the skills they need to meet the nation’s health and care needs.

242 early career researchers in the UK and LMICs received NIHR training and support, around half of whom hold PhD fellowships.

300 professionals from a range of disciplines were supported through leadership and mentorship programmes to progress their careers in research.

2,243 research collaborations were reported by our award holders.

46 new Senior Investigators were appointed to our college of approximately 200 prominent and prestigious researchers.
Key highlights

This year we implemented a number of recommendations outlined in our strategic review of NIHR training. These included:

- Launching the **NIHR Academy** in October 2018 to bring together our research training.
- Consolidating and simplifying our personal awards to create new flexible ones, tailored to the needs of applicants and including:
  - Increased flexibility around part-time options
  - Multiple rounds of competition a year to help applicants apply and start an award at a time which fits with other commitments they may have.
  - Allowing all clinical applicants (not just doctors and dentists) to include paid clinical time in Advanced Fellowships.
  - Introducing strategic themes to encourage applications from researchers in social care, public health, health data science and mental health.
- Introducing a new **Pre-doctoral Clinical Academic Fellowship** (PCAF) to support non-medical clinicians to prepare a competitive PhD Fellowship application. We awarded 40 in the first round to applicants who successfully demonstrated their intention to undertake a PhD.
- Expanding research themes in the **Integrated Academic Training programme** to ensure these research training posts are addressing the key health challenges of the future.
- Announcing a new **Development and Skills Enhancement Award** to provide additional short term support for Academy Members to access training and experience in strategically important areas, including health data science, entrepreneurship and clinical trials.
- Allowing NIHR Clinical Lecturers to apply for an extension beyond the Certificate of Completion of Training (CCT) to allow continued academic development at a post-doctoral level prior to intermediate fellowship applications.
- Leading research requires complex leadership and management skills. We have provided NIHR-funded research leaders with access to formal training and development since 2009 through the **NIHR Leaders Support and Development Programme**. The programme has developed over 900 health and care research leaders. This year, three business management consultant companies – Capp & Co, The Oakridge Centre Ltd and KPMG – successfully tendered to run a refreshed programme which includes coaching and modular resources for senior leaders.
Making an impact through training

Aiming to eliminate hepatitis C

Advancements have been made in the treatment of hepatitis C over recent years, but it continues to be a leading cause of death around the world. In the UK, hepatitis C is one of the main reasons for liver transplantation. This has resulted in the World Health Organisation (WHO) establishing targets for its elimination as a public health threat by 2030.

In line with this, NIHR Research Professor Graham Cooke has received NIHR funding to accelerate the elimination of hepatitis C in the UK. His work has been highlighted in a number of key publications, including *The Lancet*.

Professor Cooke’s research has explored whether the WHO targets are achievable, and what would be required to achieve them. He is also using his NIHR Research Professorship to introduce new technology to significantly improve the timeliness of patients’ test results and our understanding of where transmission of hepatitis C is still happening.

Improving the self-management of chronic orofacial pain

An [online patient manual](#) to improve the management of chronic orofacial pain has been developed and published by Dr Vishal Aggarwal, a dentist who has held three NIHR training awards. These were Clinical Lectureship, Clinical Trials Fellowship and Clinician Scientist Award.

The manual for pain in the mouth, jaws and face is being used by patients and clinicians to build collaborative relationships. The aim is to understand the problem from the perspective of the patient.

It is a problem-led solution rather than diagnosis-led, encouraging active involvement from the patient in four sections about their type of pain, setting goals, self-management and preventing relapses.

The manual has been used by over 100 patients so far and a second version is being co-produced with a patient user group.

Innovative toolkit for dementia care leaders

NIHR-funded research has enabled the development of a new dementia toolkit to help improve hospital care for older patients with cognitive impairment, such as dementia.

Led by Dr Clare Abley, Nurse Consultant at The Newcastle upon Tyne Hospitals NHS Foundation Trust, the study formed part of a four-year Health Education England (HEE)/NIHR Clinical Lectureship. The evidence-based Dementia Care Leaders Toolkit aims to support dementia care leaders to improve the environment in wards and services by focusing on patient experience.

The toolkit includes a series of scenario videos, and workshops will be held in 2019 to maximise the reach of the research project amongst dementia care leaders.

The introduction of Midwifery Unit Standards

New Midwifery Unit Standards were launched in July 2018 and are helping to improve the overall quality of maternity care in acute and community settings, reducing the variability of practices.

Dr Lucia Rocca-Ihenacho developed the standards as part of her HEE/NIHR Clinical Doctoral Research Fellowship award. They build on guidance from the World Health Organisation and the National Institute for Health and Care Excellence, ensuring an evidence-based approach was used in their development.

There are 29 standards, divided into 10 themes ranging from clinical governance and leadership, to working across professional and physical boundaries. There are over 5 million births in the European Union every year. The standards assist providers of midwifery care across Europe to assess services against a range of criteria and explore and plan improvements.
Increasing research capacity in areas of need

Increased investment for developing new researchers in public health and social care

We provided significant investment in training for professionals in social care and public health to equip them to meet the challenges we face today and in the future. This included:

- £1.8 million funding for PhD studentships, career development awards and internships through the NIHR School for Social Care Research
- Over £1 million for the NIHR School for Public Health Research to support an additional 16 PhD studentships. These were highly sought after with the school undertaking a national recruitment process and receiving applications from 251 individuals.

Developing communities of practice to address specific challenges

We announced the launch of six NIHR Incubators as part of the NIHR Academy. By working with partners and communities, the incubators will support targeted research capacity development in areas of strategic need and importance.

Half of the first six incubators build on the supporting structures of NIHR schools that cover social care, public health and primary care. The others work in partnership to support new and emerging disciplines such as health data science with Health Data Research UK. Or, they are community-led in areas where research capacity is particularly low – emergency care and nursing and midwifery.

Each incubator is now identifying and addressing the specific challenges of their area and will therefore be bespoke in their approach to research capacity development. An application process has also been established for additional incubators.
Case study: NIHR Academy: meeting the needs of researchers now and in the future

The NIHR Academy launched in October 2018 to ensure researchers have the capacity and capability to address growing health and care challenges, from multimorbidity in older people to the mental health needs of the young. It brings together our research training initiatives, including personal awards, and our schools and infrastructure and was a recommendation from our Strategic Review of Training, taking the place of the former NIHR Trainees Coordinating Centre.

The NIHR Academy has over 4,000 members spanning all career stages, from predoctoral to professorial and NIHR Senior Investigators. Over 300 members provide support to researchers as training leads and funding committee members. Additional support for members is provided through access to bespoke leadership and mentorship programmes.

Building research capacity
Our Strategic Review of Training highlighted that some professions, such as nursing and midwifery don’t have as many successful applications compared to other clinical professions. The Academy will work to address this and to attract other professional groups where research capacity is low, into NIHR training pathways such as pharmacists and social scientists.

The aim is to build capacity in under-represented sectors such as primary and social care, and public health. Our Academy will also upskill the research workforce in disciplines such as bioinformatics and data science and promote opportunities for increased engagement with industry and entrepreneurship.

Supporting gender diversity
In 2019, the Academy partnered with other funders to launch a funding call for research proposals to understand academic career progression in relation to gender inequality and help address potential barriers. In addition to this, early indications from changes to the NIHR fellowships programme show more female applicants than male at a post-doctoral level. This reverses the historic situation reported by funders at this career stage.

Dr Louise Wood, Director: Science, Research & Evidence, Department of Health and Social Care at the NIHR Academy launch.
4. Investing in world-class infrastructure and a skilled delivery workforce
Introduction

The NIHR continues to invest in world-class research facilities, centres, expertise, technology and resources in the NHS and wider health and care system. This research infrastructure supports health and care researchers to translate scientific discoveries into better treatments, diagnostics and care.

Supporting and delivering world-class research

Number of studies ongoing in 2018/19

| Biomedical Research Centres (BRCs) | 8,503 |
| Clinical Research Network (CRN) | 6,106 |
| Clinical Research Facilities (CRFs) | 4,998 |
| Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) | 1,014 |
| Experimental Cancer Medicine Centres (ECMCs) | 546 |
| Medtech and In Vitro Diagnostic Co-operatives (MICs) | 329 |
| Patient Safety Translational Research Centres (PSTRCs) | 105 |

Our research infrastructure provides key support that enables and delivers research funded by the NIHR itself and by charities, research councils and the life sciences industry, benefiting patients and the wider public.

100% of NHS trusts and 38% of general practices recruited participants to CRN-supported research.

82% of non-commercial studies supported by the CRN were delivered to time and target.

National Institute for Health Research
Our research delivery workforce

4,455 research nurses in our CRN delivery workforce. The CRN currently funds or part-funds over 11,000 front-line research delivery staff working throughout the NHS.

45,085 people participated in research delivery training (including Good Clinical Practice)
Continued investment in infrastructure

£816m
20 Biomedical Research Centres (BRCs)
£816 million between 2017 and 2022
Partnerships between world-leading universities and NHS organisations that translate lab-based scientific breakthroughs into potential new treatments, diagnostics and medical technologies

£37m
13 BioResource Centres
£37 million between 2018 and 2023
National resource of people who have volunteered for research to understand how genes and other factors influence disease

£145m
13 Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)
£145 million between 2014 and 2019
Local collaborations to support applied health research and implementing health and care evidence into day-to-day practice

£17m
Three Patient Safety Translational Research Centres (PSTRCs)
£17 million between 2017 and 2022
Translating innovations in fields outside of healthcare, such as aviation and engineering, into new approaches to improve patient safety

£112m
23 Clinical Research Facilities (CRFs)
£112 million between 2017 and 2022
Purpose-built facilities in NHS hospitals where researchers can deliver early-phase and complex studies

£14m
11 Medtech and In vitro diagnostic Co-operatives (MICs)
£14 million between 2018 and 2023
Collaborations to build expertise and capacity in the NHS to develop new medical technologies

£14m
14 Experimental Cancer Medicine Centres (ECMCs)
£14 million between 2017 and 2022
Network for delivering pioneering, early-phase trials to test new treatments for adults and children with cancer
Key highlights

● The 100,000 Genomes Project, led by Genomics England and funded predominantly by the NIHR, reached its goal of sequencing 100,000 whole genomes from NHS patients in December 2018. The aim of the project is to harness whole sequencing technology to uncover new diagnoses and improve treatments for patients with rare inherited diseases and cancer. Since it launched in 2012, the project has helped one in four participants with rare diseases to get a diagnosis.

● To coincide with the 70th birthday of the NHS, our CRN launched a new programme to support 70 senior nurses and midwives to champion research. Members of our 70@70 Senior Nurse and Midwife Research Leader Programme will drive improvements in future care, encourage and support innovation and inform research priorities in their organisations.

● We held a new open competition for collaborations between providers of NHS and care services, commissioners, local authorities, universities, private companies and charities to tackle key issues facing our health and care system. Successful collaborations will be awarded £135 million from 1 October 2019. NIHR Applied Research Collaborations (ARCs) will undertake applied health and care research and support the implementation of research into practice.
Making an impact through infrastructure

Improving treatment for advanced prostate cancer

Previously, it has been unclear how to best treat men with newly diagnosed advanced prostate cancer if the disease has already spread.

The Systemic Therapy in Advancing or Metastatic Prostate Cancer: Evaluation of Drug Efficacy (STAMPEDE) trial has provided evidence to change this. The trial, supported by the NIHR Royal Marsden BRC, aimed to establish if there was any benefit in treating men with radiotherapy whose prostate cancer has spread.

The research found that treating the prostate with radiotherapy, alongside standard treatment, increased survival by up to 11% for men whose cancer had spread locally into nearby lymph nodes or bones.

The study findings, published in The Lancet, suggest that radiotherapy, alongside hormone therapy, should become the standard of care for men with advanced prostate cancer that has spread locally.

The NIHR CRN helped recruit 9,010 study participants from 125 sites in the UK for the trial.

Matching cancer patients to targeted treatment

A simple blood test will help researchers match cancer patients to early phase clinical trials based on the genetic make-up of their cancer.

This is the implication of a study carried out by the Manchester Experimental Cancer Medicine Centre (ECMC), which NIHR co-funds with Cancer Research UK and the Departments of Health for Scotland, Wales and Northern Ireland.

The matching process is based on a test that isolates and analyses DNA in the blood that has been shed from tumours. This test has the potential to match patients to trials more cost effectively and less invasively than tests that rely on getting a biopsy of the tumour.

The Manchester ECMC is looking at how the test could be introduced across a network of 18 adult and 11 paediatric centres across the UK.

The results of the trial, published in the New England Journal of Medicine, showed that the drug successfully suppressed the toxic protein responsible for the damage and destruction of brain cells in people with the disease.

The research was led by NIHR University College London Hospitals CRF, with contributions from the NIHR Manchester CRF and NIHR Birmingham CRF.

This trial could not be accommodated on a typical NHS ward, but the CRFs provided the equipment, procedures and staff it needed to run safely.

Delivering ground-breaking Huntington’s disease research

A ground-breaking clinical trial investigating a drug that targets the genetic defect responsible for Huntington’s disease would not have been possible without three NIHR Clinical Research Facilities (CRFs).

The drug, an antisense oligonucleotide (which blocks the production of proteins needed for cell growth) developed by Ionis Pharmaceuticals Inc, is the first to target the underlying cause of Huntington’s disease.
Identifying who is most likely to go to A&E with a non-urgent problem

In 2017/18, there were 23.8 million attendances in accident and emergency departments (A&E) in England, a 22% rise since 2008/09. However, more than one in 10 people who attend A&E could be managed in alternative services, like primary care or walk-in centres.

The NIHR CLAHRC Yorkshire and Humber has designed a way to provide a national picture of who is most likely to go to A&E with a non-urgent problem.

Their analysis found that adults aged 16 to 44 are more likely to attend emergency departments for non-urgent presentations than older people. They were more than three times more likely to present for non-urgent reasons than those over 65. Non-urgent attendances are also more common during out-of-hours periods, especially at night.

The algorithm they developed is now being used by organisations such as NHS Digital and NHS England to develop new triage systems.

New technologies

Interrogating data to improve primary care

Patients do not always receive the standard of care as recommended in best practice guidelines. Our researchers have developed software to analyse data that already exists within medical records to help doctors change this.

A computer software tool developed by the NIHR Greater Manchester Patient Safety Translational Research Centre analyses patients’ primary care records to do a variety of useful things from identifying where patients haven’t received best practice care, to highlighting people with potentially undiagnosed conditions.

The Performance Improvement plaN GeneratorR (PINGR) was tested in over 45 practices in Salford and will be used in others throughout Greater Manchester and beyond.

A pilot study identified that patients whose data was analysed by the new tool were 1.6 times more likely to receive better care as a result of the recommended actions provided by the tool.

Speeding up diagnosis

It can take over 24 hours to get a test back from a laboratory to confirm if an infant has a respiratory viral infection, the most common reason for a child to be admitted to hospital.

Research trialling a bedside diagnostic device shows this waiting time could reduce to just over half an hour. The new device could prevent the need for more expensive tests and limit the unnecessary use of antibiotics.

The NIHR Newcastle In Vitro Diagnostics Co-operative (MIC) collaborated with Roche, doctors and laboratory staff on this study to provide accurate and prompt testing for respiratory viruses.

An economic analysis conducted as part of the study predicted a cost saving of £62 per patient if the patient’s care incorporated this test.
Our people and workforce

Keeping nurses and midwives in research

Reducing the number of nurses leaving the profession is a high priority for every NHS organisation. We are a significant funder of staff carrying out clinical research across the NHS and play an active role in supporting these efforts.

The CRN’s London-wide Keep Making a Difference campaign targeted nurses and midwives nearing retirement, returning from a career break or seeking a career change.

The aim was to attract nurses and midwives into clinical research roles by showing how rewarding a role in research can be and how clinical research has transformed treatment in the NHS and the care patients receive.

Over 700 nurses and midwives signed up to emails to hear more about the roles in clinical research, 165 had a one-to-one coaching session with a senior research nurse and 65 shadowed a local research team for a day. As a result of the campaign, five nurses and one midwife started new roles in clinical research.

The campaign was led by Helen Graham (pictured), Research Delivery Manager (Cancer), CRN Kent, Surrey and Sussex, NIHR Clinical Research Network.
Case study: Finding new treatments for common mental health problems

In September 2018, we launched a recruitment drive to encourage 40,000 people diagnosed with depression or anxiety to join the new NIHR Mental Health BioResource.

Volunteers to the Genetic Links to Anxiety and Depression (GLAD) study can sign up to an online database and provide a saliva sample in the post for genetic analysis. This pool of potential participants will reduce the time-consuming process of recruiting patients for research.

“It will allow researchers to solve big unanswered questions, address how genes and environment act together and help develop new treatment options.”

In the first 24 hours after launch, more than 8,000 people had registered on the website, and by the end of week one, the figure had grown to almost 15,000. By the end of the first month, over 33,000 people had signed up to take part. Nearly 75,000 people have now signed up on the website, with 60% indicating they are willing to join the study.

“Our mission to reach more and more people continues, and in February, GLAD started recruiting in Northern Ireland, Scotland and Wales. We hope that by 2022, more than 40,000 people will have completed the survey and given us a saliva sample,” said Dr Gerome Breen, based at King’s College London and leader of the GLAD study and the NIHR Mental Health BioResource.
5. Partnering with other public funders, charities and industry
Introduction

The NIHR works successfully with partners from across the public sector, charities and the life sciences industry. We do this both to achieve our aims and to improve the UK research ecosystem, thus playing our part in supporting the UK’s world-leading life sciences sector. We collaborate through jointly funding research and training programmes and infrastructure, and work together to streamline the research process and reduce bureaucracy.

Our research infrastructure – facilities, networks, expert researchers and technology platforms – helps to underpin the research funded by UK Research and Innovation (UKRI), charities and the life sciences industry that is crucial to improving national health and supporting a strong economy.
How our centres and facilities support industry research

3,689 Commercial studies supported
£112,906,973 Funding leveraged from industry

1,149 Commercial studies supported where NIHR is a collaborator
£178,636,293 Funding leveraged from industry

1,532 collaborations and partnerships with small and medium-sized enterprises

How our Clinical Research Network supports industry research

Total number of commercial studies supported: 1,523
Proportion of NHS trusts involved in recruiting participants: 79%
Number of commercial studies that recruited the first patient in the world: 15
Number of participants recruited: 46,064

How we support charity-funded research studies

Number of charity studies supported by our Clinical Research Network: 1,752
Number of charity studies supported by our centres and facilities: 2,997
Key highlights

- NIHR is a key partner in the Life Sciences Sector Deal 2, through which we committed to a suite of measures to make our clinical research environment faster, more efficient, streamlined and innovative. The second Life Sciences Sector Deal continued to put the Life Sciences Industrial Strategy into practice and deepened partnerships across industry, universities, charities and the NHS, whilst recognising NIHR’s critical underpinning role.

- From October 2018, we started to work with 11 leading UK charities, including Diabetes UK and the Stroke Association, to jointly fund NIHR Charity Partnership Fellowships. These partnerships encourage greater investment in research than could be achieved by each partner on their own, harnessing the strengths and expertise of the partners involved.

- We are trialling four innovative approaches to care and support for people living with dementia. Working in partnership with the Economic and Social Research Council, which is part of UK Research and Innovation, NIHR is investing £15 million into research projects to improve the lives of people living with dementia. For example, for one project, researchers at University College London, will create an online support network for people with young onset and rare dementia. Another will co-design and pilot a new model of palliative care for dementia.

- Our Clinical Research Network (CRN) has partnered with a leading contract research organisation, IQVIA, to launch a Prime Site for clinical trials across the North of England. A Prime Site is a geographical area focused on research and will expand clinical trial coverage significantly across the region. IQVIA is investing £24 million over five years in the Northern Prime Site, which will involve hospitals across the Greater Manchester, Leeds and Sheffield region and embrace a data-driven approach to the design and delivery of clinical trials and real-world evidence studies.

The NIHR Local CRNs in Greater Manchester and Yorkshire and Humber have worked together to streamline processes across partner organisations. They are also helping to provide a single point of entry for IQVIA, supporting them to deliver new studies and recruit more patients in the region.
Industry partnerships

Partnering with GlaxoSmithKline on rare diseases research
A company founded on technology and clinical data developed by scientists and physicians at the **NIHR Great Ormond Street Hospital Biomedical Research Centre**, Orchard Therapeutics, signed an agreement with GlaxoSmithKline (GSK) in 2018 to develop gene therapy medicines for rare diseases. This means research and ongoing clinical development of these gene therapies can continue, with the aim of benefitting patients with these severe conditions.

Under the agreement, GSK transferred over its entire portfolio of approved and investigational haematopoietic stem cell gene therapies for rare diseases to Orchard Therapeutics. This means research and ongoing clinical development of these gene therapies can continue, with the aim of benefitting patients with these severe conditions.

Orchard Therapeutics is a biotechnology company focused on the development and commercialisation of gene therapy medicines for individuals with rare diseases. Its aim is to restore normal gene function in immunodeficiencies, metabolic diseases and haematological disorders.

App developed for gestational diabetes and glucose monitoring
A smartphone app for women with gestational diabetes, developed with support from **NIHR Oxford Biomedical Research Centre** (BRC), was launched commercially in October 2018.

The smartphone app connects to a wireless blood glucose monitor. A woman's blood glucose measurements, as well as any text-based commentary she wishes to log or a request for a call back, are transmitted directly to a web-based clinical dashboard for a hospital team to manage proactively.

An evaluation of the app in the NHS by over 1,000 women found that it improved their adherence to glucose monitoring and improved birth outcomes, so could potentially deliver cost savings for the NHS.

The app has now been launched by Sensyne Health, after being developed as part of a collaboration between a healthcare technology company, Oxford University Hospitals and the University of Oxford. It is available to pregnant women and their midwives in the Oxford and Berkshire area.

Improving delivery of commercial contract research
The NIHR CRN announced a competition to find five Patient Recruitment Centres, across England, dedicated to late-phase commercial research. NHS organisations were invited to bid to host one Centre that will operate on a national ‘franchise-like’ model.

Further partnerships with a range of NHS organisations in each region will enable the rapid set up and delivery of late-phase commercial research and provide access to a wider cohort of patients.

NIHR CRN has also worked closely with industry and NHS Trusts to investigate workforce resource challenges in commercial contract research. We’ve delivered recommendations to the Department of Health and Social Care to recognise and incentivise NHS Trusts and general practices to act as research participant identification centres.
Supporting research in Advanced Therapy Medicinal Products

Advanced therapy medicinal products (ATMPs) are medicines for human use that are based on genes, genetically engineered cells or regenerated tissue.

We organised and chaired a workshop with the Innovate UK-sponsored Cell and Gene Therapy Catapult and the British Society for Cell and Gene Therapy to discuss ATMPs and the exciting opportunities they offer for treating diseases. Representatives from NHS Trusts, universities, funding bodies and a patient organisation came along to discuss mapping the UK’s capacity and capability to run studies developing these drugs.

The mapping exercise identified barriers including a lack of specialist training and restricted access to infrastructure and logistics. A further challenge was organising multiple stakeholders to avoid duplicating effort and resources and bring them together to share knowledge, ideas and expertise.

In response, our CRN established the NIHR ATMP Coordinating Group to bring together UK-based stakeholders in the field of ATMPs who discussed how they can carry out research to get ATMPs into the NHS.

Establishing the right infrastructure, training and collaborative working in the field of ATMPs is vital. This project is helping us make significant headway in making the UK a leader in ATMP research.

Charity partnerships

Ready-formed networks

We launched three networks of leading UK universities, NHS trusts, research centres, industry and charity partners to find new treatments and therapies for specific conditions. They are helping the UK’s top researchers and clinicians to join forces to solve some of the greatest health challenges facing the UK.

The new research collaborations are:

1. The **NIHR Mental Health Translational Research Collaboration** (MH-TRC) will focus on treatment-resistant depression and improving the characterisation of people deemed to be at risk of developing mental illness.

2. The **NIHR Diet and Activity Research Translation (DART) Collaboration** aims to find a strategy for helping people manage diet, nutrition, physical activity and sedentary behaviour.

3. The **NIHR-British Heart Foundation Cardiovascular Partnership** will accelerate drug discovery and improve patient care for people with cardiovascular disease.

We also launched a new **UK Musculoskeletal Translational Research Collaboration** with Versus Arthritis, which builds on the success of the previous NIHR musculoskeletal collaboration.

Co-funding organ donation research

Around 3,300 people receive a kidney transplant in the UK each year. Of every 14 patients who receive a transplant, one will develop antibodies against the donor organ, increasing the chance that the kidney will stop working, to nearly 75%.

A new trial, co-funded by the NIHR and Kidney Research UK, will test whether the cancer drug rituximab reduces the risk of this happening.
The £1.5 million trial, funded by our Health Technology Assessment programme in partnership with the charity, will test rituximab against the current standard of care in 170 kidney transplant patients across England.

The drug could potentially extend the lifespan of transplanted kidneys in people with acute antibody mediated rejection, keeping them off expensive dialysis and providing a better quality of life.

Supporting research on neurodegenerative diseases

The EU Joint Programme – Neurodegenerative Disease Research (JPND) is the largest global research initiative tackling the challenge of neurodegenerative diseases.

We joined this programme – along with 27 countries across Europe, plus Australia and Canada – to support a round of multinational research projects on health and social care for neurodegenerative diseases.

In November 2018, the initiative awarded €17.5 million (approx. £16.2 million) of funding over three years.

The NIHR, Alzheimer’s Society, Health and Care Research Wales and Health and Social Care Northern Ireland have together committed £2.15 million to the programme from the UK. The NIHR contributed £1.25 million (the largest UK contribution) to this initiative.

UK research teams were involved in leading six out of eight projects that were awarded funding.

Partnering with public bodies

Simplifying research processes and priorities

We are working closely with NHS England and other public bodies to simplify research processes and priorities. Our focus has been on the 12 actions around supporting and applying research in the NHS, which we committed to tackle in our 2017 joint statement with NHS England. Over the past year this work included:

● Introduction of a standardised approach to commercial contract research to improve consistency and reduce unnecessary delays setting up a study.

● Working with NHS England and DHSC to identify NHS England’s highest priority evidence needs in six priority areas: urgent and emergency care, mental health, primary care, cancer, diabetes and specialised commissioning.

● Identification of over 100 areas of potential research, outlined in NHS England Research Needs Assessment 2018. They include early intervention in psychosis and the effect of the digital 111 emergency helpline. Many of these evidence needs will be met through our routine research activity, for example through standard commissioning.

● Working with NHS England, the Health Research Authority and a wide range of other partners to improve the management and consistency of Excess Treatment Costs (ETC) payment processes across the NHS. ETCs occur when the cost of treatment in a research study is more expensive than in routine care.
**Accelerating access to new medicines**

We are supporting a new fast-track route into the NHS for breakthrough medicines and technologies for conditions such as cancer, heart disease and multiple sclerosis. The Accelerated Access Collaborative brings our work together with DHSC, NHS England, NICE, industry and others. Together, we’ll remove barriers to the uptake of innovations, so that patients can get faster access to new treatments.

We are seeking potential products to be considered by the collaborative and are providing support for several already identified for ‘rapid uptake’. We’re also working with companies and the Academic Health Science Networks to increase the uptake of new products across the health and care system.

**Partnering with other funders**

**New model of public health funding**

The [UK Prevention Research Partnership](https://ukprp.nihr.ac.uk) (UKPRP), an alliance of health research funders, is investing £50 million in preventing non-communicable diseases (NCDs) research.

The partnership, launched in May 2017, includes the Medical Research Council and Cancer Research UK. It aims to generate new insights into actionable, sustainable and cost-effective ways of preventing non-communicable diseases.

The partnership’s panel of senior academics and user representatives shortlisted six potential large research collaborations for consortium awards, and six prospective interdisciplinary networks for network awards. Successful applicants were selected in May 2019.

**Harnessing new technologies to securely integrate and analyse healthcare data**

Recent advances in technology have led to remarkable progress in understanding the genetic basis of diseases – particularly rare ones. But the immense volume of data generated by them needs to be integrated with NHS data, then analysed by researchers in a secure environment that protects the privacy of individuals.

Our BioResource was awarded funding from the UK Research and Innovation’s [Industrial Strategy Challenge Fund](https://www.ukri.org/industrial-strategy-challenge-fund) to integrate phenotype and genotype data from patients with rare diseases with routinely collected NHS data. The aim is to understand how someone’s genetics affect how they present with rare diseases and which treatments might work.
**Case study: Artificial intelligence can detect eye disease as accurately as expert doctors**

We supported research into an artificial intelligence (AI) system to accurately find and diagnose eye disease. The system allows patients to be seen more quickly and to ensure serious eye problems are treated as early as possible.

Currently, it takes eye health professionals a long time to analyse highly complex scans, which can impact on how quickly patients can be seen to discuss their diagnosis and treatment. The AI technology can prioritise patients with the most serious eye diseases before irreversible damage sets in.

“The number of eye scans we’re performing is growing at a pace much faster than human experts are able to interpret them,” said Dr Pearse Keane (pictured), an NIHR-funded consultant ophthalmologist at Moorfields Eye Hospital NHS Foundation Trust. “There is a risk that this may cause delays in the diagnosis and treatment of sight-threatening diseases, which can be devastating for patients.

“This technology is designed to prioritise patients who need to be seen and treated urgently by a doctor or eye care professional. If we can diagnose and treat eye conditions early, it gives us the best chance of saving people’s sight. With further research, it could lead to greater consistency and quality of care for patients with eye problems in the future.”

**Saving people’s sight**

Researchers at NIHR Moorfields BRC used machine learning technology to train the system, using anonymous data from around 15,000 eye scans, to look for 10 key features of over 50 eye diseases. Doctors reviewed the same scans, showing that the AI was able to make the right referral more than 94% of the time.

Researchers believe the technology could be rolled out across 30 UK hospitals in five years.
6. Global health
Introduction

The NIHR Global Health Research programme supports high-quality collaborative health research for the direct and primary benefit of people living in low- and middle-income Countries (LMICs) using Official Development Assistance (ODA) funding.

The NIHR Global Health Research programme consists of three strands:

1. Programmes: researcher-led and targeted thematic research calls that we directly commission and manage

2. Partnerships: co-creating or contributing to high-quality schemes for commissioning global health research, in partnership with other funders with a strong track record in this field and in areas of strategic importance

3. People: supporting research capability, training and development of global health researchers and future leaders in the UK and LMICs.

The portfolio has continued to expand since it was established in 2016 and, this year, accounted for almost 10% of the money we spend. Full details of the Department of Health and Social Care’s (DHSC) ODA spending, including ours, is reported to the International Aid Transparency Index.
Key highlights

- We awarded £39 million to **20 new Global Health Research Groups** this year. The groups address global health challenges by building equitable partnerships between LMIC and UK academics and researchers. The new groups are researching topics such as improving asthma outcomes for children in Africa, health system responses to violence against women, and preterm birth prevention and management. Now our total investment in the Global Health Research Units and Groups has increased to £162 million and our portfolio has expanded to include 53 collaborative projects with partners across 50 countries.

- Through engaging the global health systems research community, we developed a new area of work, the **Global Health Policy and Systems Research (HPSR) programme**. We sought their input through an online survey, a HPSR community of interest, and a workshop to discuss and identify research priorities at the Health Systems Global Symposium in Liverpool in September 2018.

- We funded our first two **Global Research Professorships**. Professor Joseph Jarvis at the London School of Hygiene and Tropical Medicine is undertaking translational research to reduce mortality from central nervous system infections in Africa. Professor Nuala McGrath at the University of Southampton is evaluating couple-focused interventions for HIV, sexually transmitted diseases and diabetes to improve adult health in sub-Saharan Africa.
Focusing on unmet need

Challenge-led research

We established the **NIHR Research and Innovation for Global Health Transformation (RIGHT) programme** to commission and deliver research that is expected to have transformative impact from a relatively small investment. This funding complements our existing investigator-led portfolio of units and groups.

The first RIGHT funding call was launched to allocate up to £30 million to address unmet need in three disease areas: epilepsy, infection-related cancer and severe stigmatising skin diseases.

Involving communities and patients in low and middle-income countries

Community engagement and involvement (CEI) is an important consideration within our global health research funding awards. We are building CEI into our portfolio in a number of ways.

Tailoring research

- The **Global Health Research Unit on Improving Health in Slums** has engaged volunteer community members trained in digital mapping techniques to digitalise slum maps across project sites in Africa and south Asia. In some sites, community advisory committees were set up to discuss how they perceive healthcare.

- Community members in Sub-Saharan Africa took part in focus groups led by two new social science leads to find out more about attitudes towards anticoagulation with warfarin. They were also interviewed by the leads as part of the work of the **Global Health Research Group on warfarin anticoagulation** in patients with cardiovascular disease.

- Our newly appointed **Global Health Research Unit on Global Surgery** CEI Manager is implementing a strategy to support five global research hubs and partner centres with engaging communities. As part of this work, an LMIC-focused CEI toolkit will help them to do their own community involvement.

- Thanks to the work of the **Global Health Research Group on Improving Stroke Care** patients, carers and staff at a New Delhi-based hospital are having their say on the best way to care for people who have had strokes. The group is working with partners at the All India Institute of Medical Sciences (AIIMS) to gather their opinions. Provision has been made for carers to participate separately from their relatives at a Patient Carer and Public Involvement (PCPI) engagement event.
Co-designing studies

Our Global Health Research Units and Groups organised CEI events to get patients and communities with lived experience involved as equal partners in decision making. This involved reviewing the design of a series of research study applications.

One of the groups, the **NIHR Global Health Research Group on Global COPD in Primary Care**, reports that stakeholder and CEI events have been very effective for the countries it is working with.

“Participants have expressed their pleasure at being involved in the research,” reports the University of Birmingham-based NIHR-funded group. “Our research priorities and projects were co-designed and we sought patient and public involvement input from local patients and stakeholders, with a view to tailor the projects to make them pragmatic and feasible to deliver.”

The RIGHT way for community engagement

RIGHT projects are required to have a CEI plan outlining how patients and communities with lived experience will be involved in their research. Project teams have to demonstrate how they will involve local non-governmental organisations and wider civil society to mobilise communities. These CEI plans are an important way for us to monitor and evaluate the success of the RIGHT programme.

The funding committee for the first RIGHT call included 10 members of the public who helped review research applications that aim to empower **people living with epilepsy and leprosy in Africa and south Asia.**

“The public review idea is a unique one that provides public opinion to enrich the applications and ensure better outcomes,” says Lydia, who is from Uganda. “I would recommend that other funders adopt it.”

Working in partnership

Co-funding global health research

The NIHR Global Health Research programme has established a range of partnerships with UK and global funders. These allow us to support existing, high-quality funding schemes or co-create new initiatives in research areas where there is an established or unmet need.

This year, the NIHR Global Health Research portfolio expanded with new funding partnerships in areas of strategic importance, including: **maternal and neonatal health** (with the Medical Research Council [MRC] through the Global Challenges Research Fund), **building operational research capacity on antimicrobial resistance** (with the Special Programme for Research and Training in Tropical Diseases), and **global road safety** (with the World Bank’s Global Road Safety Facility).

The programme also supported new funding calls through existing partnerships on themes such as: **adolescent health** (with the Department for International Development [DFID] and the MRC), **hypertension and diabetes** (with the MRC through the Global Alliance for Chronic Disease), **poverty-related diseases** (with the European and Developing Countries Clinical Trials Partnership), and **health in humanitarian crises** (with the Department for International Development and the Wellcome Trust, through the charity Elrha).
7. Financial summary
## NIHR funding for 2018/19

<table>
<thead>
<tr>
<th>Research programmes</th>
<th>Spend (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Services and Delivery Research</td>
<td>19.2</td>
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<tr>
<td>Health Technology Assessment</td>
<td>79.5</td>
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<tr>
<td>Invention for Innovation</td>
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<tr>
<td>Programme Grants for Applied Research</td>
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<td>Public Health Research</td>
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<td>Research for Patient Benefit</td>
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<tr>
<td>Systematic Reviews (Cochrane and Technology Assessment Reviews)</td>
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<td>Health Innovation Challenge Fund</td>
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<td>Methodology (funded with Medical Research Council)</td>
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<td>INVOLVE</td>
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<td>Blood and Transplant Research Units</td>
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<td>Health Protection Research Units</td>
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<td>NIHR Innovation Observatory</td>
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<tr>
<td>Schools: Primary Care, Public Health and Social Care Research</td>
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</tr>
<tr>
<td>Other, including legacy programmes and management not attributed to specific programmes</td>
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<td><strong>Research Programmes total</strong></td>
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<tr>
<td>Infrastructure</td>
<td>Spend (£m)</td>
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<tr>
<td>-------------------------------------------------------------------------------</td>
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<tr>
<td>Biomedical Research Centres</td>
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<td>BioResource</td>
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<td>Clinical Research Facilities</td>
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<td>Clinical Research Network</td>
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<tr>
<td>Collaborations for Leadership in Applied Health Research and Care</td>
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<tr>
<td>Experimental Cancer Medicine Centres</td>
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<tr>
<td>Medtech and In vitro Diagnostics Cooperatives</td>
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<tr>
<td>Patient Safety Translational Research Centres</td>
<td>3.5</td>
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<td>Research Design Service</td>
<td>11.0</td>
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<td>Excess Treatment Costs</td>
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<tr>
<td>Research Capability Funding</td>
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<tr>
<td>Other (including dementia and Child Prosthetics)</td>
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<tr>
<td><strong>Infrastructure total</strong></td>
<td><strong>622.2</strong></td>
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### Faculty Spend (£m)

<table>
<thead>
<tr>
<th>Category</th>
<th>Spend (£m)</th>
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</thead>
<tbody>
<tr>
<td>Fellowships (including legacy training awards)</td>
<td>22.0</td>
</tr>
<tr>
<td>Integrated Academic Training (including Academic Clinical Fellowships, lectureships and Clinician Scientist awards)</td>
<td>67.8</td>
</tr>
<tr>
<td>Research Professorships</td>
<td>7.8</td>
</tr>
<tr>
<td>Senior Investigators</td>
<td>3.4</td>
</tr>
<tr>
<td>Other (including management and clinical academics)</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>Faculty total</strong></td>
<td><strong>106.4</strong></td>
</tr>
</tbody>
</table>

### Systems Spend (£m)

<table>
<thead>
<tr>
<th>Category</th>
<th>Spend (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Informatics Collaborative</td>
<td>0.1</td>
</tr>
<tr>
<td>Information systems that enable research</td>
<td>6.8</td>
</tr>
<tr>
<td><strong>Systems total</strong></td>
<td><strong>6.9</strong></td>
</tr>
</tbody>
</table>

### Policy Research Programme

<table>
<thead>
<tr>
<th>Category</th>
<th>Spend (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Research Programme</td>
<td>29.3</td>
</tr>
<tr>
<td><strong>Total revenue spend</strong></td>
<td><strong>1012.4</strong></td>
</tr>
</tbody>
</table>

### Other spend

<table>
<thead>
<tr>
<th>Category</th>
<th>Spend (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIHR contribution to Genomics England</td>
<td>50.0</td>
</tr>
</tbody>
</table>

**Total NIHR spend excluding Official Development Assistance**

£1062.4m
<table>
<thead>
<tr>
<th>Official Development Assistance</th>
<th>Spend (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMR: behaviour within and beyond the healthcare setting</td>
<td>1.0</td>
</tr>
<tr>
<td>Antimicrobial resistance (AMR): operational research</td>
<td>1.2</td>
</tr>
<tr>
<td>AMR in the Global Setting: understanding the drivers of AMR</td>
<td>2.0</td>
</tr>
<tr>
<td>Diagnostics, prosthetics and orthotics to tackle health challenges in developing countries</td>
<td>2.6</td>
</tr>
<tr>
<td>European and Developing Countries Clinical Trials Partnership</td>
<td>37.0</td>
</tr>
<tr>
<td>Global Alliance for Chronic Disease – Mental Health</td>
<td>0.2</td>
</tr>
<tr>
<td>Global Health Research Professorships</td>
<td>0.2</td>
</tr>
<tr>
<td>Global Road Safety Facility</td>
<td>1.7</td>
</tr>
<tr>
<td>Joint Global Health Trials Initiative</td>
<td>8.6</td>
</tr>
<tr>
<td>NIHR Global Health Research Units and Groups</td>
<td>31.3</td>
</tr>
<tr>
<td>Research for Health in Humanitarian Crisis</td>
<td>1.3</td>
</tr>
<tr>
<td>Research to improve adolescent health in low and middle income country settings – call 2</td>
<td>1.3</td>
</tr>
<tr>
<td>Other</td>
<td>1.6</td>
</tr>
<tr>
<td>Total Official Development Assistance</td>
<td>90.0</td>
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</tbody>
</table>

Total NIHR spend including Official Development Assistance £1152.4m