Health Research in Action

HRB Health Research Board

#HRBResearchInAction

Research.
Evidence.
Action.

HRB by numbers

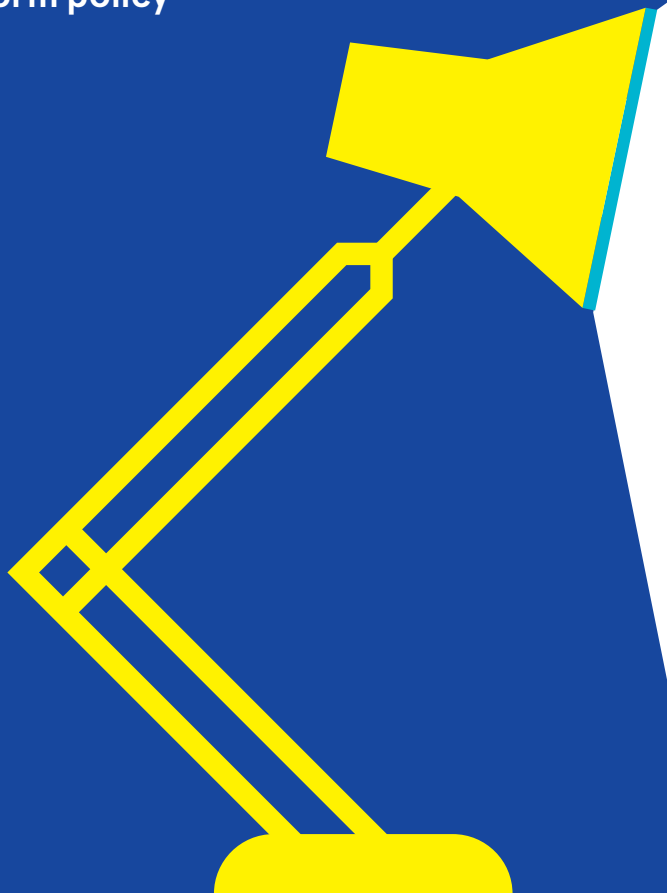
- a snapshot of work completed in 2016

Serviced 181 requests for data from our National Health Information Systems

Published 5 peer-reviewed journal articles

Published 3 annual reports, 1 Census report and 4 national bulletins

Published 5 evidence reviews to inform policy



In terms of funding

71 awards completed in 2016,

worth a total of **€23,737,532**

This research resulted in:

- **53** new methods or materials (e.g. assays, databases, training materials)
- **28** Healthcare innovations (e.g. medical devices, therapies or interventions)
- **65** influences on policy or practice (e.g. new clinical guidelines, policy reports)
- **142** engagements with public bodies and media

Supported 148 research jobs

55 Healthcare Professionals

73 Biomedical Scientists

20 Other staff

Significant academic outputs

- 38 PhDs
- 399 peer-reviewed papers
- 800 presentations at scientific conferences. Of these
  - 494 were international and
  - 101 were keynote or invited speaker
- 145 new collaborations with academic colleagues, of these
  - 82 with international colleagues

The economic impact

Leveraged €100,572,517 funding on foot of these awards

Negotiated two licences with industry

Started 32 industry collaborations

Filed two patents

In order to share 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.

Thanks to @claireoconnell and all the researchers for helping us to pull this together. Special thanks to the patients for sharing their stories.

HRB research led to a test being made available in Ireland to help diagnose people under 65 with dementia.

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In Summary

Around one in 10 people who develop dementia are under 65 when they show symptoms, but it can be difficult to diagnose the underlying cause. A lumbar puncture test to measure the levels of proteins associated with Alzheimer's disease in fluid that circulates in the spine and around the brain can provide a clearer diagnosis. Until recently, samples for this 'cerebrospinal fluid (CSF) biomarker test' were not analysed in Ireland, but HRB research has led to the test being accredited and made available here.

New testing to improve diagnosis of young-onset Alzheimer's disease in Ireland

Lead Researcher: Professor Brian Lawlor, Trinity College Dublin

The Problem

People under 65 who may have Alzheimer's disease can face delays in getting a diagnosis. Previously, if a clinician wanted to analyse levels of Alzheimer's-related proteins in the cerebrospinal fluid (CSF) of a patient in Ireland to get a clearer picture, samples needed to be sent to England for testing.

The Project

Professor Brian Lawlor led a team at Trinity College Dublin and St James's Hospital who measured the levels of Alzheimer-related proteins or CSF biomarkers in well characterised patients and healthy volunteers in Ireland. The study was part-funded by the HRB as part of a wider European study within the Joint Programme on Neurodegeneration (JPND).

The Outcomes

We now know:

» The normal values and thresholds of CSF biomarkers for Alzheimer's disease in an Irish population.

Thanks to the HRB research, CSF Biomarker testing to support the diagnosis of Alzheimer's disease is now available in Ireland at the Immunology Lab, St. James's Hospital.

Professor Brian Lawlor, Consultant Psychiatrist, St James's Hospital says:

" Before we did this research, spinal fluid samples had to be sent from Ireland to England for testing. Now that we can carry out the testing here, we are seeing it being used more to help in the diagnosis of people under 65 with signs of dementia. This HRB research has changed medical practice in Ireland around the evaluation of younger patients who may have dementia."

HRB-funded research led to face-to-face and mobile/ remote interventions being developed for children with obesity and their families.

#HRBResearchInAction

In Summary

Around a quarter of children in Ireland are overweight, and 8% are obese, which raises the risk of short- and long-term health problems. A HRB-funded study assessed the health of children referred to Temple Street Children's University Hospital for obesity treatment, and developed a successful face-to-face and mobile intervention to help children with obesity move to a healthier weight.

Tackling childhood obesity through a family-friendly intervention

Lead Researcher: Dr Grace O'Malley, University College Cork, Oxford University, Temple Street Children's University Hospital

The Problem

Tens of thousands of children in Ireland are overweight or obese, which is linked to immediate physical and emotional health issues and can sow the seeds for chronic disease in adulthood, such as diabetes, cancer and heart disease.

The Project

Dr Grace O'Malley assessed the physical and mental health of children attending Temple Street Children's University Hospital for obesity. She developed a year-long face-to-face intervention for children with obesity and their families, which involved representatives from paediatricians, physiotherapy, dietetics, psychology and nursing. Because many families find it difficult to travel to Dublin for treatment, Dr O'Malley also developed and tested out a remote version of the intervention to enable many more families to take part.

The Outcomes

We now know that:

- About half of the children with obesity in the study experienced pain and high blood pressure, and many experienced low mood.
- An evidence-based obesity intervention developed in line with best-practice can be delivered effectively in the Irish paediatric clinical setting.

The findings of the study have helped to shape the Royal College of Physicians in Ireland's action plan on obesity.

The face-to-face intervention is helping around 100-150 obese children each year.

Initial trials of the remote intervention for obese children are promising.

Dr Grace O'Malley says:

"A really positive impact of the project is that we have developed the first intervention in the country for children with obesity and their families, and we have a really good evidence base for it. We have been able to raise further funding to continue the work, so more children and their families can benefit in the short- and long-term."

HRB research informed the latest update of the Food Pyramid in Ireland, ensuring that we get the most up-to-date evidence on food types and portions for a healthy diet.

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In Summary

The Food Pyramid hangs on school and clinic walls around the world and provides an easy-to-understand visual guide to the types and amounts of food to include in a healthy, balanced diet.

As science progresses and we understand more about human nutrition, updates are needed to the Food Pyramid, so that people are getting up-to-date evidence-based recommendations about the food types and portions that make up a healthy diet.

A HRB Evidence Review of the current international data analysis and findings underpinned the recent update to the Food Pyramid in Ireland, which put a greater emphasis on vegetables and grains and highlighted that many processed foods, especially those containing additions of sugar and salt are not necessary.

HRB research keeps the Food Pyramid current for Ireland

Researchers: Dr Anne McCarthy, Dr Jean Long, HRB Evidence Centre

The Problem

The Food Pyramid offers a simple way for people to broadly understand the food types and portions that make up a healthy, balanced diet. As our understanding of nutrition and health progresses, the Food Pyramid needs updates to ensure the guidelines are based on current evidence.

The Project

The Department of Health asked the HRB to gather evidence about the ideal breakdown of food types to include in the diet. Dr Anne McCarthy and Dr Jean Long carried out the review, which followed an internationally recognised seven-stage framework. The study took into account the scientific evidence as well as the local economy and availability of foods and how to communicate the information to a general audience.

The Outcomes

The findings of the HRB report *'Evidence review of the food contents on carbohydrate and fats shelves of the food pyramid'* directly informed the update of the Food Pyramid in Ireland in 2016.

The HRB review meant the update of the Food Pyramid took into account advances in scientific knowledge, changes in food behaviours and food awareness and economics in Ireland, as well as the changes that manufacturing and processing can bring to foods.

The updated Food Pyramid places a greater emphasis on fruit and vegetables in the diet at the base of the pyramid, and reflects that much protein can come from non-animal sources. It also acknowledges that processed foods shown at the top of the food pyramid are not essential for a healthy diet.

The new Food Pyramid has been incorporated into text books for the Social Personal and Health Education (SPHE) Curriculum used by the Department of Education in Ireland.

Dr Anne McCarthy, Senior Researcher, HRB Evidence Centre says:

> "The science that feeds into determining what micro- and macronutrients we need is constantly being updated and changed. The information that goes into the Food Pyramid reflects the current scientific evidence, which is important to ensure recommendations are based on best evidence and because popular diets can sometimes skew public perception of what constitutes a healthy diet."

HRB-funded research has packaged medicines for TB into inhalable formats to make them more effective and easier for patients to take.

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In Summary

Tuberculosis, or TB, is a major public health issue in many parts of the world, and forms are emerging that resist current treatments. A team of researchers funded by the HRB have developed new, inhalable versions of medicines to treat TB, to make it easier for patients to take them and to make them more efficient by delivering them to the site of infection in the lungs. They are also the first to have developed an inhalable particle form of the immune boosting molecule vitamin A for treatment of TB.

On target for getting TB medicines into patient's lungs

Lead Researcher: Associate Professor Sally-Ann Cryan, Royal College of Surgeons in Ireland

The Problem

At the moment, treatments for TB last for months and it is difficult for patients to stick to taking the required pills every day. This means the medicines may not work effectively and the bacteria can also become resistant to the current treatments.

The Project

HRB-funded researchers have developed new ways to 'package' various medicines so they can be breathed into the lungs through an inhaler. The work was carried out by pharmacist and doctoral student, Gemma O'Connor, and is led by Associate Professor Sally-Ann Cryan at RCSI, along with colleagues Professor Joe Keane and Dr. Mary O'Sullivan in St James's Hospital, colleagues in Imperial College London and collaborators in Irish companies including Dr Ronan MacLoughlin in Aerogen and Dr Gillian Hendy in Spraybase.

The Outcomes

The project rendered a number of existing TB medicines into an advanced inhalable format.

The researchers also managed for the first time to package immune-boosting vitamin A into an inhalable format that was effective against TB in lab tests.

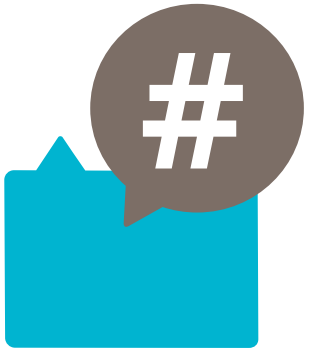
Importantly, the researchers discovered how to make large batches of these inhalable versions of the medicines.

Lab tests of the inhalable medicines showed that they were highly effective against TB bacteria in the lungs.

Aerogen were closely involved in the work and the team will go on to work together on more advanced studies in preparation for human trials of the inhaled medicines to tackle TB.

Professor Sally-Ann Cryan, Associate Professor of Pharmaceutical Science at RCSI, says:

"Existing TB treatments are onerous and the emergence of multi-drug resistance TB is a huge public health problem in some parts of the world. In this project, we thought about it from both the patient and the scientific perspective. We wanted to develop inhaled modes of delivery for TB treatment that are easier to use and more effective. I'm very excited about what the team has achieved, and it will hopefully mean more effective treatments against TB in the future."



The HRB-funded MAMMI study suggests that women with a history of feeling depressed before pregnancy may need more focused mental health support in pregnancy and in the months after birth.

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In Summary

The MAMMI study surveyed more than 3,000 first-time mothers in Ireland during pregnancy and in the months after giving birth. One strand of the study asked about feelings of depression among the first-time mothers. So far, that shows around one in five new mothers feel depressed shortly after giving birth, and it tends to be mothers who had also felt depressed prior to pregnancy. This suggests that asking about previous feelings of depression could be a way to identify women who may need more focused support for mental wellbeing in pregnancy and early motherhood.

Finding the first-time mothers who need greater support for mental health

Lead Researchers: Professor Cecily Begley, Dr Deirdre Daly and Associate Professor Margaret Carroll, Trinity College Dublin

The Problem

During pregnancy and after giving birth, some women experience feelings of depression. Up to now we have had little formal data on which women are most at risk for this in Ireland.

The Project

As part of the MAMMI Study [http://www.mammi.ie/], the research team surveyed 3,041 first-time mothers, who were attending maternity hospitals in Ireland. The women answered questions about their health, including whether they felt they experienced depression. The study is ongoing.

The Outcomes

We now know that:

» The majority of women – around 3 to 4 in every 5 - do not report feeling depressed during pregnancy and in the period after birth.

» Women who reported feelings of depression during pregnancy and after birth tended to have also felt depressed before the pregnancy.

The findings suggest that women with a history of depression should be offered more focused mental health support during and after pregnancy.

The preliminary study findings were widely reported in the media and shared on social media.

Professor Cecily Begley, Chair of Nursing & Midwifery, Trinity College Dublin, says:

" Many clinicians don't ask women whether they feel depressed during pregnancy and after birth. In this study, we asked more than 3,000 women, and what we found is highlighting that previous feelings of depression may be a sign that women could need greater support for their mental health in pregnancy and after giving birth."

HRB provided evidence to inform the new drugs strategy in Ireland for 2017-2024, which places more emphasis on a health-led approach.

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In Summary

National drugs strategies must develop over time to meet the needs of people and communities who are affected by drug misuse. The HRB gathered data on drug use and deaths in Ireland and commissioned research on evidence to inform the latest National Drug Strategy, which adopts a health-led approach and puts an increased emphasis on supporting recovery.

A health-led strategy to tackle problem drug use in Ireland

Lead Researcher: Brian Galvin, HRB Evidence Centre

The Problem

In order to work, national drug strategies need to be planned based on evidence about the use of illegal drugs and problem substance use. The nature and pattern of drug use changes over time, which means that drug strategies need to evolve.

The Project

The HRB gathered data on illicit drug use in Ireland, including treatments and reported deaths. The HRB commissioned the Centre for Public Health at Liverpool John Moore's University to prepare a trends analysis on the drugs situation in Ireland and a report on the most recent international evidence on responses to problem drug use. The findings provided evidence for planning drug strategy in Ireland for coming years and Brian Galvin from the HRB Evidence Centre worked closely with the Department of Health to draft the new strategy.

The Outcomes

HRB research helped to shape The National Drugs Strategy. *"Reducing Harm, Supporting Recovery"* outlines the Government's responses and actions to tackle problem drugs and alcohol use in Ireland between 2017 and 2024.

The strategy looks to provide an integrated public health approach.

The strategy supports harm reduction and places a greater emphasis than previously on supporting a health-led response to problem drug and alcohol use in Ireland.

Brian Galvin, Head of Ireland's Focal Point for the European Monitoring Centre for Drugs and Drug Addiction, at the HRB says:

> " In order to plan a national drugs strategy it is very important that we know what the trends are in the types of drugs that are being used and the levels of harm being caused. By bringing together that data and working with international experts and the Department of Health we were able to shape the latest strategy, which not only looks to reduce harm but also puts an emphasis on education and recovery."

HRB research at NUI Galway showed that interactive workshops improve how GPs prescribe antibiotics for urinary tract infections and has led to online training for GPs.

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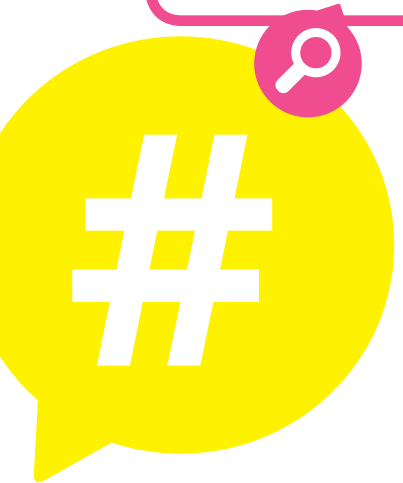
In Summary

If patients take antibiotics, bacteria can develop resistance to the very medicines that are designed to stop infection. A study in Galway identified that GP prescribing practices were not optimal for patients with urinary tract infections (UTIs), and were linked to antibiotic resistance. A follow-on trial showed that interactive workshops with GPs improved antibiotic prescribing over the course of six months.



A SIMPle prescription to tackle antibiotic resistance in urinary tract infections

Researchers: Dr Akke Vellinga, Professor Andrew Murphy, NUI Galway

The Problem

HRB-funded research by Dr Akke Vellinga and Professor Andrew Murphy in NUI Galway examined how GPs in practices in the west of Ireland prescribed antibiotics for patients with UTIs. They found that GPs often prescribed inappropriate antibiotics immediately for patients, and this pattern was linked with bacteria being resistant to those medicines.

The Project

To build on the research, Dr Vellinga and Professor Murphy gathered a team to design and carry out an intervention study called the SIMPle study. The NUI Galway team provided a computer patch to allow GPs to easily monitor their antibiotic prescribing for UTIs and complete mandatory audits for the Irish Medical Council. In return, the GPs provided coded data about prescribing for UTIs and some took part in interactive workshops on antibiotic prescribing.

The Outcomes

GPs who took part in interactive workshops improved how they prescribed antibiotics for UTIs.

GPs found it easier to keep track of their antibiotic prescriptions for UTIs, which helped them to complete national audits.

While the six-month study is too short to measure changes in antibiotic resistance, the workshops provided a useful means to keep GPs up-to-date with current prescribing guidelines.

The Irish College of General Practitioners now offers the workshops on prescribing for UTIs as part of their online programmes, which are available to GPs in Ireland.

Dr Akke Vellinga, Senior Researcher, School of Medicine, NUI Galway, says:

"One of the interesting outcomes of the project was that GPs really liked the way we approached recruitment to the study. We had a social marketer on our team, Sinead Duane, who suggested that in return for GPs taking part in our study we would help them to prepare audits they need to do. This is a sustainable model where GPs and researchers can help each other in the course of a clinical study."

HRB data informed a decision to introduce a minimum unit price for alcohol in Ireland. This will raise the price of high-alcohol, low-quality drinks that can be responsible for harmful drinking.

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In Summary

An estimated 88 people die in Ireland each month from alcohol-related causes, which equates to 2-3 deaths per day. In addition, harmful drinking patterns including binge drinking underlie an enormous cost to health services and individual human suffering.

Findings from a HRB report informed the introduction of 'minimum unit pricing' this year which is designed to ensure that strong alcoholic drinks are not available cheaply to consumers. This approach specifically targets harmful drinking and was set out in the Public Health (Alcohol) Bill 2015.

MUP: The evidence behind new pricing to target harmful drinking

Researchers: Dr Deirdre Mongan and Dr Jean Long, HRB Evidence Centre

The Problem

Public health measures are needed to tackle the harmful consumption of alcohol in Ireland. However, 'blanket' approaches such as excise duties affect all consumers who buy or drink alcohol, not just those who drink harmfully, so more targeted public health measures are needed.

The Project

The Department of Health asked the HRB to gather evidence about alcohol consumption in Ireland. Dr Deirdre Mongan and Dr Jean Long at the HRB Evidence Centre worked on this survey.

They surveyed alcohol behaviours in Ireland, looked at the retail cost of alcohol to consumers and gathered evidence on the health impacts of alcohol consumption. They published their findings in a report, *Alcohol Consumption in Ireland*.

The Outcomes

We now know that:

» More than half of people in Ireland aged between 18 and 75 who drink alcohol are classified as 'harmful drinkers', which means there are more than 1.35 million harmful drinkers in Ireland, and many are in the 18-24 age group.

The evidence in the report provided data for a modelling study at the University of Sheffield. This informed the decision to introduce a Minimum Unit Price (MUP) for alcohol in Ireland at 1 Euro per standard drink (10 grams of alcohol) in the Public Health (Alcohol) Bill 2015.

MUP is designed to increase the price of cheap alcohol, which is more often the choice of heavy drinkers and young consumers.

Dr Deirdre Mongan, Research Officer with the HRB Evidence Centre, says:

" It is very much a balancing act in public health. We want to target the people who particularly need to be targeted, but excise duties affect everyone who drinks alcohol. By placing restrictions on the minimum unit price, or MUP, we can ensure that alcohol is not sold too cheaply to consumers. This helps to target the 'harmful drinkers' and younger drinkers who tend to buy cheaper alcohol and who are overall more likely to develop health problems."

HRB-ITS-funded research has shown that bile acids push *P. aeruginosa* bacteria to chronic infection. Studies are now seeing if reducing bile in the lungs of patients with CF reduces chronic infection.

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In Summary

Chronic microbial infections are a major problem for patients with cystic fibrosis. In particular, when an opportunistic 'superbug' called *Pseudomonas aeruginosa* forms a chronic infection in their lungs, it can cause serious damage to lung tissue and function.

New research funded by the HRB and the Irish Thoracic Society has found that bile acids aspirated from the digestive system into the lungs trigger *Pseudomonas aeruginosa* to form hard-to-shift infections. This discovery opens up new intervention treatment options to protect patients with CF by stopping bile from getting into the lungs, and thereby reduce chronic infections.

An exciting new discovery to reduce chronic infection in cystic fibrosis patients.

Lead Researcher: Professor Fergal O'Gara, University College Cork

The Problem

People with the inherited condition cystic fibrosis (CF) are prone to chronic lung infections, particularly from the bacterium *Pseudomonas aeruginosa*. This can damage their lungs and often means extended stays in hospital. Antibiotic medicines do not work well against these chronic forms of infection.

The Project

A team in Cork and Australia led by Professor Fergal O'Gara examined the potential role of bile acids in driving chronic lung infection in CF. Bile is normally present in the gallbladder and digestive system, but if patients have acid reflux or 'heartburn' then bile can move up towards the mouth and be aspirated into the lungs. The majority of patients with CF can experience reflux and bile acids entering the lungs.

The Outcomes

We now know that:

» Bile acids can prompt *Pseudomonas aeruginosa* bacteria to transition from acute to chronic infection that do not respond to antibiotic therapy.

This discovery has led to new clinical trials to determine if reducing the movement of bile into the lungs decreases chronic infections in CF patients.

The finding may also inform new physiotherapy approaches for patients with CF, to minimise the movement of bile into the lungs.

Professor Fergal O'Gara, Professor of Microbiology, BIOMERIT Research Centre, University College Cork, says :

" Based on this research, we are the first in the world to demonstrate that the entry of bile acid into the lungs triggers bacterial infections to move from the acute into the chronic state. We are confident that this could lead to new approaches to help minimise the onset of chronic infections and damage to the lungs in patients with cystic fibrosis."

The HRB is supporting the National Office for Suicide Prevention to examine data about national levels of suicide and self-harm.

#HRBResearchInAction

In Summary

Hundreds of people in Ireland die by suicide each year. There is a recognised need for better quality monitoring in Ireland of deaths by suicide and of deaths in people who have risk factors for self-harm. A feasibility study by the HRB has shown the value of using the same approach taken to gather data from coronial files for the National Drugs-Related Deaths Index, to monitor suicide recorded in Ireland.

Deepening insights into levels of suicide in Ireland

Researcher: Ena Lynn, HRB National Health Information Systems

The Problem

Suicide is a legal ruling; a legal verdict of suicide is recorded if the coroner finds evidence of death by suicide 'beyond reasonable doubt' rather than a 'balance of probabilities' approach. It is widely recognised that the latter is a high legal standard, and it is not always reached.

Connecting for Life, Ireland's National Strategy to Reduce Suicide (2015-2020) recognises the need to improve the quality of and access to data about suicide and self-harm in Ireland.

The Project

The HRB maintains the National Drug-Related Deaths Index (NDRDI), a database that records all deaths due to drug and alcohol poisoning, and all deaths among drug users and those who are alcohol dependent.

The National Office for Suicide Prevention contacted the HRB to explore whether the methods and expertise involved in maintaining the NDRDI could be used to examine data from coronial files and get more insights about the numbers of suicides and deaths in people with risk factors for self-harm.

The Outcomes

We now know that:

» It is technically, operationally and financially feasible to collect data from coronial files about suicide and deaths in people with risk factors for self-harm using the existing methodologies, expertise and logistics of the NDRDI.

As a result of the feasibility study, the HRB will collect data related to suicide and self-harm from coronial files on behalf of the National Office for Suicide Prevention for a three-year period.

Ena Lynn, Research Officer with the HRB National Health Information Systems, says:

"The results of this feasibility study were very positive. As the relationships with all coroners are already established and the database and protocols are already in place, this partnership approach between the HRB and NOSP is the most cost effective and efficient way to collect data from coronial files."

HRB-funded research found that higher levels of selenium are linked with a lower risk of colorectal and liver cancer.

#HRBResearchInAction

In Summary

Selenium is a chemical element contained in certain foods. Our bodies need a small but sufficient amount of selenium to keep our cells and immune system functioning healthily. HRB-funded research has linked higher levels of selenium in the blood with a decreased risk of developing colorectal cancer (bowel cancer) or the major type of liver cancer called hepatocellular carcinoma. The findings will inform recommendations for selenium in the diet.

New links between selenium and cancer prevention

Lead Researcher: Dr David Hughes, Royal College of Surgeons in Ireland, now at Conway Institute, University College Dublin

The Problem

The cells in our bodies naturally produce by-products that need to be cleared away. Several proteins involved in this process depend on sufficient selenium being present in order to be made by the body and to work more effectively - a key example is selenoprotein P. However, many people in areas such as Europe have a relatively low amount of selenium in their diets – particularly where food is grown in soils that are low in selenium - and this has been linked to a higher risk of inflammation and DNA damage, which can lead to cancer.

The Project

Dr David Hughes and colleagues looked at data collected in a large, long-term study called EPIC, where around 500,000 people donated blood samples and provided detailed information on their diets and lifestyles. These people are being followed up over time.

The researchers measured the levels of selenium and selenoprotein P in the samples of hundreds of people who developed colorectal or liver cancer compared to an equal number on the study who did not develop any cancer.

They found that higher levels of both selenium and selenoprotein P were linked in both men and women to a significantly lower risk of developing bowel cancer (which was even more evident for women for this cancer) and liver cancer.

The Outcomes

We now know that:

» Higher levels of selenium are linked with a lower risk of colorectal cancer and liver cancer.

The findings are informing debate about guidelines and recommendations for selenium in the diet.

The functional measure of selenium in blood samples (selenoprotein P) used in the research could offer a more accurate approach to identify and monitor people who would benefit from more of this nutrient in their diet or as a supplement to their diet.

Dr David Hughes, Conway Institute, UCD, says:

" The research findings suggest that where selenium is lower than the optimal level, such as for most people in Europe, increasing selenium intake may help to prevent liver and bowel cancer in addition to moderating or avoiding alcohol consumption, maintaining a healthy body weight, and stopping smoking. This is important for public health as some people may particularly benefit from increasing the selenium in their diet."

HRB-funded research found 1 in 10 schoolchildren in Ireland experiences chronic pain and is raising awareness in schools.

#HRBResearchInAction

In Summary

Chronic pain, often defined as any pain lasting more than 12 weeks, affects one in three adults attending GP clinics, according to previous HRB-funded research by a group at NUI Galway. The same researchers carried out another HRB-funded study 'PRIME-C' that surveyed more than 3,000 schoolchildren, asking for the first time about chronic pain in primary schoolchildren in the community. We knew little about the levels of chronic pain experienced by children in Ireland, mainly because they had not been asked about it.

They found that one in 10 children reported having pains lasting more than three months. The researchers are working with schools and children living with chronic pain to raise awareness among other children, parents and teachers and develop guidelines for teachers in primary schools to be proactive in supporting children with chronic pain to remain part of school.

Shining a light on chronic pain in schoolchildren

Lead Researchers: Dr Siobhan O'Higgins and Professor Brian McGuire, Centre for Pain Research, NUI Galway

The Problem

Children who live with chronic pain experience a number of things that differentiate them from children without pain, ranging from practical implications such as absence from school and difficulty with writing, to psychological implications including fear and social isolation.

The Project

The Centre for Pain Research (CPR) team in NUI Galway worked with 39 schools and surveyed more than 3,000 children aged between 5 and 12 and more than 1,700 parents. The survey found that one in 10 reported experiencing chronic pain, often as headaches, stomach or muscular skeletal pain. These children reported a lower quality of life. Chronic pain affected the child's participation in sport, in school activities, and affected the children's mood.

The Outcomes

We now know that:

» 10% of children in Ireland experience chronic pain.

» Older children (9-12 year olds) have more pain problems than younger children (5-8 year olds).

» Children who report experiencing chronic pain tend to have a lower quality of life and may not participate as much as other children in school, sports or family and social life.

» Children sometimes don't tell parents or teachers about their pain - this may be because they don't want to miss activities, or they are worried about what may happen if they visit the doctor, or that they won't be believed as there is no obvious cause of their pain.

The report on the findings of the HRB study were sent to the schools that took part, illustrated by pictures drawn by the children. The researchers worked with children living with chronic pain to create an awareness raising video, for other children, parents and teachers.

Dr Siobhan O'Higgins, Post-Doctoral Researcher at the Centre for Pain Research, says:

" Many people think chronic pain doesn't exist in young children, but when we asked schoolchildren we found that one in 10 experienced it. Over 300 children shared their pain stories with us; they told us they didn't want to miss school and had some very practical suggestions that could be built into the school setting, such as regular 'stretch breaks' or having homework written out for them."

HRB research on barriers to accessing Hepatitis C treatment has led to an 'integrated care' model in Dublin and other cities in the EU. Integrated care in action.

#HRBResearchInAction

In Summary

Hepatitis C is a chronic and sometimes fatal condition, and injecting drug users are at high risk of infection. A foundation study funded by the HRB examined why people at risk in the community were not being tested or treated for the virus. This led to a pilot study in Dublin where people at risk of Hepatitis C who attended their GP or other clinics in the community could more easily be tested for the condition and start treatment, if necessary. This integrated model has changed Hepatitis C care in Dublin and is now being replicated in a larger EU-funded study in centres across Europe.

A new model to treat Hepatitis C in the community

Lead researchers: Professor Walter Cullen and Dr Jack Lambert, University College Dublin, Mater Misericordiae University Hospital

The Problem

Hepatitis C can cause chronic disease, liver damage and even death, and it is common among current and former injecting drug users. A HRB-funded study identified that people at risk of Hepatitis C tended to avoid getting a diagnosis and treatment because of stigma about the virus and a fear that diagnosis and treatment would be painful.

The Project

Following major advances that mean diagnosing and treating Hepatitis C is now easier and more effective for patients, a group at UCD and the Mater Misericordiae University Hospital established a pilot 'integrated model' in Dublin called HEPCARE which links GPs, addiction and homeless medical services with infectious diseases experts to enhance Hepatitis C testing and treatment.

The Outcomes

We now know that:

» Hepatitis C infection is common (77%) among current and former injecting drug users in Dublin.

HRB research led to a pilot programme between GPs and the Mater Hospital to boost testing and treatment for Hepatitis C in the local area.

That integrated model of Hepatitis C care is now being replicated in London, Saville and Bucharest as part of an EU-funded project.

Professor Walter Cullen, GP and Professor of Urban General Practice at UCD says:

" The HRB study on Hepatitis C in Dublin formed the foundation for a model of care that makes it easier for people at risk of Hepatitis C infection to access testing and treatment for the condition. The work has changed our approach to Hepatitis C care in Dublin and elsewhere in the EU and is an example of integrated care in action."

New HRB online system to collect data on treatments for problem drug and alcohol use in Ireland is making data collection faster and more efficient. This is good for research and planning.

#HRBResearchInAction

In Summary

When a person goes for treatment for problem drug or alcohol use in Ireland, relevant, anonymous details about their treatment are included in The National Drug Treatment Reporting System (NDTRS). The HRB manages the database, which provides important information on trends about problem alcohol and drug use and treatment. A new a web-based system has been developed to enable staff at treatment centres to enter information into the database online, rather than using paper forms. This has made the reporting process more efficient and is improving the timeliness and quality of the data being collected.

Capturing a more timely picture of problem alcohol and drug treatment

Researcher: Dr Suzi Lyons, HRB National Health Information Systems

The Problem

The National Drug Treatment Reporting System (NDTRS) gathers data from around Ireland about treatments given for problem alcohol and other drug use. Previously, around 40% of treatment episodes were returned to the NDTRS in printed, hard copy forms. This information needed to be entered into the database on-site at the HRB offices, which is costly and time-consuming.

The Project

The HRB is rolling out a web-based entry system, called LINK, so addiction centres can input their treatment data directly into the NDTRS rather than returning a hard copy form. This is in order to make data gathering faster and to safeguard accuracy. The system, which has inbuilt validations to improve accuracy of reporting, started to be phased in during 2016. By the end of 2017, around three-fifths of addiction centres will be using the NDTRS online system.

The Outcomes

The change to online reporting to the NDTRS is leading to faster gathering of data on treatments for problem alcohol and drug use in Ireland.

More addiction centres are using the online reporting system to feed data into the NDTRS, which will mean improved data accuracy thanks to inbuilt validation systems.

The HRB has substantially reduced its paper and printing use in its management of the NDTRS.

Dr Suzi Lyons, Senior Researcher with HRB National Health Information Systems says:

"It is important to have timely and accurate data on trends in treatment for problem alcohol and drug use. It also feeds into research, planning and strategy development, both in Ireland and in Europe. The online system means this information is more readily available and we have reduced the time and paper involved in gathering the data."

A St John of God study developed by HRB-funded scholars led to an intervention that showed sessions on activity and diet helped people with psychosis to control their weight and blood sugars.

#HRBResearchInAction

In Summary

People who are diagnosed with psychosis, which includes conditions such as schizophrenia and some mood disorders, are at risk of developing other health issues in the long term, such as obesity, heart disease and blood-sugar abnormalities.

A HRB-funded study evaluating early intervention in psychosis led to a pilot intervention programme to encourage people with psychosis to eat a healthy, balanced diet and to keep physically active. Participants experienced modest weight control and an improvement in blood-sugar profiles. The intervention itself, which was funded by St John of Gods' Research Foundation, is still well subscribed and in place to help protect the health of people with psychosis.

A new intervention to promote health in psychosis

Researcher: Dr Caragh Behan, DETECT-EI

The Problem

People with psychosis are at high risk of developing obesity, heart disease and blood-sugar irregularities. This is partly lifestyle related, as this group smokes more than the general population and is less physically active, and contributed to by the anti-psychotic medication they need to control symptoms of psychosis.

The Project

Professor Mary Clarke of DETECT and Dr Caragh Behan, a HRB-funded scholar, designed a programme to help people with psychosis at the DETECT early intervention service in Dublin to support people with practical steps to keeping healthy while on anti-psychotic medication.

Community mental health nurse Aisling McClenaghan worked with patients individually or in small groups to talk about lifestyle, learn practical skills about shopping and cooking for a balanced diet and go for walks to keep active. The pilot was supported by a community partnership.

Those who took part saw results in their weight: those who were a healthy weight did not gain over the course of the year-long study, and those who were overweight lost an average of 2-3 kilos. Participants also had positive changes in their blood sugar profiles.

The Outcomes

We now know that:

» A practical intervention can help people with psychosis control their weight and improve blood sugars.

The pilot intervention developed while Dr Behan was funded by the HRB at DETECT continues to run at the early intervention programme.

Dr Caragh Behan, DETECT-EI, says:

" The intervention helped people with psychosis to learn practically about protecting their health, and what made it work especially well was the flexibility and enthusiasm of the nurse who delivered it. We had people on waiting lists who wanted to take part in the programme, so we saw a big demand for it."

HRB reviews on children's exposure to second-hand smoke in cars led to a new Irish law banning smoking in cars where 1+ children are present.

#HRBResearchInAction

In Summary

When children are in a car where someone smokes, their exposure to the 'second-hand' smoke is linked to an increased risk of health problems. Yet they often have little control over whether and how long they stay in the car where someone is smoking.

Two reports by the HRB Evidence Centre directly supported a new Irish law banning smoking in cars where children are present.

One of the report authors then helped to commission a review of evidence on plain packaging of cigarettes, which has now also been signed into law in Ireland.

HRB evidence leads to ban on smoking in cars where children are present

Researchers: Dr Marie Sutton, Martin Keane and Louise Farragher

The Problem

Tobacco exposure kills around 5,500 people in Ireland each year. Children are particularly vulnerable to second-hand smoke, as their bodies are still developing and they have relatively high breathing rates. They are also vulnerable because they tend to have little control about when and how long they are in a car.

The Project

The HRB produced two evidence reviews for the Department of Health: one by Martin Keane on the effectiveness of methods to reduce or eliminate smoking in cars in which children are travelling, and a separate analysis by Dr Marie Sutton and Louise Farragher of health problems linked to children's exposure to second-hand tobacco smoke in cars.

The Outcomes

The two reports highlighted that children being present with second-hand smoke in a car was linked to a worsening of asthma and an increased risk of lung infections, middle-ear problems and even some forms of cancer. The reports also pointed out that many jurisdictions have decided to place restrictions on smoking in cars where children are present.

The review of the evidence was one of the influences on the development of the (Tobacco Smoke in Mechanically Propelled Vehicles) Act 2014), which bans smoking in cars where children are present.

Following on from these reports, Louise Farragher represented the HRB on the Steering Group on Standardised Packaging of Tobacco Products, where she helped to commission an evidence review by Dr David Hammond of the University of Waterloo, Ontario, on the use of plain packaging for cigarettes.

That review supported the Public Health (Standardised Packaging of Tobacco) Act, which means that tobacco products for sale in Ireland must be in plain packaging with graphic warnings on them about the health impacts of smoking.

Louise Farragher, Information Specialist, HRB Evidence Centre says:

" Smoking is still quite prevalent in our society, and while the smoking ban in 2004 tackled smoking in restaurants and other places of work, there was still a need to address exposure to smoke in cars, especially for children who are more vulnerable to that exposure. The evidence is hard to gather and process, it is time-consuming, but it's important to inform policy that is designed to reduce the rates and harm of smoking."

Research in real life stories

Unlocking a lifetime of silence

People with intellectual disability are now living longer. As they get older their needs and their lives change and it is important that we understand what this means. But how do we capture those needs and experiences? The Intellectual Disability Supplement of The Irish Longitudinal Study on Ageing (IDS-TILDA) is doing exactly that.

Each year that IDS-TILDA interviewers go out to interview people with intellectual disability for this study, they discover that most people have a lot to say, even if they had barely spoken before.

Before they go out to complete the IDS –TILDA survey questions, all field workers undergo a 3 - 4 day intensive training programme with major emphasis on communication, effective interviewing and the use of easy read materials. They are also encouraged to first ask questions of the person with an intellectual disability themselves. Sometimes others may speak for the person, but for so many questions, how is a key worker able to know how the person actually feels? If the person cannot answer such questions for themselves the answers sometimes need to stay blank.

During the most recent interviews, one interviewer had an incredible experience. The person with an intellectual disability being interviewed had barely spoken in years. It was supposed to be a short interview but the person started to talk and as words built on words the person got visibly excited. The whole experience of watching and listening as a person who never speaks told their story and expressed their feelings brought both the key worker and the interviewer close to tears.

Prof Mary McCarron, Principal Investigator for IDS-TILDA emphasises that this is not the only example.

"Over the years I have seen how we have literally unlocked a lifetime of silence simply by engaging with people who have intellectual disability and inviting them to talk about how they feel about ageing and what their needs might be. It is an incredibly humbling experience, but it is great to know that we can make such a difference".

Link Back: The IDS-TILDA project receives funding from the Health Research Board. It is also made possible by the ability to access participants through the HRB's National Intellectual Disability Database (NIDD).

Owen Casey

Improving outcomes after heart attack

When Owen Casey suffered a heart attack and was urgently transferred to Cork University Hospital; unsurprisingly he had not been expecting it. Pre-operating theatre he was given the opportunity to participate in a new trial to test if a new injectable therapy improves heart muscle and performance after a heart attack. The results have since shown that this injection may help repair hearts after a major heart attack.

`Taking part in the trial has been a very positive experience. When you have a heart attack out of the blue, like I did, it is great to have extra checks and the confidence that if anything shows up it will be identified quickly. I met with the same people regularly, so the continuity of care has been excellent as well. I feel very good now and while I don't have the same stamina that I used to, I know that taking part in the trial has had a positive effect for my heart.'

Link Back: The trial Owen took part in was the first of its' kind in the world. It was led by Prof Noel Caplice from University College Cork, who received a Translational Research Award from the Health Research Board and Science Foundation Ireland.

John Donovan

Stopping heart failure

Following a stroke a number of years ago, John Donovan was asked if he would like to participate in the STOP Heart Failure trial. This involved a simple blood test to measure a protein called natriuretic peptide which is released by the heart when it is under stress or strain. Participants in the trial with an elevated level of natriuretic peptide are given a heart ultrasound, lifestyle advice and given a collaborative care plan that was reviewed by both their GP and cardiologist.

`The fact that I am standing here at all today is testament to the ongoing care I get from the STOP Heart Failure team. Being involved in this trial highlighted blood pressure and cholesterol problems I was having. And more importantly, the team helped me get these under control. They are exceptional and the regular interaction with them also keeps the importance of exercise front and centre. I am engaging in competitive sport and eat a healthy diet as a result. If I hadn't done, I would not have been able to have two hip operations - which in turn have enabled me to continue being active. It's a win-win'.

John is now among 3000 patients who are now benefitting from this intervention which prevents heart failure and has the potential to avoid more than 17,250 hospital admissions a year if rolled out nationally.

Link back: Prof Ken McDonald who led this trial was awarded a HRB Clinician Scientist Award. Their trial showed a 45% reduction in new onset heart failure and a drop of 40% in the incidence of admissions for other major cardiovascular events, such as stroke and heart attack.

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