



# Our year in review

In 2017, the National Institute for Health Research (NIHR) renewed our Centre for the third time, establishing us as one of three centres for excellence in patient safety in England.

This has enabled us to continue our mission of advancing the scientific evidence base for safe care, bringing improvements in care quality and safety. We do this by delivering sustainable, high-impact research that can support the dissemination and implementation of effective patient safety strategies, in the NHS and internationally.

With this report, we're proud to share our progress in this endeavour, highlighting a selection of our major moments over the past 12 months.

Through our work we've been generating new knowledge on a range of pressing and emerging patient safety areas; developing, testing and implementing safety innovations; and building patient safety networks to share knowledge and best practice.

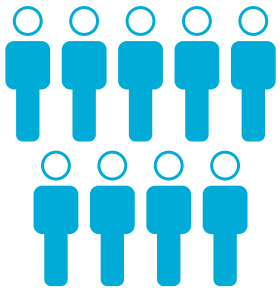
We continue to partner with collaborators, patients, professionals, and the public in all areas of our work, which gives us a deeper understanding of the issues that people and services face, enabling our team to devise appropriate and innovative solutions to them. Our progress in making care safer would not be possible without such partnerships, and so with this report we would also like to express our gratitude for everyone who has contributed to this next chapter in our research.

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# Our year in numbers

A selection of highlights from across the year.

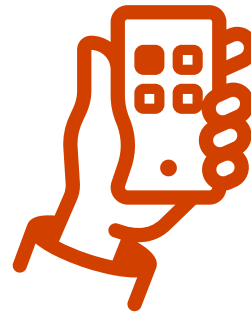


# 6000

participants were recruited onto our study exploring **patient perspectives of digital technologies in primary care**

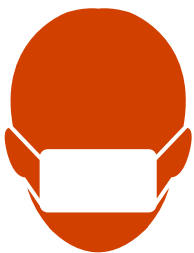
# 20

countries are included in our **evaluation of healthcare professionals' perspectives on remote care**



# 700

people across the Imperial College Healthcare NHS Trust are trialling our **digital alerting app, Streams**



# 50

shielding patients are helping us explore **household medication practices during COVID-19**

# 4000



people have been recruited to our study that's developing a **risk-prediction tool for severe COVID**

## Our year in numbers

64%



of our Research Partners Group are minority ethnic, helping us hear from **diverse voices**



200+

people attended our **8th** national patient safety symposium on **World Patient Safety Day**



We've published...

**310**  
papers

on **patient safety** over the last four years

We've analysed...

**5** years



of complaints data to explore how these insights could **improve safety evaluation**

**Theme 1: Safer systems across the continuum of care.** *Developing and evaluating interventions to make it safer for patients as they transition from one care system to the next.*

Led by our Centre's director Professor Darzi, this theme seeks to create safer systems for patients as they move along the care pathway.

Among our progress over the past year, we've launched a new research programme to develop a smartphone app that could improve both patients' and clinicians' experience of surgery. We're planning to run a randomised controlled trial, the gold standard of clinical trials, to assess how the app can influence patient experience and satisfaction and find out if it can lead to better outcomes.

Our programme of work with the Behavioural Insights Team and the Royal College of Anaesthetists, aiming to reduce burnout in trainee anaesthetists, has now concluded. We ran a randomised controlled trial to evaluate the impact of a novel text message intervention on burnout in trainee anaesthetists, and conducted a subsequent interview study with a subsample of participants to explore our findings. While the RCT found no significant impact on burnout or wellbeing, the majority of participants recommended the messages be sent to trainees in the future, and there were some promising exploratory findings. An article describing the work has been provisionally accepted for publication, pending minor revisions.

We are also working with the Behavioural Insights Team on another programme of work to reduce burnout in nurses. The team have completed a rapid review of the literature on factors associated with burnout in nurses, and previous interventions to help. We also conducted an interview study with nurses and individuals involved in the wellbeing strategy at Imperial College Healthcare NHS Trust, to inform the development of an intervention to reduce burnout in this setting.

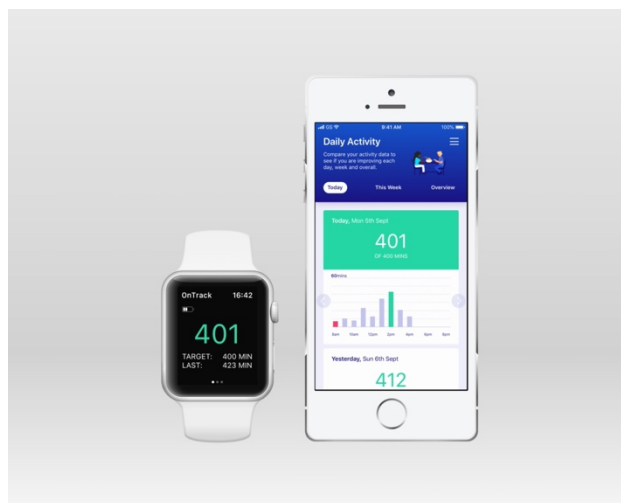
Our team of behaviour experts are also continuing to explore ways to improve breast screening uptake. Alongside research efforts to better understand why some people don't attend, we're looking at the impact of different text message reminders on screening uptake. This programme is funded by Public Health England and we're working closely with cancer survivors to inform and guide the project.

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### Theme 2: Partnering with patients for safer care. *Empowering and engaging patients in the safety of healthcare.*

Led by Mr Erik Mayer, this theme works to support more active and safe involvement of patients in their own care.

We are increasingly turning to co-production in our work in this theme and more broadly across the Centre, closely involving patients and members of the public from project start to finish. Working with stroke survivors and NHS staff, we co-produced a digital rehabilitation platform to aid upper limb recovery for people who have had a stroke. Following a successful pilot trial, we completed a feasibility study earlier in the year and have finished analysing the results, the findings of which will be available soon. The intervention, called OnTrack Rehab, received support from stroke rehabilitation experts in the UK and our team was shortlisted for the NIHR i4i award.



We also worked with a cancer patient to co-produce a digital diary of side effects for people having chemotherapy, which is now undergoing approval for roll out into the electronic record system (Care Information Exchange) at Imperial College Healthcare NHS Trust. Other software we're building, which aims to enable people with chronic respiratory conditions to develop digital self-management plans, will also be integrated into the Trust's Care Information Exchange system. And [our review](#) of the impact of sharing electronic health records with patients was selected as one of the BMJ Quality and Safety's best papers of 2020.

In response to the recent rapid increase in digital healthcare technologies, such as remote consultations, we've been evaluating patients' and [GPs' perspectives of these tools](#). Through our ongoing analyses of international survey data including thousands of participants, we hope to inform the sustainable adoption of inclusive virtual care solutions.

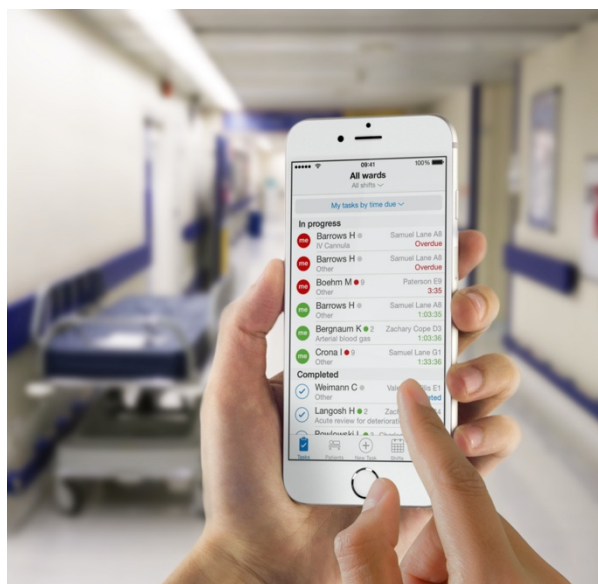
### Theme 3: Avoiding deterioration in patients with complex needs.

*Developing and implementing solutions to identify and manage patient deterioration.*

Led by Professor Paul Aylin, the goal of this theme is to better identify deteriorating patients and ensure timely and appropriate clinical response.

We've been evaluating a number of digital technologies in our research, including the Sensium wearable device. This credit-card sized patch monitors people's vital signs, such as heart rate and blood pressure, and alerts healthcare staff if any readings may be signs of deteriorating health. We've been evaluating this system as an early warning system [for sepsis](#) and also as a way to [remotely monitor people with suspect COVID-19](#).

Another digital tool we're evaluating is [Streams](#), a medical information and alerting app for healthcare staff, which the Institute of Global Health Innovation helped develop. We're trialling Streams across the Imperial College Healthcare NHS Trust, with more than 700 users involved.



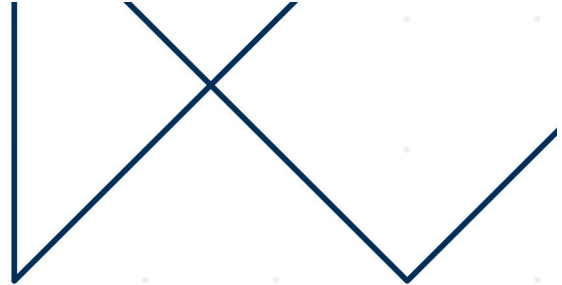
We're also hoping to soon launch a new trial with Imperial's Division of Psychiatry, called Imaginator, which will examine the effectiveness of a digital app to reduce self-harm in young people. Young people with experience of suicidality helped to co-produce our SWAY study, which is exploring whether sleep disturbance could be an early warning sign of suicidality in psychiatric patients transitioning to community care. A separate study involving young people with experience of suicide bereavement is co-producing and evaluating the impact of a peer support intervention for people bereaved by suicide.

#### **Theme 4: Enhancing the safety of medication technology.** *Building evidence to make medicines and healthcare technologies safer.*

Led by Professor Bryony Dean Franklin, this theme aims to enhance the safe use of medicines and healthcare technology.

We're continuing to explore how patients and carers record and use information about medication to support safe communication across different healthcare settings. One such tool is called patient-held information about medication ([PHIMed](#)), which might be a paper record or online app that contains information about the medicine a person takes. Our researchers have been exploring and documenting the benefits of PHIMed and are now expanding this research to quantitatively measure the benefits of such tools. We're also looking at how and why household medication practices during the COVID-19 pandemic have differed from routine practices, involving 50 remote interviews with people who were shielding.

To help reduce medication errors in clinical settings, we're working with colleagues across the Institute and Trust to develop and evaluate interventions that can support staff to use medicines safely. One tool is a dashboard we're building to help staff spot and track medication issues on



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their ward. Another is a digital decision-support system, called Touchdose, which integrates a range of data sources including patient and drug manufacturers' information, to ensure that paediatric patients receive the right drug at the right dose. We're now developing a protocol to trial Touchdose at Taunton and Somerset NHS Trust.

**Theme 5: Improving diagnostic accuracy and decision-making.** *Working towards more accurate diagnoses and reduced delays in clinical decision-making.*

Led by Dr Olga Kostopoulou and Professor Brendan Delaney, this theme works to tackle the challenges related to diagnosis and decision-making in primary and surgical care.

With antibiotic resistance an issue of growing global concern, we have a number of projects focusing on improving and supporting clinical decision-making over the use of antimicrobial drugs. We [investigated how GPs assess risk](#) and make antibiotic prescribing decisions for children presenting with a cough, and compared these with a validated risk-prediction tool designed to guide clinical decisions. Our work has highlighted discrepancies in decision-making which could have implications for clinical practice and how such risk-prediction systems are integrated into electronic health records. We've planned a follow-up study to explore this further and have launched a separate project looking at the factors influencing clinicians' decisions to stop antibiotic use in people who are critically ill.

Our team is also developing and evaluating novel techniques for detecting infection in real-time. Our researchers have demonstrated the diagnostic potential of a light-based method, called Raman spectroscopy, and are now finalising its use in a clinical setting.

In response to the pandemic, we partnered with the University of Oxford to develop a risk-prediction tool for GPs to help them spot people with COVID-19 who could develop severe disease. Called [RECAP](#), this project will help patients access the treatment they need sooner, hopefully leading to better outcomes.

**Theme 6: Ensuring value for money in patient safety.** *Understanding the economic burden of avoidable harm and cost-effectiveness of safety initiatives.*

Our work in this theme, led by Professor Elias Mossialos, aims to better understand the economic burden of avoidable harm and generate evidence on the cost-effectiveness of safety-related initiatives.



We carried out a major review of economic analyses in patient safety, designing a method to measure development in the scope and quality of evidence. Demonstrating its real-world impact, this research has been used by the Organisation for Economic Co-operation and Development (OECD) to guide G20 policy.

Another review, carried out in partnership with LSE, the University of Exeter and the World Health Organization European Office, has evaluated the impacts of delivering primary care services, the results of which will be available soon.

Our team has also begun to explore the impact of different organisational structures in primary care on patient safety and costs to the health system. Patients and the public have been actively involved in and informing this work, which we hope will identify whether different organisational models can affect patient safety in different ways and lead to more collaborative approaches to general practice.

## Patient and public involvement and engagement. *Putting people at the heart of what we do.*

We know and champion the value of listening to diverse voices in research, and we are always striving for greater inclusivity so that what we do is shaped by the people it matters to most.

Our Research Partners Group, who meet regularly to inform our direction and activities, is 64% minority ethnic. Over the past year, they have met online five times and reviewed 16 projects and plans. We also co-manage a Young Person's Advisory Network, a group of 17-25-year-olds who review our youth-relevant projects.

A major programme that we're proud to have played a part in over the past year is the REACT study (REal-time Assessment of Community Transmission), one of the world's biggest coronavirus surveillance studies. Our team worked with colleagues across Imperial to ensure that people from seldom heard groups were involved in community engagement events, a public steering group to advise on the work, and the [development of clear information booklets](#) and videos sent to study participants. Efforts to actively involve a diverse range of public members are reflected in high participant response and engagement rates, demonstrating the value of embedding public involvement in research.



We have also been working closely with young people to understand how the pandemic has affected their mental health, launching our co-produced CCopeY study which has been exploring coping strategies during lockdown. Young people were co-researchers on this project, helping us to





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[identify a number of coping methods](#) which could be beneficial to other young people who are experiencing poor mental health.

Another major ongoing project is our partnership with Imperial College Health Partners for a Health-Foundation funded project, [the Networked Data Lab](#). Together, we're analysing a large dataset called Discover to answer research questions prioritised by people in North West London. Chosen research topics include shielding patients, young people's mental health care, and social care, all of which have patient safety implications. Also in North West London, we've been creating face masks with slogans to improve COVID-19 safety for older people, focusing on those from deprived areas and minority ethnic groups. A diverse group of older people have contributed to the design of the project and the masks.

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[Visit our website to find out more about our Centre](#)