Health Research in Action

HRB Health Research Board

#HRBResearchInAction

Research.
Evidence.
Action.

HRB by numbers

– a snapshot of work completed in 2019

The team managing our National Health Information Systems:

Serviced 180 requests for data

Published 10 peer reviewed journal articles

Published 8 annual reports and national bulletins on drugs and mental health

The HRB Evidence Centre:

Completed 11 evidence products for the Department of Health:

6 evidence reviews

4 evidence briefs

1 comprehensive search

In terms of funding

89 awards completed in 2019,

worth a total of **€26,500,000**

This research resulted in:

- **67** new methods or materials (e.g. assays, databases, training materials)
- **31** healthcare innovations (e.g. medical devices, therapies or interventions)
- **134** influences on policy or practice (e.g. new clinical guidelines, policy reports)
- **337** engagements with public bodies and media
- **79** instances of public and patient involvement (PPI) in research

Supported 204 research jobs

- **40** Healthcare Professionals
- **57** Biomedical Scientists
- **43** Social Scientists
- **3** Other Scientists
- **61** Other

Significant academic outputs

37	PhDs completed or in progress
354	Peer-reviewed publications
46	Non-peer reviewed publications
827	Presentations at scientific conferences
84	Academic collaborations with national colleagues
113	Academic collaborations with international colleagues

The economic impact

Leveraged €85,200,000 total funding on foot of these awards

Negotiated one licence with industry

Started 30 industry collaborations

Filed five patents

Developed two spin out companies

Thanks to @claireoconnell and all the researchers for helping us to pull this together.

In order to illustrate some examples of our research in a user friendly way, we captured a few of the success stories, summarised them and turned them into tweets we can share on social media.

So in just a few seconds, you should get a good sense of some of the great discoveries and outcomes that the Health Research Board is supporting across many areas of health.

A project funded by @HRBireland at @RCSI_Ireland has shown that blocking JAM-A in breast cancer cells can reduce tumour progression #HRBResearchInAction

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In summary

Targeted therapies for cancer, most notably the drug Herceptin on HER-2-positive breast cancer, are one of the big medical success stories of the last 20 years. But sometimes HER-2-positive tumours don't respond to HER-2-targeted therapies. Researchers at the Royal College of Surgeons in Ireland have been looking at another drug target in breast cancer cells, called JAM-A, as an alternative. With HRB funding, they found that blocking JAM-A in a number of lab models can reduce tumours on its own, and it speeds up the action of a HER-2-targeted drug on HER-2-positive tumours, making it a potentially useful target. They now have data to bring their JAM-A blocker closer to the clinic.

Jamming the signals in breast cancer

Lead researcher: Dr Ann Hopkins, Royal College of Surgeons in Ireland

The problem

HER-2-positive breast tumours often respond well to targeted therapies, but not always. Researchers at RCSI had developed a way to block another molecule, JAM-A, and wanted to test this further as an alternative target for HER-2-positive tumours.

The project

The research at RCSI and Johns Hopkins University in the US applied the JAM-A blocker to several types of breast cancer tumour in the lab; all models of early-stage breast cancer.

The outcomes

- We now know that blocking JAM-A can reduce breast cancer tumours in the lab, and blocking JAM-A can speed up the responses of tumours to a HER-2-targeted drug
- The basis of a test to find out if biopsies from tumours show high JAM-A
- The JAM-A blocker developed at RCSI can now be brought forward for further trials as an anti-cancer agent
- An outreach workshop - 'A Day in the Life of a Cancer Biologist' - that has engaged directly with more than 300 6th-class students in Ireland and provided learning materials for hundreds of additional primary school students.

Dr Ann Hopkins, a Senior Lecturer at RCSI, says:

"The HRB has supported us in carrying out a range of pre-clinical studies, and my vision is that our discoveries about JAM-A will ultimately translate into a test to see what tumours are likely to respond, and a new treatment for these patients. That would offer another targeted therapy for certain aggressive forms of breast cancer."

A @HRBireland review of legislation on infectious disease in different countries has helped to inform Ireland's response to the COVID-19 pandemic #HRBResearchInAction

#HRBResearchInAction

In summary

The COVID-19 pandemic has made us all acutely aware of the need for public health measures and legislation to support the health and wellbeing of citizens during an infectious disease emergency. Ireland complies with international health regulations on infectious disease, but our national legislation has not changed much since the 1940s.

Well before COVID-19, the Department of Health asked the HRB to look at how other countries or states have designed and implemented infectious disease legislation. The HRB carried out a review of jurisdictions in Europe, Canada and Australia and identified several features that help to ensure the success of infectious disease legislation. This information was shared with the Department of Health just before the COVID-19 pandemic started.

How can Ireland strengthen legislation to protect against infectious disease?

Researchers: Joan Quigley, Michelle Williams, Tonya Moloney and Caitriona Lee, Health Research Board

The problem

Ireland complies with the World Health Organisation's international health regulations, but our national infectious disease legislation has not changed substantially since the 1940s.

The project

Researchers at the HRB Evidence Centre analysed studies and data from Europe, Canada and Australia about new or replacement overarching public health legislation that countries introduced since 2005, and the lessons learned.

The outcomes

- The report identified key features for implementing infectious disease emergency legislation
- They include; allocating funds for support, cross-border co-operation, clear communication, delineation of responsibilities, timely notification of infections, rationale for quarantine and detention and a timeframe for responses
- The researchers provided the Department of Health with a spreadsheet of emergency public health legislation internationally, which has helped to inform Ireland's reaction to the COVID-19 pandemic.

Joan Quigley, HRB Evidence Centre, says:

"We presented the findings to the Department of Health in December 2019, shortly before the COVID-19 pandemic, so they had ready and timely access to information about how other countries or states have prepared legislation for infectious disease emergencies, and the important factors, such as the allocation of funds and the importance of clear communication."

@HRBireland funded a project led by @UCDDublin to design and develop a game to explore hospital culture of safety concerns and increase awareness among junior doctors of how to report incidents #HRBResearchInAction

#HRBResearchInAction

In summary

Doctors, and especially junior doctors, rarely report medical errors or safety incidents in Ireland. This can lead to under-reporting and a lack of accountability, which affects patient safety. In a HRB-funded project led by UCD, researchers developed a serious board game that encouraged players to think about safety issues from many perspectives. The researchers engaged with more than 100 junior doctors and other hospital staff who played the game to find out more about the culture of safety reporting. The project identified the reasons why junior doctors were failing to report the errors and safety concerns they witness and made recommendations to improve training and awareness.

Reporting safety concerns: a game to increase awareness among junior doctors

Lead Researcher: Professor Eilish McAuliffe, University College Dublin

The problem

Junior doctors do not tend to report safety concerns in hospitals in Ireland.

The project

Researchers co-designed a version of board game called 'Play Decide: Patient Safety ' with nurses, junior doctors, risk and incident managers and patient advocates. They surveyed more than 100 junior doctors (interns and Senior House Officers) at two hospitals who played the game, allowing them to explore and learn about the culture of reporting safety concerns.

The outcomes

» A board game called Play Decide: Patient Safety designed to engage hospital staff to think and learn about safety issues and reporting concerns

» The board game proved a useful engagement tool to encourage junior doctors and other hospital staff to talk and learn about safety and reporting incidents

» The project identified the need:

> To create a culture of learning rather than blame

> For senior doctors to act as role models and support junior staff to speak up when they witness errors

> To prioritise training on safety reporting and to ensure junior doctors receive training on how to report safety incidents at a time other than their first week as interns when they are not likely to retain the information.

Professor Eilish McAuliffe, Professor of Health Systems at UCD School of Nursing, Midwifery and Health Systems, says:

"The fact that the board game was designed using real incidents and errors that had occurred and it included the perspectives of patients, healthcare staff and risk and safety managers made it an extremely powerful tool for getting people engaged in the topic of reporting safety concerns. We know that in the vast majority of cases it is nurses who report errors and safety incidents, and the project allowed us to develop recommendations for improving the training of junior doctors in reporting their concerns. We have had a lot of interest in the game from healthcare staff in other countries, and have made it available to download free at www.patientsafetydiscussion.ie"

A study at @TCDDublin Dental School supported by @HRBireland showed *Staphylococcus aureus* screening and control needs to be expanded to the mouth and air, as well as the nose #HRBResearchInAction

#HRBResearchInAction

In summary

About one third of us carry a bacterium called *Staphylococcus aureus* (SA) in our noses and mouths, and it does us no harm. But if that SA is resistant to treatment (MSSA and MRSA), it can cause severe illness and even death in elderly and vulnerable patients.

Healthcare workers in Ireland generally only get their noses screened for SA if there is an outbreak among patients where they work. A study at Trinity College Dublin Dental Hospital screened healthcare workers, patients and the air in hospitals, and analysed the genomes of the SA bacteria they found there. The results showed that many patients carry SA in their mouths as well as their nose, found SA in 40% of air samples and discovered evidence of widespread transmission of SA between the air, healthcare workers and patients.

Staphylococcus aureus in healthcare settings – screen mouths, noses and the air

Lead Researcher: Professor David Coleman, Trinity College Dublin

The problem

Staphylococcus aureus (SA) can cause serious illness and even death in vulnerable patients, but we know little about where the bacterium 'lives' and how it moves around in healthcare settings in Ireland.

The project

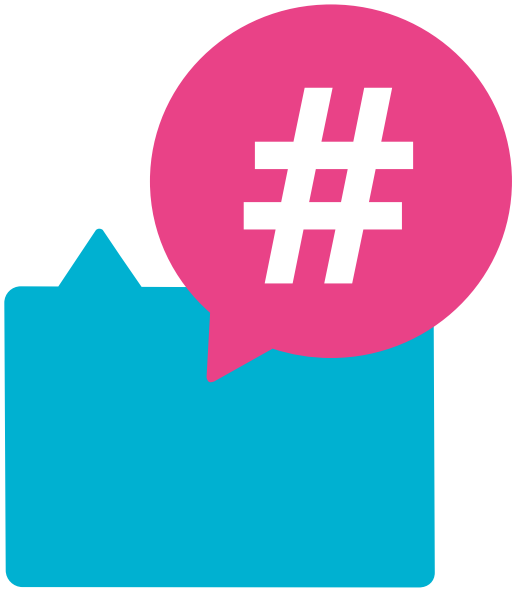
Researchers at Trinity College Dublin Dental School took samples from the noses and mouths of healthcare workers and patients as well as the air and surfaces in clinical settings, and analysed the genetic material in the SA bacteria they found.

The outcomes

- In the study, one third (37%) of healthcare workers and almost a quarter (24%) of patients carried SA, and many carried a potentially dangerous form called MSSA
- We know now that SA is widely present in the air in hospital settings (40% of samples), and this plays a role in spreading infection
- One third of healthcare workers and 37% of patients sampled carried SA in their mouths and not their noses, indicating that mouths as well as noses should be screened and treated with antibiotics as needed
- The findings have been published in the international literature and have changed SA screening practices in two Dublin hospitals.

Professor David Coleman, Professor of Oral and Applied Microbiology at the Dental School, Trinity College Dublin, says:

"We had expected to find that about one third of healthcare workers carried SA, but what shocked us was that the air in the healthcare setting was so widely contaminated. One of the big findings from the project was the presence of SA in mouths, and this would be missed if people were only screened for bacteria in the nose. It also points to the need to decolonise the mouth as well as nose with antibiotics, otherwise the bacteria from the mouth could just move into the nose."



Research funded by @HRBireland highlighted the importance of resourcing, training and evaluation when setting up and running integrated programmes for mental health and addiction services.

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In summary

People who have mental health problems may also have issues with addiction. In Ireland, the intended national strategy is to move towards integrating services for mental health and for addiction.

In response to a request from the Department of Health, the HRB commissioned a rapid, realist evidence review to engage with people who use and provide existing integrated mental health and addiction services in Ireland, and to identify ways to improve and expand those programmes.

Researchers from the Georgia Health Policy Center worked with the HRB on the project and identified several barriers and facilitators to integrating services at policy, organisation and provider level. Key among them is to co-produce the services with the individuals attending them.

Keep the service user at the core when integrating mental health and addiction services

Researchers: Karen Minyard, Brigitte Manteuffel, Collen M Smith, Brandon K Atell, Glenn Landers, Mariah Schlanger and Emily Dore

The problem

Ireland's National Drug Strategy (2017-2025) aims to integrate mental health services and addiction services, but we needed to understand how that integration can be carried out or expanded to best suit the needs of service users and improve outcomes.

The project

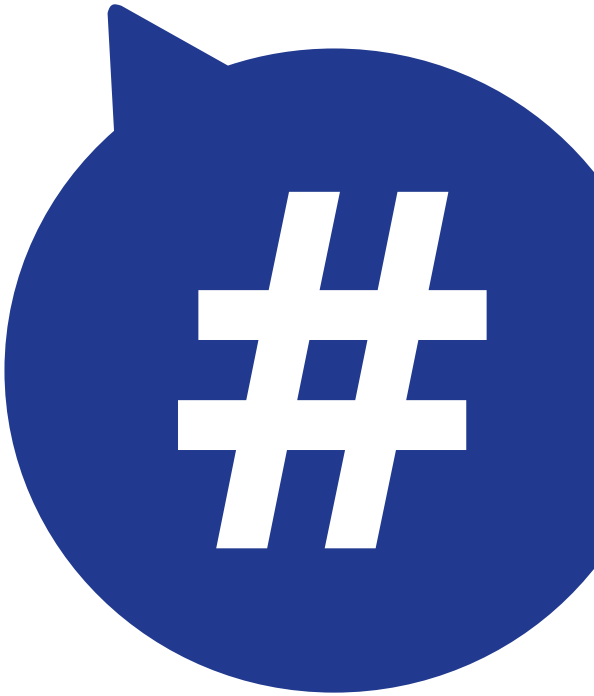
The researchers visited integrated dual-diagnosis facilities in Ireland and spoke with service providers and service users. They also reviewed more than 150 relevant pieces of international literature.

The outcomes

- Policy recommendations, including the need to allocate resources and payment that enable integrated mental health and addiction services
- Organisational recommendations, including the need to keep the individual at the centre of dual services and build competence, confidence and clear communication among providers
- Service recommendations, including the need to evaluate current dual programmes and use the learnings to guide future programmes
- Individual recommendations, chiefly to keep the service user at the centre of the service and co-produce it with them.

Brian Galvin, HRB Programme Manager for Drug and Alcohol Research, says:

"The key to this rapid, realist evidence review was engaging with the people who provide and use integrated services. We learned a huge amount through this engagement, resulting in a list of recommendations for policy, organisations and services providers about integrating mental health and addiction services effectively."



A project funded by @HRBireland at @RCSI_Ireland created animations to help young people identify and work through mental health difficulties, attracting more than 16,000 views online #HRBResearchInAction

#HRBResearchInAction

In summary

Young people in Ireland can experience a range of mental health challenges as they go through their adolescence, teens and twenties. To find out more, a HRB-funded research project at the Royal College of Surgeons of Ireland spoke to young people taking part in a long-term study on adolescent and teenage brains, and identified key areas where young people can struggle, including anxiety, depression, isolation, feeling different and being bullied. Based on those interviews, RSCI led the Youth Mental Health Animation Project, funded by a HRB KEDS award, which created a series of online videos to connect with young people aged 12-25 as well as parents and educators.

Helping young people identify and tackle mental health difficulties

Lead researcher: Helen Coughlan, Royal College of Surgeons in Ireland

The problem

HRB funded research identified that many young people in Ireland experience difficulties due to anxiety, depression, feeling lonely or different and bullying.

The project

RCSI researchers worked with young people to find out more about their experiences of mental health challenges. They collaborated with SpunOut.ie, animation students from IADT (Institute of Art, Design & Technology) and the young people themselves to create online animations about those topics, using examples and phrases from the research.

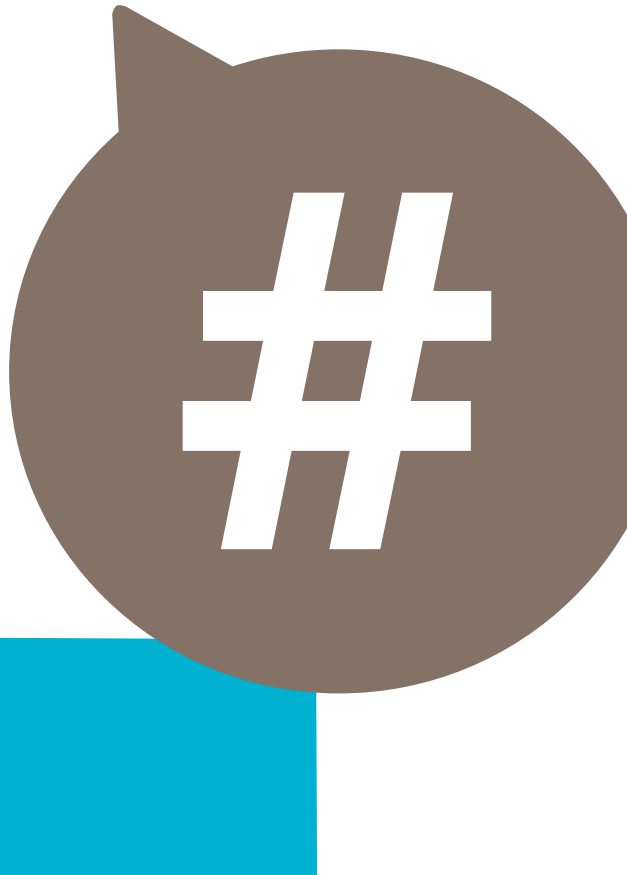
The outcomes

» Five animated videos about experiencing mental health difficulties and finding help, based on the experiences of young people in Ireland. See www.spunout.ie/RCSI

» The animations have been viewed more than 16,000 times, with the stories about bullying and feeling different attracting the largest viewership.

Helen Coughlan, Senior Research Fellow in Psychiatry at RCSI, says:

"This project about young people, for young people and by young people. It was about giving a voice to young people who have taken part in research so they saw something tangible arising from their participation, and that it enabled them to reach other young people who might be struggling."



@HRBireland funded research @UCDDublin developed a new calculator to assess the risks and benefits of a biopsy in prostate cancer, with the potential to reduce unnecessary biopsies #HRBResearchInAction

#HRBResearchInAction

In summary

A biopsy to sample part of the prostate is the gold standard for diagnosing prostate cancer, but it is an invasive procedure and can lead to issues such as infection and problems urinating. In Ireland, only about 1/3 of men who undergo an investigative prostate biopsy get a diagnosis of prostate cancer, meaning many of those biopsies are unnecessary.

Research at University College Dublin used routine clinical data from men attending Rapid Access Clinics for suspected prostate cancer, and developed the Irish Prostate Risk Calculator, which gives the statistical likelihood of a biopsy giving a cancer diagnosis. The calculator is now undergoing clinical assessment and could reduce the numbers of men undergoing biopsies without reducing the quality of diagnosis.

A calculator to assess the need for biopsy in prostate cancer

Lead Researcher: Professor William Watson, University College Dublin

The problem

In Ireland, two out of every three men who undergo a biopsy to test for prostate cancer do not get a diagnosis of cancer, meaning they have had an unnecessary invasive procedure.

The project

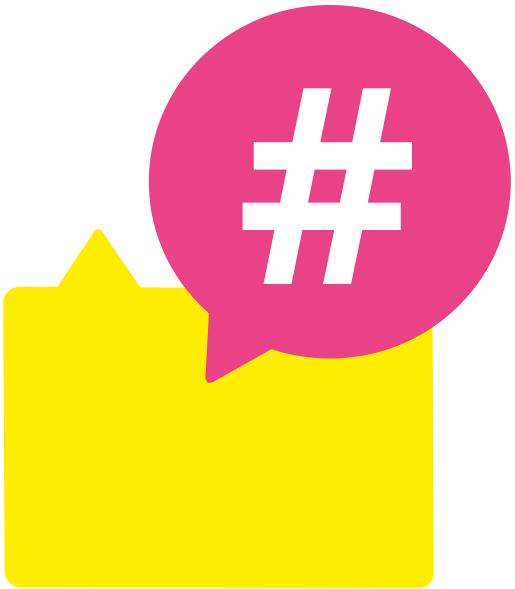
The researchers at University College Dublin used routine clinical data - such as age, digital rectal examination, PSA levels, prostate volume and previous biopsy - collected from 4,801 men attending the eight Rapid Access Clinics around Ireland for prostate cancer, and developed a calculator that assesses the risks and benefits of undergoing a biopsy.

The outcomes

- An app that takes in data about a patient with prostate cancer and analyses the risks and benefits of having a biopsy
- The Irish Prostate Risk Calculator is being evaluated by the urologists of the Rapid Access Clinics around Ireland, alongside the traditional methods of assessing patient risk
- As new evidence emerges about biomarkers in prostate cancer, they can be added to this platform to improve risk analysis.

Professor William Watson, Professor of Cancer Biology at University College Dublin School of Medicine, says:

"We have worked closely with clinicians in the Rapid Access Clinics to develop a calculator that provides information in a format that patients and doctors want, and the aim is that ultimately the app we have developed will help men to avoid unnecessary biopsies and their side-effects, without affecting the standard of their diagnosis."



Analysis by @ESRIDublin funded by @HRBireland provided detailed evidence of where non-acute services are in Ireland, and how they can take the pressure off hospitals #HRBResearchInAction

#HRBResearchInAction

In summary

Ireland wants more healthcare delivered in the community to take the pressure off acute hospitals. However, until recently we didn't have strong data about the extent of community services around Ireland, nor how effectively they could substitute for acute services. Researchers at the Economic and Social Research Institute (ESRI) and Trinity College Dublin gathered data about the levels and locations of non-acute services and saw an uneven distribution between counties. They also analysed data about interactions between acute and non-acute services and provided evidence that high levels of home- and residential-care services in an area can reduce the length of time in hospital for older patients. The findings have helped to shape national policy in Ireland.

A clearer picture of non-acute healthcare in Ireland

Lead Researchers: Dr Samantha Smith, Trinity College Dublin, Dr Brendan Walsh and Dr Maev-Ann Wren, ESRI

The problem

Ireland wants to move more healthcare into the community to reduce the pressure on hospitals, but there were gaps in the data about supply and the effects of substituting acute care with non-acute settings.

The project

HRB-funded research at the ESRI and TCD gathered and analysed data about primary and community health services throughout Ireland, and looked at the impact of local non-acute healthcare on acute services.

The outcomes

- The most comprehensive publicly available profile to date of the locations of non-acute community healthcare providers in Ireland, including physiotherapists, occupational therapists, GPs and public health nurses
- A comparison of non-acute services by county, showing that needs outstripped supply in many counties, particularly in the East and South East
- Evidence that non-acute care can take the pressure off hospitals: older people in areas with more home and residential care (e.g. nursing homes) had shorter hospital stays
- Evidence that a 10 per cent increase in home care supply per capita would equate to approximately 14,700 fewer inpatient bed days per year, the equivalent of 40 inpatient beds daily
- The findings have influenced policy in Ireland, notably the provision of greater resources for home-care services.

Dr Samantha Smith, Research Fellow in Public Health & Primary Care at Trinity College Dublin, says:

"We filled in gaps in evidence about the supply of non-acute healthcare in Ireland, and the substitutability of non-acute for acute care. What we found was an uneven distribution of non-acute services across the country, and that home and residential care can take the pressure off acute beds. Our findings have helped to inform changes in policy, particularly for resourcing home care."

The ENRICH project led by @MaynoothUni @CMHCR_ Maynooth found a new community parenting support programme delivered in the earliest years helped increase parents' confidence, satisfaction and knowledge about their child, although more support is needed for the most vulnerable families #HRBResearchInAction.

#HRBResearchInAction

In summary

Parents play a critical role in their child's emotional, psychological, social and cognitive development. The HRB-supported ENRICH project, led by Maynooth University, involved working with community organisations to look at the impact of delivering a new and innovative early parenting support programme in Clondalkin, Drogheda and Dundalk. During the programme, parents took part in parent training and also received other supports such as baby massage and paediatric first aid. The research found that parents who had attended the programme were more confident and satisfied in their parenting role (up to two years later) than those who received usual services, although younger mothers and lone parents were more difficult to engage.

ENRICHing families' lives through early parenting support

Lead Researcher:
Professor Sinead McGilloway, Maynooth University

Project Manager: Dr Grainne Hickey, formerly of Maynooth University

The problem

The ways in which parents interact, engage with, and support their children in the earliest years, can have a lasting impact on the child's health and wellbeing, but many parents often need help and guidance in this respect.

The project

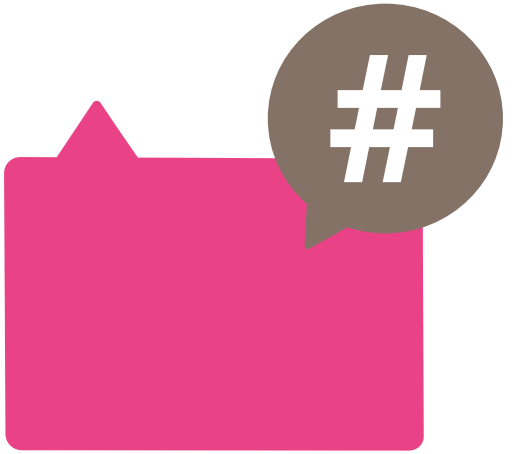
The ENRICH project team interviewed parents (mothers) who took part in the UpTo2/Parent and Baby programme (106 parents) or who received usual community support (84 parents) and followed up most of these parents until the child was two years old. They also interviewed the health care professionals (Public Health Nurses) and community based organisations who designed and delivered the programme.

The outcomes

- We now know that parents who took part in the community-based Upto2/Parent and Baby programme developed greater confidence and satisfaction in their parenting role
- The project identified some barriers to parents attending the programme, including having other children to look after and returning to work
- The work highlighted a need for parent support that engages with vulnerable parents and families and encourages them to keep attending these kinds of programmes
- The research provides important information for the successful implementation and delivery of these kinds of programmes within community-based services.

Professor Sinead McGilloway, Founder Director of the Maynooth University Centre for Mental Health and Community Research, says:

"We have investigated a new approach to service provision, tailored to work with family health and social services, which delivers measurable and tangible benefits to parents and their children in the first two years of life."



Research funded by @HRBireland found that after the law closed head shops in Ireland, fewer people were admitted for psychiatric treatment relating to drugs #HRBResearchInAction

#HRBResearchInAction

In summary

In 2010, the Irish Government passed laws to close 'head shops' that were selling poorly regulated and often dangerous psychoactive substances. But was there a change in the numbers of people presenting for drug-related psychiatric treatment? Researchers from University College Dublin, Trinity College Dublin, University of Limerick, Zoetis and the HRB analysed the National Psychiatric In-Patient Reporting System database for Ireland, and saw that drug-related psychiatric admissions rose in the two years when head shops became more common in Ireland, and fell in the two years after they closed.

What happened when the law closed head shops selling psychoactive drugs in Ireland?

Researchers: Dr Bobby Smyth, Antoinette Daly, Dr Khalifa Elmusharaf, Dr Conor McDonald, Dr Mary Clarke, Dr Sarah Craig and Professor Walter Cullen

The problem

In 2010, head shops were proliferating in Ireland, resulting in anti-social behaviour, problems for people taking the products they sold and disruption for Emergency Departments. Legislation closed the head shops, but some argued that this was a futile step.

The project

The researchers examined national data for drug-related psychiatric admissions before and after the legislation was introduced to close head shops in Ireland. They published the findings in the Journal of Early Intervention in Psychiatry.

The outcomes

We now know that:

- Drug-related psychiatric admissions increased in the period when the network of head shops was expanding in Ireland
- Within weeks of legislation shutting head shops in Ireland, drug-related psychiatric admissions began to decrease
- Young males aged 18 to 24 years showed evidence of greatest change, with admissions falling by 1.4% per month from May 2010 to December 2012.

Dr Bobby Smyth, Consultant Child & Adolescent Psychiatrist with the HSE Addiction Service and Clinical Senior Lecturer at Trinity College Dublin, says:

"The study showed that shutting head shops coincided with a downturn in drug-related psychiatric admissions. While it doesn't establish it as a cause of the downturn, the evidence from other research on alcohol and other drugs suggests that if you reduce access, then people are less likely to use them. I hope that this research reminds politicians and policy makers that there can be scope for using conservative approaches in response to drug availability and use."

A study at @TCDDublin funded by @HRBireland showed how a tailored nutritional and activity programme can benefit patients undergoing chemotherapy for pancreatic cancer #HRBResearchInAction

#HRBResearchInAction

In summary

Patients with cancer of the pancreas are prone to losing weight, muscle and strength, making treatment regimes such as chemotherapy more difficult for the patient to experience. In addition, when a patient loses a lot of weight quickly, the chemotherapy dose needs to be reduced, and some of the drugs may have to be stopped.

In the Feed Study at Trinity College Dublin a specialist pancreatic cancer research dietitian worked with 20 patients as they underwent chemotherapy at St Vincent's University Hospital. The research used the patients' weight, strength and CT scans to assess progress and tailored the intervention on an individual level, to make the most of their nutrition and activity. Most of the patients stopped losing weight and reversed their weight loss, and many opted to continue the intervention beyond the planned 12 weeks if their oncologists recommended more treatment.

A tailored intervention to help patients with pancreatic cancer

Lead Researcher: Dr Oonagh Griffin, Trinity College Dublin

The problem

Patients with pancreatic cancer may need chemotherapy to shrink the tumours ahead of surgery. Unfortunately, many patients struggle to tolerate the chemotherapy drugs due to rapid weight and muscle loss.

The project

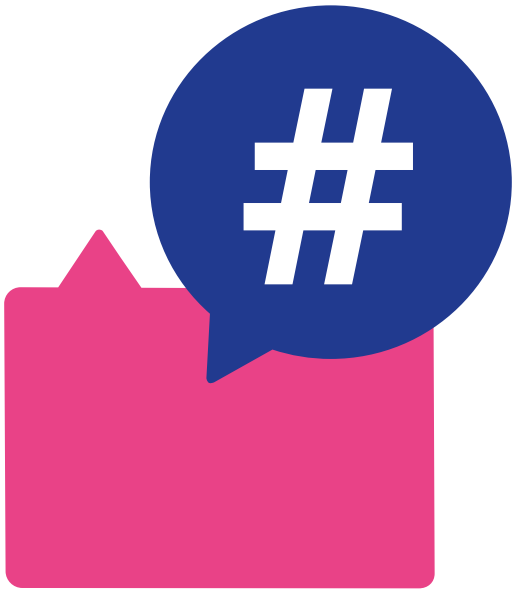
The Feed Study at Trinity College Dublin developed tailored nutritional and activity programmes for patients as they went through chemotherapy before surgery for pancreatic cancer. The intervention included adequate dietary energy and protein, an anti-inflammatory nutritional supplement and a daily step target. A research dietician supported patients throughout the study.

The outcomes

- 14 of the 18 patients who completed the 12-week study with pancreatic cancer stopped losing weight during chemotherapy, and 11 had completely reversed their weight loss. More importantly muscle mass and functional parameters were maintained or improved
- The study showed the value of assessing body composition of patients from CT scans they were having to assess their cancer, rather than just using body mass index (BMI)
- 13 of the 18 patients wanted to continue the intervention beyond 12 weeks when their treatment was extended, showing that the patients felt it benefitted them.

Dr Oonagh Griffin, HRB Research Fellow, Trinity College Dublin Department of Surgery, says:

"We could see from how patients with pancreatic cancer got involved and engaged with the intervention that they really wanted this. Also, we wanted to carry out an intervention that not only tackled the issue of weight and muscle loss in cancer, but that had a functional benefit, it helped the patients in their day-to-day lives."



A project funded by @HRBireland at @DCU has worked with young people with Type 1 diabetes and their parents to design new family-based support #HRBResearchInAction

#HRBResearchInAction

In summary

As adolescents with Type 1 diabetes move through their teens and into adulthood, they need to learn how to manage their diet, blood glucose and other aspects of their condition themselves.

But it can be hard for parents and their children to communicate as the teenagers move towards this responsibility.

Working with Diabetes Ireland and other community groups, researchers from Dublin City University learned from young people with Type 1 diabetes and their families about the challenges in this transition. Together with a Youth Advisory Group of young people with Type 1 diabetes, the DCU researchers used the findings to co-design a 6-week family-based programme that is now ready to be piloted in the clinic.

Evidence-based programme for young people with Type 1 diabetes and their families

Lead researcher: Professor Veronica Lambert and Professor Pamela Gallagher, Dublin City University

The problem

Adolescents with Type 1 diabetes need to move towards managing their diet and blood glucose levels, but this can be difficult for parents and teens to navigate.

The project

Researchers at DCU observed, interviewed and surveyed young people (age 11-17) with Type 1 diabetes and their families to better understand the communication dynamics and challenges around self-care.

The outcomes

» More than 200 families took part in the study, raising awareness of family interactions around Type 1 diabetes management

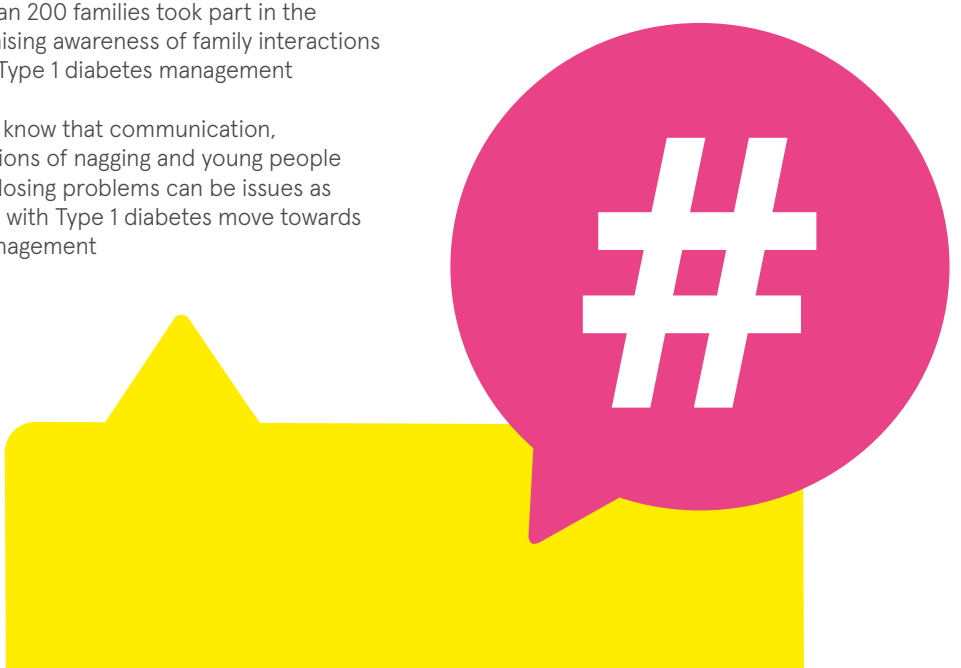
» We now know that communication, perceptions of nagging and young people not disclosing problems can be issues as children with Type 1 diabetes move towards self-management

» The findings informed the design of a new, family-based programme to build trust, open communication and problem-solving skills between parents and children with Type 1 diabetes

» The intervention is ready to be tested at Children's Health Ireland in Temple Street.

Professor Veronica Lambert, Professor of Children and Family Nursing at DCU, says:

"It can be hard for young people with Type 1 diabetes and their parents to communicate and negotiate the shift in responsibilities for managing the condition as the young people get older. By gathering the evidence and working with people who have experience of this situation, we have identified some of the core issues and brought them into a new, family-based intervention."



@HRBireland led by @RCSI_Irl has designed, developed, tested and licensed a new material and delivery device to help repair damage in joints #HRBResearchInAction

#HRBResearchInAction

In summary

Our joints work hard for us, and if knees and hips get damaged it can be debilitating. HRB-funded research led by RCSI brought together scientists, engineers and clinicians to design and develop a new, multi-layered material and a device to deliver it into damaged joints through keyhole surgery. The approach worked well in pre-clinical trials and has now helped a number of human patients to recover well from knee damage. The material has been licensed to a commercial company so it can be brought forward into larger clinical trials, and the project has enabled research to explore new options for chronic joint damage in conditions such as arthritis.

Collaboration delivers new material to heal knees and hips

Lead Researchers: Professor Fergal O'Brien and Professor John O'Byrne, Royal College of Surgeons in Ireland

The problem

When knee and hip joints are damaged through injury or wear and tear, they can develop small lesions that cause pain, and so restrict movement.

The project

A team of scientists and engineers worked with clinicians to design and develop a multi-layered material that can stimulate the repair of bone and cartilage in joints, and an instrument that can deliver the material into knees and hips. They trialled the approach in the lab, in injured horses and goats and in three human patients at Cappagh Hospital and the Sports Surgery Clinic.

The outcomes

- A new material designed to repair small cartilage lesions in articular joints (such as knees and hips), and a delivery system to apply it
- The approach has been tested in animals, including an injured racehorse, and in three humans, and showed safe and positive results
- The technology has been licensed to regenerative medicine company Locate Bio
- The findings have enabled new research to use the material to deliver therapies (such as genes and stem cells) in chronic inflammation in joints.

Professor Fergal O'Brien, head of the Tissue Engineering Research Group at the Royal College of Surgeons in Ireland, says:

"This project was all about scientists and clinicians working together to bring an idea through design, development and validation and now into the commercial sphere, so that ultimately it can help patients with damaged joints. We are also building on the project to develop new ways of tackling chronic joint problems that affect millions of people around the world."

@HRBireland at @NUIGalway found that frozen stromal cells from umbilical cords can counteract a dangerous condition called systemic sepsis in a lab model #HRBResearchInAction

#HRBResearchInAction

In summary

If a person gets a bacterial or fungal infection in their blood, it can trigger the immune system to attack their tissues and organs, a condition called systemic sepsis. In as many as half of these cases, the condition is fatal.

Research at NUI Galway has been exploring how to use stromal cells, a specific type of cell found in many organs of the body, as a potential treatment for systemic sepsis. They compared the performance of fresh or frozen human stromal cells taken from adult bone marrow or from the umbilical cord in a lab model of sepsis. They found that frozen umbilical cord stromal cells were most effective, but that the timing of the delivery affected how well they worked. The findings will inform future trials in humans using stromal cells as a potential treatment for systemic sepsis.

Frozen stromal cells show promise against systemic sepsis

Lead researcher: Dr Daniel O'Toole, NUI Galway

The problem

Systemic sepsis – an overwhelming immune reaction to an infection – is difficult to treat, and many patients die of it.

The project

Researchers at NUI Galway worked with Orbsen Therapeutics to test how well human stromal cells from adult bone marrow and from the umbilical cord work against systemic sepsis in a lab model.

The outcomes

» We now know that human stromal cells derived from the umbilical cord can counteract systemic sepsis in a lab model

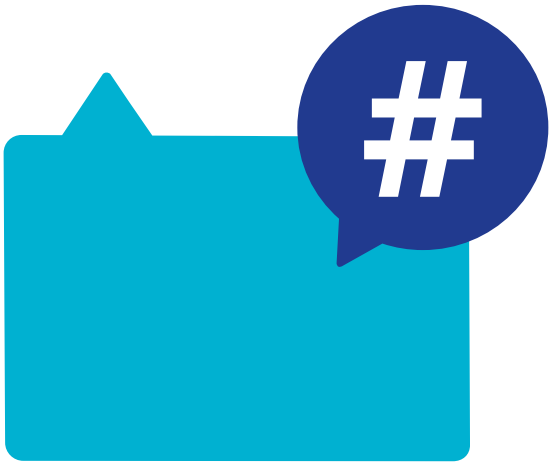
» The researchers showed that frozen stromal cells are as effective as fresh stromal cells, potentially meaning stromal cells could be stored frozen and ready for use in the Intensive Care Unit

» The project found that giving the stromal cells too early in infection reduced their effectiveness against systemic sepsis when it arose

» The findings will inform future clinical trials.

Dr Daniel O'Toole, Senior Research Fellow at NUI Galway Department of Medicine, says:

"Around the world, people are looking at how stromal cells can be used to treat single-organ failure, and our own research has shown that is a good approach for the lungs in pneumonia. In this project, we tackled the trickier question of systemic sepsis, which a recent Lancet report detailed kills one in five people worldwide, and using stromal cells provided by Orbsen Therapeutics we showed that these cells have therapeutic benefit in a model of this devastating disease."



@HRBireland found most people treated for addiction in the Irish Prison Service (2009 – 2014) were male, that Travellers were over-represented and that prison can be an important route to treatment #HRBResearchInAction

#HRBResearchInAction

In summary

Who is accessing treatment for addiction in the Irish Prison Service and why? A HRB study looked at data collected by the National Drug Treatment Reporting System between 2009 and 2014, and focused on treatment for addiction in prisons in Ireland.

The study, carried out with the Irish Prison Service and Pavee Point, found the vast majority of people receiving treatment for addiction in Irish prisons in that period were male and had left formal education before completing secondary school. In addition, Travellers were over-represented, and many received their first treatment for addiction while in prison.

The findings suggest that prison could be an important route for accessing treatment for problem drug use, and will help policy development and service planning in addiction treatment in prison.

Who is treated for addiction in the Irish prison service and why?

Researchers: Dr Aoife Cannon, Fiona Nally, Anne Collins, Ronnie Fay and Suzi Lyons, Health Research Board

The problem

Many studies show higher rates of problem drug use in prisoners than the general population. However, no research had been carried out on who accesses treatment for addiction in Irish prisons.

The project

Working with the Irish Prison Service and with Pavee Point, researchers at the Health Research Board analysed national surveillance data on treatment episodes for problem drug and alcohol use from 2009 to 2014. This data is collected annually by the National Drug Treatment Reporting System.

The outcomes

- The first study of addiction treatment in the Irish prison service between 2009 and 2014
- For that time period, we know now that
  - Opioids were the main reason for treatment, followed by alcohol, cocaine and cannabis
  - The majority (94–98 per cent) of people being treated were males, and most had left school early
  - Travellers were over-represented among people being treated for addiction
- The study shows that prison can be an important route for people accessing addiction services for the first time.

Suzi Lyons, HRB National Health Information Systems, says:

"This study provides a snapshot in time of addiction treatment services in Irish prisons, and can act as a baseline for future studies. We found that prison can give some people access to addiction services for the first time. In addition, the study shows that it is feasible to collect and report on aggregated ethnic identifiers which can help to plan addiction services for minority groups."

Research @tcddublin funded by @HRBireland found that IL-36 is an important early driver of inflammatory bowel disease, opening up potential new avenues for treatment #HRBResearchInAction

#HRBResearchInAction

In summary

Inflammatory bowel disease (IBD) is a condition where the guts become inflamed and they don't work properly. For many, it is a lifelong disease, and treatments may not work, or they can become less effective over time.

Researchers at Trinity College Dublin wanted to find out what drives the early stages of the disease. Working with Children's Health Ireland at Crumlin, they examined gut biopsies taken from children under 17 who were diagnosed with IBD, they found a pathway involving an immune system regulator called IL-36 was switched on in this early stage of the disease. They also showed in pre-clinical lab studies that blocking the overproduction of IL-36 reduces IBD. The findings helped to identify existing IL-36-blocking drugs that are now being trialled for IBD in humans.

IL-36, a new target for treatment in inflammatory bowel disease

Lead researcher: Dr Patrick Walsh, Trinity College Dublin

The problem

Inflammatory bowel disease is a chronic condition that affects the lining of the gut, and treatments are not always effective.

The project

Researchers at Trinity looked at gut samples taken from children diagnosed with IBD and found high levels of IL-36. Then they set up lab studies and found that if the IL-36 pathway is blocked, the symptoms of ulcerative colitis, a form of IBD, are lessened.

The outcomes

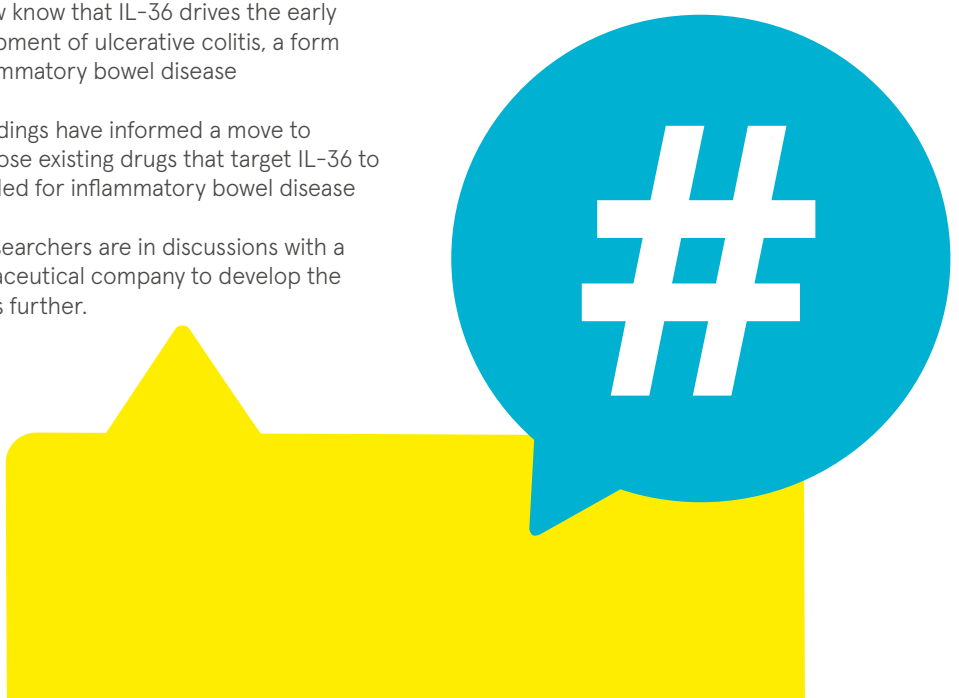
» We now know that IL-36 drives the early development of ulcerative colitis, a form of inflammatory bowel disease

» The findings have informed a move to repurpose existing drugs that target IL-36 to be trialled for inflammatory bowel disease

» The researchers are in discussions with a pharmaceutical company to develop the findings further.

Dr Patrick Walsh, Assistant Professor in Paediatric Immunology at Trinity College Dublin, says:

"Since we published our original findings describing the role of IL-36 cytokines as drivers of disease progression in IBD, there has been considerable interest in identifying strategies to target this pathway in patients, and several clinical trials are underway. As we were one of the first groups to describe the role of these signals in driving disease, we believe our findings have helped inform this progress and will hopefully, over time, reveal significant benefits for patients across the globe."



The SAFE study @UCDDublin funded by @HRBireland worked with older patients and hospital staff to identify and address simple issues that affect patient wellbeing in hospitals #HRBResearchInAction

#HRBResearchInAction

In summary

Older people admitted to hospital often lose independence, especially if they are frail or at risk of frailty. This can lead to them needing institutional care. With support from the HRB, researchers at University College Dublin worked with patients, patient representatives and hospital staff to identify priorities and co-design interventions for improving care for older frail patients in hospital. Priorities included access to hydration (water), making it easier to move and to access the toilet, better patient-team communication and signage to help people find their way around the hospital. The SAFE project developed, adapted and tested interventions to address these issues and help older people to continue living at home independently after they were discharged from hospital.

SAFE: Simple but effective steps to protect older people from frailty-related complications in hospital

Lead Researchers: Dr Marie Therese Cooney and Dr Éidín Ní Shé, University College Dublin

The problem

When an older patient spends time in hospital, they may inadvertently experience a worsening of frailty that has a long-term impact on their quality of life, and on their ability to live independently when they come out of hospital.

The project

The SAFE study at University College Dublin worked with a panel of patients, patient representative groups and hospital staff to identify factors affecting older and frail patients at St Vincent's University Hospital. They co-designed and put in place interventions to address these issues on wards.

The outcomes

» Patients and patient groups had their voices heard about issues that affect them in hospitals

» The project identified priorities for older people in hospital, including access to water, having belongings (such as reading glasses) in reach, opportunities to maintain mobility and independence, specifically being able to easily access a toilet, both in the emergency department and on the ward

» Together with nursing practice development and the multidisciplinary team, research nurse Simone Gray adapted, evaluated and implemented interventions aimed at addressing the patient-identified priorities

Amongst others, these included:

> 'Intentional rounding', where staff check on the needs of older patients as they do their work

> End PJ Paralysis to get patients dressed and moving while in hospital

> Red Tray Initiative to identify those requiring assistance with feeding

> Fit2Sit to allow those able to sit in a chair to avoid being automatically placed on a trolley.

Findings from the SAFE project have been disseminated to other hospitals through the Acute Frailty Network and the National Frailty Education Programme.

Dr Marie Therese Cooney, Consultant in Acute and Geriatric Medicine, St Vincent's University Hospital and University College Dublin, says:

"The important thing about this project was that it was an equal partnership between patients, hospital staff and researchers. Partnering with older people brought to light that very simple things are extremely important for their wellbeing. If they are on a trolley and can't get to drinking water or a toilet, this affects them negatively over time. If they are on a ward and can't reach their glasses, they may be at greater risk of a fall. Addressing these simple things and maintaining independence while in hospital can result in more older people continuing to live at home for longer. By sharing how we did the project, we are seeing others start to implement it in their own hospitals."

The MAMMI study at @TCDDublin supported by @HRBireland created evidence-based educational resources about intimacy and sexual health after birth #HRBResearchInAction

#HRBResearchInAction

In summary

What kind of sexual health do women in Ireland experience in the year after giving birth for the first time? The MAMMI (Maternal Health and Maternal Morbidity in Ireland) study, supported by the HRB at Trinity College Dublin, surveyed more than 800 women and interviewed 21 women about sexual health during pregnancy and in the year after giving birth. The research identified patterns of intimacy, risk factors for long-term issues and ways to improve sexual health in the year after birth. The findings informed videos to increase awareness about sexual health and intimacy after birth.

MAMMI: Sexual health in the year after giving birth

Lead Researcher: Dr Deirdre O'Malley, Trinity College Dublin

The problem

Women can often experience sexual health issues, such as pain during sexual intercourse and loss of interest in sexual activity in the months after giving birth. There are few resources to help women understand what to expect and what is typical.

The project

MAMMI study researchers carried out surveys of 832 pregnant women and followed up at 3, 6, 9 and 12 months after the birth. Of those, 21 women were also interviewed in person. With the women's consent, the researchers analysed the findings alongside data from their medical records from the birth.

The outcomes

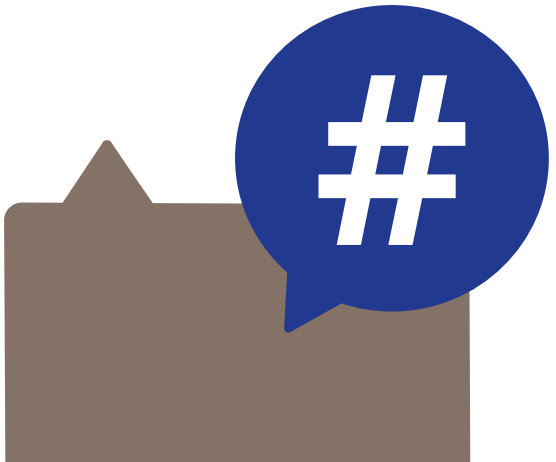
A series of self-help, educational videos to help women, their partners and healthcare professionals become more aware of intimacy and sexual health in the months after birth. The videos are freely available online in English, Lithuanian, Romanian, Spanish and Dutch.

We now know that:

- Women commonly experience sexual health issues such as pain or discomfort and a lack of vaginal lubrication in the first 3-6 months after giving birth
- Women with a poor perception of their body image, who are breastfeeding or who had pain during sex before pregnancy are more likely to experience longer-term sexual health issues after birth
- Mode of birth (vaginal, instrumental, C-section) was not linked with sexual health issues 6-12 months after birth.

Dr Deirdre O'Malley, Clinical Tutor in Midwifery at the School of Nursing and Midwifery, Trinity College Dublin, says:

"When we surveyed and talked to women in Ireland, we found that many experienced issues around intimacy in the first 3-6 months after giving birth. Spontaneity was gone, and feelings of tiredness and even guilt were common. Many of the women said they wished they had known about this in advance so that they may have felt less worried about it. So one of the things I am most proud of from this study is that we made videos to help women and healthcare providers talk about sexual health, and enable women to look for help if they are experiencing pain or other issues in the longer term."



Research funded by @HRBireland found a glaring lack of studies on interventions to improve out-of-hours palliative care for patients and their families #HRBResearchInAction

#HRBResearchInAction

In summary

Palliative care, including pain management, helps people to have a better quality of life during complex and serious illness, and palliative care is often needed outside 9am-5pm working hours, particularly when patients are living in the community. However, when researchers from Trinity College Dublin, St Francis Hospice and the All-Ireland Institute of Hospice and Palliative Medicine, looked, they found that almost no research had been carried out internationally on how to integrate and improve out-of-hours palliative care services. The systematic review has highlighted an urgent need for new research to ensure that patients and their families can best benefit from palliative care around the clock.

Out of hours, out of sight - lack of research into after-hours palliative care

Researchers: Dr Bridget M Johnston, Peter May, Rachel McCauley, Dr Regina McQuillan, Dr Mary Rabbitte, Caitriona Honohan, David Mockler and Professor Steve Thomas

The problem

Palliative care is important to improve quality of life for patients and their families, but out-of-hours palliative care is a key deficit in Ireland.

The project

The Department of Health asked the HRB to analyse international studies about how to improve out-of-hours palliative care. The HRB funded researchers to carry out a systematic review of the literature for 16 high-income countries.

The outcomes

» It is widely accepted that palliative care is facilitated by having a national policy, GP training, patient education, integration of services and developing trust between caregivers and patients and their families. The systematic review found no robust studies on how to organise, provide and evaluate out-of-hours palliative care services

» The systematic review found no robust studies on the costs or impact of out-of-hours palliative care services for patients and families. This makes it difficult to know how to organise, provide and evaluate these services

» The study will inform the revision of national palliative care policy in Ireland.

Dr Bridget Johnston, Research Fellow, Public Health & Primary Care at Trinity College Dublin, says:

"Most of palliative care is needed out of hours, yet we don't research how to improve that. It is a glaring gap and we need to build the evidence. Getting after-hours palliative care right is incredibly important for patients and their families."

@HRBireland funded research at @NUIGalway found people with Type 2 diabetes have lower numbers of bone-forming cells in marrow, but the cells functioned well in the lab. This will inform cellular therapy in diabetes #HRBResearchInAction

#HRBResearchInAction

In summary

When a person lives with diabetes, over time their bones may change and become more prone to damage and fractures. Researchers at NUI Galway wanted to understand more. They examined marrow donated by 200 people who were having hip replacements, and they found that people living with Type 2 diabetes have lower numbers of bone-forming cells in their marrow. However, when they grew the bone-forming cells from people with Type 2 diabetes in the lab, they found those cells functioned well. The findings will help to inform cell therapy, where cells are transferred into patients to promote repair and healing. The researchers also produced materials to raise awareness about bone health in diabetes.

New insights into bone-forming cells in diabetes

Lead researchers: Dr Cynthia (Cindy) Coleman and Professor Tim O'Brien, NUI Galway

The problem

In diabetes, bone architecture and mineral content can change, but little was known about what is happening to the cells that make bone.

The project

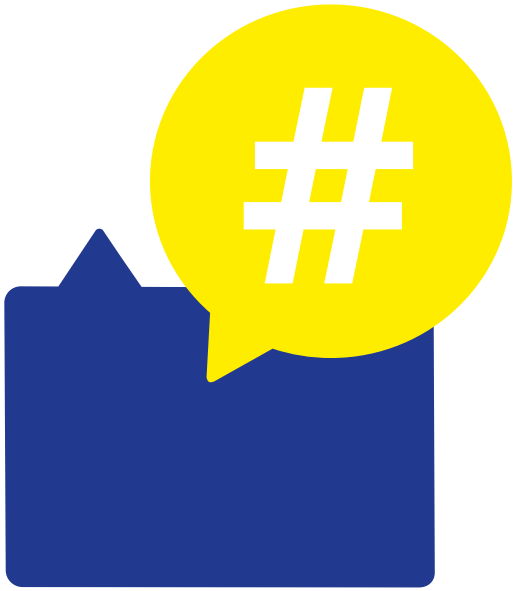
Researchers from NUI Galway extracted bone-forming cells from marrow donated by 200 patients undergoing hip surgery. They compared the amounts of bone-forming cells between patients with and without Type 2 diabetes, and they grew the cells in the lab and checked their functions.

The outcomes

- A patient information leaflet about the need to take care of bone health in diabetes
- We now know that bone-marrow-forming cells are reduced in people living with Type 2 diabetes
- We also know that those bone-marrow-forming cells from people with Type 2 diabetes can grow well in the lab
- The findings will inform cell therapy strategies for encouraging healing and repair in diabetes.

Dr Cynthia Coleman, a Lecturer at REMEDI in NUI Galway, says:

"Bone-related complications are an under-recognised feature of diabetes. Our research on human cells has given us important insights into what happens to bone-forming stem cells in diabetes, and information about how they could potentially be used in cellular therapies. We are very grateful to the donors who allowed us to analyse the bone marrow removed during their hip surgeries, without their generosity we would not have made these discoveries."



@HRBireland supported scientists at @tcddublin to raise awareness about oesophageal cancer symptoms and research #HRBResearchInAction

#HRBResearchInAction

In summary

Cancer of the oesophagus (food pipe) is often diagnosed late in the disease, reducing the chances of the person's survival. Rates of this cancer are expected to double in Ireland in the coming decades. The PERK (Promoting Education and Research Knowledge) project at Trinity College Dublin developed new ways and tools to create more awareness about cancer of the oesophagus and its symptoms, such as heartburn, bloating and problems swallowing.

Oesophageal cancer: know the symptoms, know the research

Lead researcher: Dr Margaret Dunne, Trinity College Dublin

The problem

Cancer of the oesophagus is often diagnosed late, and there is low awareness of early symptoms.

The project

The PERK project at Trinity College Dublin worked with cancer patients, charities and survivors and with the public to create educational materials about oesophageal cancer.

The outcomes

- Almost 200 people attended a public information event about oesophageal cancer
- Information leaflets on research made in collaboration with St James's Hospital will be distributed around the hospital
- An animated video, 'Helping us explain cancer research' (https://vimeo.com/417373652), made with Transition Year students from New Cross College in Finglas, has been added to the TCD St James's Campus website
- The video will be shown on social media as part of Cancer Week, and on hospital monitors in waiting areas, to introduce patients to the idea of research
- Scientists visited Holy Child School during Science Week to talk about their research and run experiments and demonstrations.

"My favourite part of this event was when we did the workshops, with all the different parts of science. I thoroughly enjoyed the workshops and I learned lots."

Dr Margaret Dunne, a Research Assistant Professor at Trinity College Dublin Department of Surgery, says:

"As a researcher I was working on the immune system and cancer, but prevention is far better than cure, so I wanted more people to know about the symptoms of oesophageal cancer, and to connect with the research that we do here in Trinity. By engaging with people who had experienced cancer and with members of the public, we learned more about the kind of information that is important and the kind of language that works."

Research @NUIGalway funded by @HRBireland identified a way to open up more treatments for MRSA #HRBResearchInAction

#HRBResearchInAction

In summary

MRSA is difficult to treat because it is resistant to so many antibiotics, but it is expensive and time-consuming to find and make new antibiotics. That's why researchers at NUI Galway have been looking for strategies to make the bacteria more susceptible to existing antibiotic drugs.

The HRB-funded research screened thousands of gene mutations in MRSA in the lab and discovered that exposing MRSA to an existing antibiotic, D-cycloserine, makes MRSA sensitive to a wide range of penicillin-type antibiotics. This raises the possibility of a new treatment strategy to tackle MRSA and reduce the burden on patients who contract it.

Opening MRSA up to new treatments

Lead researcher: Professor James O'Gara, NUI Galway

The problem

MRSA is resistant to many antibiotics, and when patients become infected with MRSA it can have serious consequences. As many as one in five of people infected with systemic MRSA die despite treatment.

The project

Researchers at NUI Galway screened thousands of MRSA gene mutations for potential susceptibilities to existing antibiotics and tested their results in the lab. They found that an antibiotic called D-cycloserine can make MRSA vulnerable to another type of antibiotic, oxacillin, in a model of bloodstream infection.

The outcomes

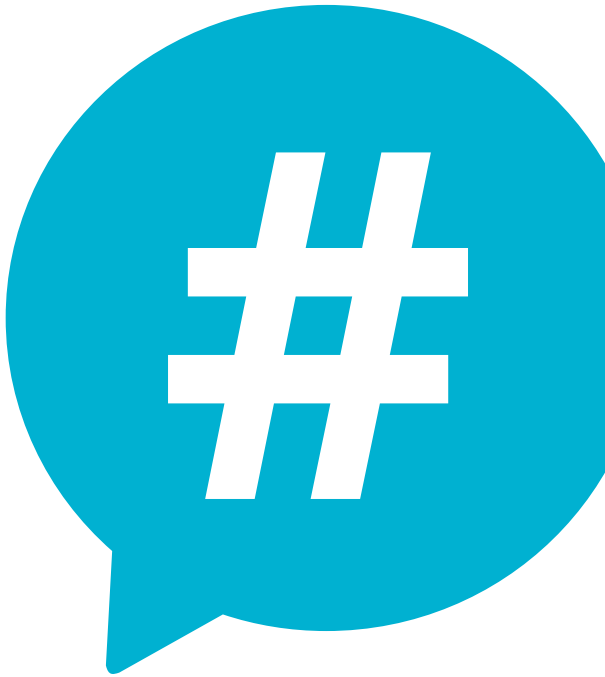
» We now know that exposing MRSA to D-cycloserine makes it vulnerable to oxacillin

» This identifies a potentially new way to treat MRSA infections

» This research also identified amino acid uptake and metabolism as a new therapeutic target to enhance the susceptibility of MRSA to penicillin-type antibiotics.

Professor James O'Gara, Professor of Infectious Disease Microbiology at NUI Galway, says:

"Through this research we showed the antibiotic D-cycloserine can re-sensitise MRSA to the antibiotic oxacillin. D-cycloserine is used for the treatment of TB and mental health disorders, and while it has known side effects, this approach could offer therapeutic potential for the treatment of MRSA infections that are not responding to other antibiotic therapy."



Research @tcddublin funded by @HRBireland has identified a link between disruption in the blood-brain barrier and schizophrenia, opening up the potential for new treatments #HRBResearchInAction

#HRBResearchInAction

In summary

For many years, people had suspected that the blood-brain barrier is affected in schizophrenia, but there was little hard evidence for the link. The barrier is a network of cells that lines blood vessels in the brain, helping to stop potentially dangerous substances or bugs in the bloodstream from migrating into the delicate surrounding tissue.

Researchers from Trinity College Dublin applied molecular genetic techniques to the puzzle. They examined samples from patients with a genetic disorder that affects a component of the blood-brain barrier called Claudin-5. Such patients have a vastly increased risk of schizophrenia. Their results provide evidence that disruption in the blood-brain barrier, and Claudin-5 in particular, is a contributing factor in schizophrenia, and the project has opened up new avenues to explore for treatments.

Breaking new barriers in understanding how schizophrenia develops at a molecular level

Lead researcher: Dr Matthew Campbell, Trinity College Dublin

The problem

Schizophrenia has been estimated to affect up to 1 in 100 people in Ireland, and the underlying causes of the condition are still far from clear. There were suspected links to disruption in the blood-brain barrier, but we had little molecular evidence for that.

The project

Researchers at Trinity used molecular genetics techniques to analyse samples from people with disrupted Claudin-5, and they developed a lab model to test the impact of Claudin-5 disruption. They found strong links between a disrupted blood-brain barrier and the development of schizophrenia and related behaviours.

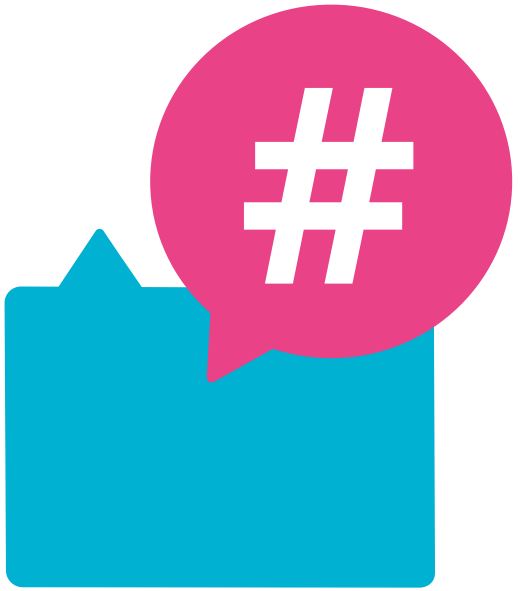
The outcomes

» We now have molecular evidence for a link between disruption of the blood-brain barrier and an increased risk of developing schizophrenia

» Trinity researchers published their findings, focusing attention on the blood vessels in the brain as a risk for schizophrenia and as a target for new treatments.

Dr Matthew Campbell, Head of the Neurovascular Genetics Laboratory at Trinity College Dublin, says:

"The HRB funding has led to a paradigm shift in how we view schizophrenia as a disease, and there are now numerous publications in the literature reproducing our initial findings and linking blood-brain barrier dysfunction to the progression of schizophrenia. This will undoubtedly lead to new forms of therapy in the future, where we look at ways to keep the brain blood vessels and blood-brain barrier healthy to reduce the risk of the disease progressing."



@HRBireland has shown that lowering the burden of proof can speed up compensation for vaccine injuries #HRBResearchInAction

#HRBResearchInAction

In summary

Licensed vaccines are generally considered safe, but there have been cases of people being injured or incurring losses as a result of vaccines. In such cases, it can take a long time to receive compensation. The Department of Health asked the HRB to find out about vaccine injury redress schemes internationally, and to explore what makes rapid compensation more likely.

The HRB undertook a review of schemes in 11 jurisdictions, which was the first study of its kind. It found that demanding high levels of proof can delay compensation, particularly where cases end up going through legal processes. On the other hand, schemes that accept lower levels of proof of injury tend to deliver faster compensation. The findings will help to inform the design of a vaccine injury redress scheme for Ireland.

Lower burden of proof to speed up compensation for vaccine injury claims

Researchers: Martin Keane, Tonya Moloney, Caitriona Lee, Michael O'Sullivan and Jean Long, Health Research Board

The problem

Ireland currently has no redress scheme to compensate people injured by vaccination. Some countries had introduced vaccine injury redress schemes, but there had been no systematic study of what enables timely compensation.

The project

Researchers at the HRB Evidence Centre gathered and analysed data from studies of vaccine injury redress schemes in 11 jurisdictions around the world.

The outcomes

» The first systematic evidence review of international vaccine injury redress schemes

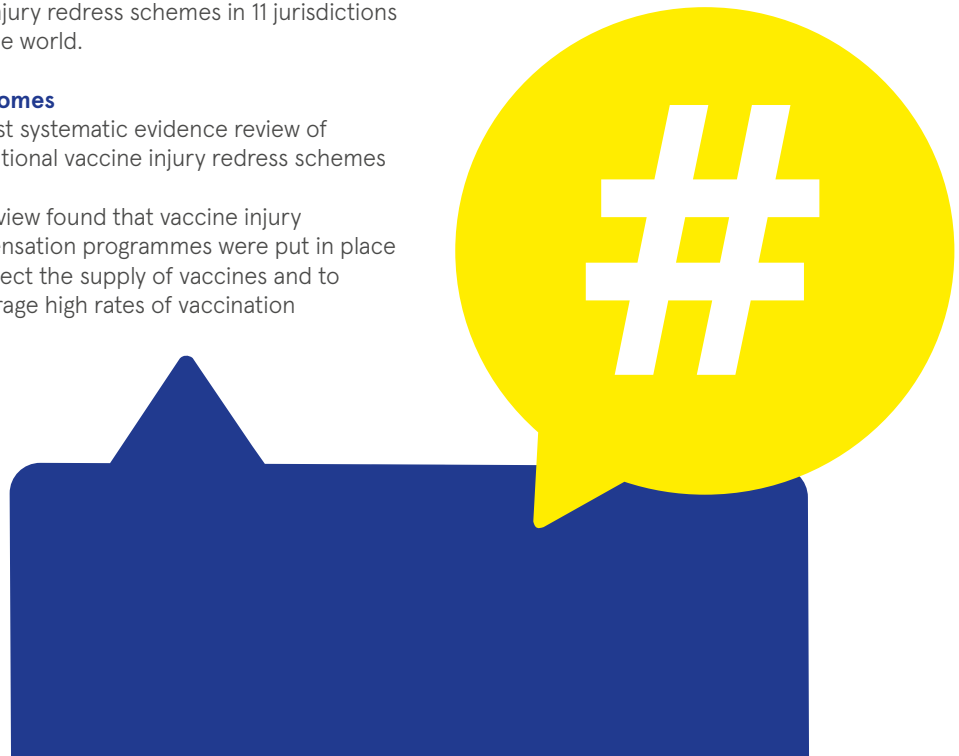
» The review found that vaccine injury compensation programmes were put in place to protect the supply of vaccines and to encourage high rates of vaccination

» We now know that if schemes demand a high level of proof of injury, this can increase costs and delay compensation

» The findings will inform the Department of Health about the design of a future vaccine injury redress scheme for Ireland.

Martin Keane, HRB Evidence Centre, says:

"This is the first study of vaccine injury redress schemes of its kind. Nobody has ever looked at the international data like this before, and our findings will help to inform the design of such a scheme in Ireland."



Research @UCC funded by @HRBireland showed that mother's stress and anxiety in pregnancy is linked to having a leaky gut #HRBResearchInAction

#HRBResearchInAction

In summary

Pregnancy can be a stressful time, and high levels of stress, anxiety or depression are linked with long-term impact on the behaviour and mental wellbeing of the baby. To find out if there is a link between pregnancy stress and the mother's gut health, which could in turn affect the baby's development, researchers in University College Cork examined data and banked blood samples from a previous large study called SCOPE. They found molecules in the blood samples from the mothers who reported feeling anxious or stressed during pregnancy that suggest the mothers had 'leaky' gut walls. The findings are raising awareness of the need to manage stress and anxiety and promote gut health in pregnancy.

Understanding pregnancy, stress and leaky guts

Lead researchers: Dr Siobhain O'Mahony, Professor Ted Dinan, Dr Fergus McCarthy and Dr Gerard Clarke, University College Cork

The problem

We knew that a mother's stress during pregnancy can affect the baby, but it wasn't clear how that happens. One theory suggested a link between the mother's stress and her having a 'leaky' gut wall, which could activate her immune system and affect the baby's development.

The project

Researchers at APC Microbiome Ireland and INFANT research centre, UCC analysed data and banked blood samples from the SCOPE study of women who were 15 or 20 weeks pregnant. Where women reported feeling stressed or anxious, the researchers looked for signs of having a leaky gut wall.

The outcomes

- The study found molecular changes in the blood of stressed and anxious pregnant women that indicated their guts were leaky
- The findings are leading to new research on how supplements can protect gut health during pregnancy
- With a HRB KEDS award, the researchers brought the findings to hundreds of people through public seminars, scientific meetings and a day-long session at the Glucksman Museum in Cork for pregnant women, focusing on why and how to reduce stress and improve gut health.

Dr Siobhain O'Mahony, Senior Lecturer at the Department of Anatomy and Neuroscience in UCC, says:

"Pregnant women are always told to mind their diets and try to keep stress low, and now we can offer some scientific rationale for the advice. The research also showed us that even low levels of stress and anxiety are linked with changes in the blood that suggest a leaky gut, so now we want to develop ways for pregnant women to manage that and help to protect the health of their babies too."

Health Research Board

#HRBResearchInAction

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