



HSRU

Health Services Research Unit

Promoting Excellence in
Health Services Research

HSRU Impact Report
1988-2024

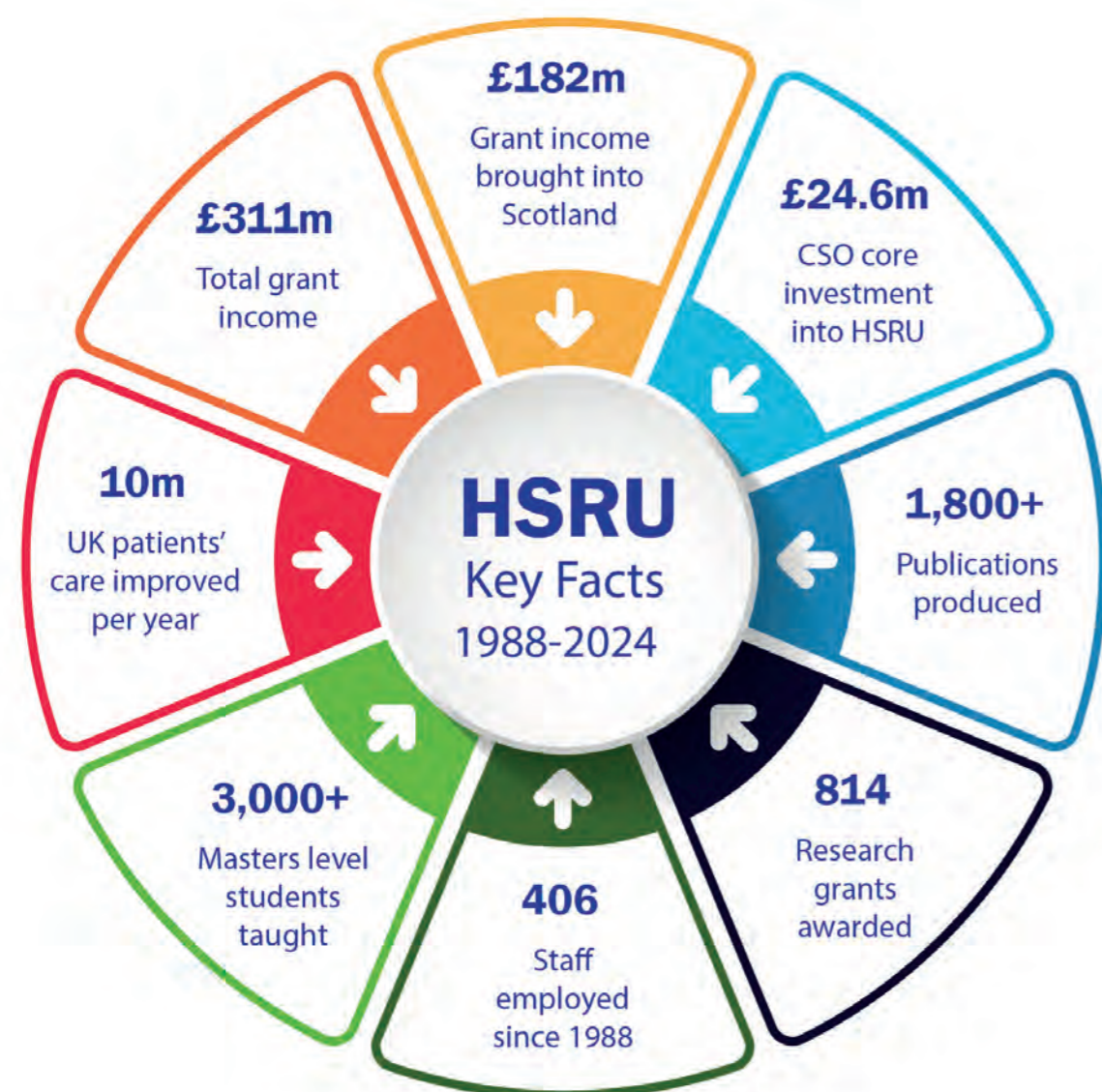
Summary Statement

Since 1988, the Chief Scientist Office (CSO) of the Scottish Government's Health and Social Care Directorate supported the **Health Services Research Unit (HSRU)** to develop and grow its national and international reputation for excellence in health services research. The sustained international reputation of HSRU as the **top centre for health services research in Scotland** is recognised through every UK University Research Excellence Framework exercise since 2001.

Interdisciplinary working is at the heart of our research. We have co-located a vibrant group of researchers with expertise in clinical trials, statistics, evidence synthesis, qualitative methods, mixed-methods, sociology, psychology, philosophy, health economics and data science. The co-location ensures a unique integration of research activities across disciplines.

The CSO core-funding has enabled us to build an international reputation for innovative, exemplary health services research of national and international importance. We meticulously and rigorously assess whether interventions and treatments used or proposed for use in health services are effective and efficient, and how they are experienced, and identify how systems should best be organised to deliver these services.

The work has brought significant new investment into Scotland (£182 million) and changed practice, policy and research methods, directly impacting on the lives of millions of people in Scotland and around the world.



From Early Beginnings to the Present Day

In April 1985 the Chief Scientist of the Scottish Home and Health Department invited universities to submit bids for a new Health Services Research Unit (HSRU) 'whose objective is to seek improvements in the organisation and management of clinical services related to hospital care'.

The successful bid from the University of Aberdeen was led by Professor James Petrie and Dr Elizabeth Russell. Professor Ian Russell was appointed inaugural director in June 1986 and the Unit formally opened in 1988.



The original staff of 11 in 1988



Some of our 69 staff and PhD students in 2024

Starting with 11 core-funded staff in 1988, we have grown the Unit through competitive awards and fellowships to 69 people by 2024 and established HSRU as an international centre of excellence in health services research.

There have been four Unit Directors – Professors Ian Russell (1987-1992), Adrian Grant (1993-2006), Marion Campbell (2007-2015), and Craig Ramsay (2016-2024).



Ian Russell



Adrian Grant



Marion Campbell



Craig Ramsay

The HSRU aim is to improve population health and wellbeing by strengthening the health services research evidence base, developing innovative methods to address difficult evaluation problems, training the next generation of health service researchers, and influencing health policy and practice.

We work in close partnership with our colleagues in the wider University. We have extensive collaborations with other high-profile researchers and research groups throughout the UK and internationally including the NHS, community, voluntary sector and patient organisations, policy makers and guideline development groups, and industry.



Key Achievements

- A leading international innovation centre in surgical trials and complex, non-drug interventions
- Improving the management of millions of NHS patients
- Pioneering approaches to patient participation in healthcare decision making
- Informing decisions about whether new procedures are safe to use in the NHS
- Pioneering research into how best to get research findings into practice (implementation research)
- Developing the next generation of researchers and leaders
- Enabling significant inward investment to Scotland (£182 million) resulting in outstanding research outputs, innovations and insights
- An adopter and leading global innovator of trial methods
- Award of the Queen's Anniversary Prize for Higher and Further Education for sustained research excellence in Health Services Research

The Queen's Anniversary Prize is the most prestigious form of national recognition open to a UK academic institution, and has a focus on innovation and practical benefit to society





Impacts on Public Health, NHS Scotland and the UK

Many decisions within the NHS have relied on the findings of our researchers, directly affecting policy and legislation. We have strong and enduring interactions with NHS decision-makers to ensure that our research provides definitive answers to the questions that matter most to them, and to optimise the chances of the findings influencing decisions (including when not to do things, as well as when to do so).

Examples include:

Development of methods of the Scottish Intercollegiate Guidelines Network (SIGN)

In the 1990s, the Unit was instrumental in the development of methods of **SIGN**. Examples included the development of the SIGN critical appraisal tool, rigorous reviews informing the SIGN development group, novel methods for understanding small group processes in SIGN guideline development, and evaluation of critical appraisal skills workshops across Scotland.

Pioneering approaches to patient participation in healthcare decision making

HSRU developed a substantive programme of work on patient participation in healthcare in the late 1990s, a couple of decades before it became mainstream. This programme continues to provide innovative insights today.

This work developed themes around the participation of individuals in their own health care (eg developing evidence base for decision aids), and public participation in health care policy, health services and health-related research.

We developed a first 'how to' guide for information producers in NHS Scotland, and this produced the first of a new series of 'Patient Information Guides' from NHS Scotland which were linked with the outputs of organisations such as the Clinical Standards Board for Scotland, the Health Technology Board for Scotland and SIGN. Today this work has expanded into complex areas of health research, such as how to include the public and patients perspectives and participation.

Improving the care of millions of NHS patients every year

In 2001, the National Institute for Health and Care Excellence (NICE) sought expert groups who would robustly review and assimilate the evidence base on a particular topic. Only institutions which could demonstrate the highest level of skill in evidence synthesis and economic modelling would be commissioned to undertake this activity.

Our researchers met these exacting standards, the only group in Scotland to do so. Continued excellence in the delivery of our work has resulted in three renewals from NICE - with the present contract running to 2027 - and reaffirms our position as the only group in Scotland contracted to deliver this work.

So far we have provided the evidence base for over 150 aspects of clinical care: supporting guidance recommendations affecting the care of over 10 million people in the UK each year - from those with common diseases such as high cholesterol and diabetes, to those with rarer high risk conditions such as advanced renal cell carcinoma.

The work has also informed decisions about whether to start new services in NHS Scotland, for example, inguinal hernia repair through keyhole surgery, the introduction of robotic surgery in the NHS, and laparoscopic surgery for colorectal cancer.

Routinely-collected health statistics show rapid rises in the use of these new services after changes in guidance based on our evidence.



Providing the Scottish Government and National Institute for Health and Care Excellence (NICE) with up-to-date evidence on emerging areas of concern, eg the safety and efficacy of mesh procedures

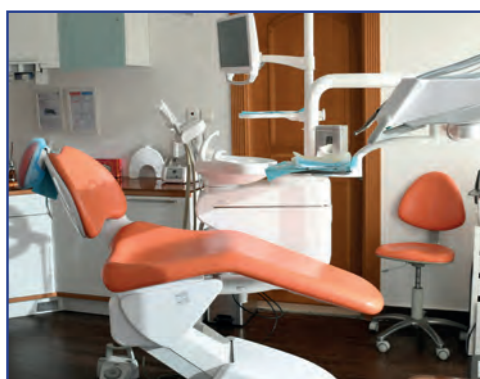
HSRU takes a long-term outlook to maximise research impact by the iteration of evidence synthesis informing new primary research. An exemplar of this approach is our work on surgical interventions for women with stress urinary incontinence. We conducted the first Cochrane systematic review of these procedures in 2005 before any sufficiently large trials had reported. We completed the largest multicentre UK randomised controlled trial in this area. Subsequently we reported a complex evidence review that brought together 120 studies, including 21,598 women from over 25 countries. The review provided the Scottish Government with up-to-date evidence on the safety and efficacy of mesh procedures.

Inform decisions about whether new (surgical) procedures are safe to use in the NHS

In 2003, the UK government set up the **UK Interventional Procedures Committee**, to decide whether new or emerging surgical procedures/devices were safe enough to use in the NHS. Our researchers were commissioned to provide the evidence base to underpin these decisions. We were chosen for this task because of our internationally-renowned expertise in evaluating surgical procedures. We designed and led assessments of the evidence concerning all new and emerging surgical procedures (about 25 major evidence assessments), and set up national registers to track the safety of a number of new procedures. Our evidence underpinned decisions about whether to introduce, and sometimes to restrict usage of, many surgical procedures in the Scottish and rest of UK NHS, including foam sclerotherapy for the treatment of varicose veins and electrosurgery for tonsillectomy. Today our researchers continue to work closely with Healthcare Improvement Scotland's Evidence Review Team to inform each Scottish guidance on new technologies and procedures considered for use in the NHS such as the role of robotic surgery.



Transformed UK dentists' management to prevent dental caries (tooth decay) in children



Before our research, 50% of UK children had evidence of dental caries in their first permanent molar by age 15. Methods of prevention (fissure sealants) were well-known but their adoption poor. Our researchers designed and conducted a nationwide trial of different methods to increase uptake of fissure sealants. The work involved over 140 dentists and 2,500 children and remains the largest trial of its kind to date. The key finding, that a fee-for-service model would increase uptake, led to the Chief Dental Officer for Scotland changing the national contract for dentists to encourage uptake.

The number of children receiving fissure sealants doubled after the contract change, resulting in approximately 37,000 children in Scotland now getting this treatment each year. This led to the development of the ongoing NHS Education Scotland **Translation Research in a Dental Setting (TRiADS) programme** - a world-first initiative that embedded an implementation research programme into a guideline development programme (**Scottish Dental Clinical Effectiveness Programme**).

Our early leadership of mental health research in Scotland informed development of new national research programmes



HSRU led a substantial programme of mental health research during the early 1990s that subsequently informed the development of new mental health programmes across Scotland. For example, pioneering work on the identification and description of seasonal affective disorder (SAD) found that among GP attenders in winter in Scotland, 10% satisfied the screening criteria for SAD.

The clear conclusions were that patients with SAD consult frequently in primary care and are high users of health care services, but their SAD goes undiagnosed and untreated. The work led to testing new interventions

such as treatment using light boxes. The work had significant national impact across the media in the 1990s/2000s and by 2024 is even now displayed in an Art Exhibit about life in the Northeast of Scotland at Aberdeen Art Gallery.

Conceptualising what 'self-management' means in healthcare led to adoption in NHS Scotland training programmes

HSRU-led philosophical analysis of 'collaborative approaches' to healthcare, and 'support for self-management' for people with long-term conditions has significantly shifted the thinking and practice of clinicians who have engaged with it.

Clinicians' practical adoption of the central idea of 'enabling people to live (and die) well' has been positively received by patients, and their professional reflections have benefited from the insights the research provided into the inevitable ethical tensions of person-centred approaches.

The further spread of these benefits is now supported by the adoption of the central idea and associated insights within professional training programmes, NHS and third sector service development work, Scottish health policy, and international guidance.



Producing new insights on how organisational and systems level-factors influence delivery of services.

Organisational culture and change in the NHS has been a focus of HSRU research. A portfolio of cross-country studies exploring the role of organisational culture (such as leadership, values, and team working) in improving quality and safety of practice was undertaken.

These resulted in important findings from using change theory to understand patient safety and staff wellbeing (NIHR SDO programme) and a comparison of how different accountability and performance systems across the UK were affecting progress on closing the gap in health inequalities (**Wicked issues paper**).

Rapid mobilisation of research resources to provide key information during the COVID-19 pandemic

We rapidly pivoted teams within HSRU to support the national research effort on COVID-19, including undertaking rapid reviews for the NHS, new primary research and secondary analysis, as well as supporting major funders and journals with rapid-response peer reviews of grant applications and publications.

Our rapid reviews of international dental guidance in collaboration with the NES Scottish Dental Clinical Effectiveness Programme was used by the World Health Organisation to inform the Chief Dental Officers of 120 countries on how to resume dental services, and in the UK directly led to 14,000 dental practices in the UK being able to reopen. This involved 41,000 dentists and 81,000 other practice staff from across the UK and led to millions of new dental treatments being provided.

Our work on the inclusion of people from ethnic minority groups in COVID-19 trials has been adopted as NIHR policy for all trials (**the INCLUDE ethnicity framework**). Other examples included factors associated with vaccine hesitancy and investigating the use of asynchronous forms of consultation in hospitals.

We have also worked in collaboration with the Universities of Oxford, Stirling, Edinburgh and others on three inter-related studies of experiences of COVID and Long COVID. Each of these now has a public-facing dissemination output on healthtalk.org: (i) **Long Covid In Adults**; (ii) **Family experiences of Long Covid**; (iii) **Covid in the community**.

Building one of the first NIHR research collaboratives to transform regional services

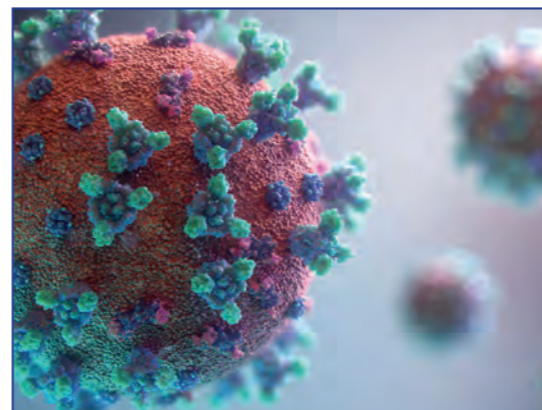
A significant ongoing £6 million NIHR-funded project is the HSRU partnership with Aberdeen City Council, NHS Grampian, and Robert Gordon University to establish a Health Determinants Research Collaboration (HDRC). This innovative initiative was part of the first wave of collaborative HDRCs funded by the NIHR, and the first in Scotland.

The HDRC aims to enable local authorities to become more research-active, embedding a culture of evidence-based decision making.



With the move to integrated health and social care, the need to build research capacity in local authorities is crucial. Research within our collaboration focuses on determining what can be done to address the wider drivers of population health and health inequalities of groups and areas within Aberdeen.

The outcomes of the HDRC will support future decision making and identify improvements in driving factors affecting the health and wellbeing for the residents of Aberdeen, and will provide an exemplar for others in Scotland to follow.



Impacting International Healthcare

Our health services research achieves global relevance by addressing key clinical problems affecting patients around the world. By routinely working with international clinical guideline agencies such as Health Technology Assessment International and national agencies such as the Canadian Agency for Drugs and Technologies in Health, and the German Institute for Quality and Efficiency in Health, we ensure that we are addressing the highest priority issues and can feed findings directly into future clinical guidance.

Examples of impact on international practice include:

EAGLE trial transforms the evidence base for primary angle-closure glaucoma, changing guidance and practice

Globally, 20 million people have primary angle closure glaucoma and 4 million have been blinded by it, mostly in low- and middle-income countries. The HSRU-led **EAGLE trial** was run across five countries (the UK, China (including Hong-Kong), Singapore, Malaysia and Australia) and showed the benefits of clear lens extraction surgery for angle-closure glaucoma.

EAGLE, described as a landmark glaucoma trial by the European Glaucoma Society, provided robust evidence, supporting a change in practice.

It showed that initial clear lens extraction is associated with better clinical and patient-reported outcomes and is likely to be cost-effective in publicly-funded health systems.

It has led to changes in practice and national and international guidelines, with important impacts in East Asia in particular, where this condition is most prevalent.



Transformation of the international evidence base for the management of incontinence

In 1995, we established the international Cochrane Incontinence Group – an international group dedicated to providing clinicians with the best evidence on the management of incontinence.

At the time incontinence was an overlooked clinical area, with highly variable treatments and little guidance about which treatments offered best care.

Since its establishment, the Cochrane Incontinence Group has coordinated the work of 400+ reviewers globally, designing and conducting nearly 100 systematic reviews of all aspects of incontinence management.

An independent review of the 50+ international Cochrane Groups worldwide showed that the Cochrane Incontinence Group was one of the top three groups influencing clinical guidelines – highlighting the clinical importance of its work.

Changed international recommendations of the management of ureteric colic from kidney stones

Our researchers conducted the largest-ever clinical trial of different treatments for the management of ureteric colic from kidney stones – a common, painful condition resulting in about 30,000 hospital admissions in the UK.

Our research showed that the two standard treatments (tamsulosin and nifedipine) were no better than placebo. Since our trial was the largest, most methodologically-sound study ever conducted, we could provide, for the first time, health professionals with robust evidence upon which to base their management decisions.

The results prompted a number of international guideline agencies to change their clinical guidance on the management of ureteric colic. For example, the European Association of Urologists (EAU) changed their recommendations in direct response to this important evidence: guidance endorsed by 56 countries in Europe, China, India and South America and impacting on the care of hundreds of thousands of patients worldwide with this condition each year.

Pioneering research into how best to get research findings into practice (implementation research)

In the 1990s clinical guideline development was in its infancy. It was recognised, however, that simply distributing guidelines to recipients would not automatically result in changed clinical practice.

Therefore, HSRU researchers embarked upon a sustained programme of research to understand better how to maximise the implementation of research findings into clinical practice.

This research defined methods which continue to be used today. Indeed, our research on guideline implementation was recently identified as the most influential research funded by the NIHR HTA programme to date.

Papers from the original implementation research work have been cited 3,500+ times. Our researchers also led and coordinated the international Cochrane Effective Practice and Organisation of Care (EPOC) Group for six years.

This included leading the development of the Group's operational and statistical methods that underpins its work – now used by 1,200+ review authors worldwide to produce 200+ completed and ongoing systematic reviews.



Impacts on Capacity Building in Health Services Research

From the start, HSRU has had an unwavering commitment to build capacity in health services research through training and other development activities. Our approaches are essential for sustained contribution and excellence in health services research across 30 years and to developing the health services workforce of the future.

Exemplars of our approaches are described below.

Developing the next generation of researchers and leaders

HSRU has a strong pedigree in developing research capacity in HSR across all stages of career:

- The development of research and policy leaders, many of whom have become professors or senior leaders across the globe
- 400+ individuals have been employed and trained in HSRU
- The first centre to embed clinical academics into a health service research environment
- Direct collaboration with several thousand NHS staff across Scotland and the UK through our multicentre research
- Memorandum of understanding with Healthcare Improvement Scotland (and previously with Quality Improvement Scotland) to train NHS staff in HSR methods and to co-host annual research conferences
- Encouraging entry to formal HSR training - 3000+ students taught on various Masters' level programmes (e.g. **Designing Real-World Trials**)
- 100+ PhDs completed
- Building HSR literacy - 50+ student interns
- One of the first research groupings in Scotland to have a dedicated Patient and Public Involvement and Engagement Group that advises on research strategy

Specific examples include:

Creating a world class resource for clinical trial capability and capacity in Scotland

In the 1990s, when other institutions were pursuing the established path of evaluating medicines, we took the strategic decision to specialise in the assessment of non-drug interventions, notably surgical procedures and complex interventions such as therapist-led or organisational interventions. There was a paucity of evidence about their effectiveness and little methodological research to underpin their evaluation.

Our pioneering research has greatly expanded both the methods and number of evaluations in these topics. We established CHaRT (our clinical trials unit) as an international centre for excellence for surgical and non-drug evaluations.

Firstly, the Unit was involved in establishing the Scottish Orthopaedic Trials Group which mounted a stepped change in the number of orthopaedic trials being run from Scotland.

In 2005, the Unit then led a successful bid for a Scottish Funding Council strategic research development grant, the 'Scottish Collaboration of Trialists' (SCoT), a collaboration between academic trials units in the Scottish clinical medical schools (Aberdeen, Dundee, Edinburgh and Glasgow).



The SCoT project was configured in two parts: a) improving expertise, capacity and efficiency for the delivery of RCTs led from Scotland; b) providing an enhanced trials facility for clinical networks of health professionals currently with limited trial infrastructure support. Part of this project led to the revamping and launching of the Edinburgh Clinical Trial Management Course.

CHaRT is now a fully-registered UKCRC trials unit, and routinely receives referrals from around the country for support in evaluating surgical procedures and devices. It is also a dedicated UK trials unit for urological surgical trials (through The Urology Foundation) and the only trials unit in Scotland accredited by the Royal College of Surgeons England.

A pivotal role in development of the UK Trial Managers network

Despite widespread acceptance of the potential value of randomised controlled trials for assessing the effectiveness of health care interventions, many trials fail to reach completion, and there is some evidence that failure of trials can be due to practical problems with trial management. In response to the desire to maximise the dissemination of good practice across trials, the MRC Health Services Research Collaboration (of which HSRU was a part) set up the MRC Trial Managers Network - a network of those people responsible for the day-to-day management of MRC-funded trials.

HSRU had the lead role in the provision of training and support for the Network, and housed the Network Secretariat for a number of years. This network began with 150 trial managers in 1998 and today now includes around 1,650 trial managers and provides a rich source of data and experience on the conduct of multicentre trials.

Developing international capacity in Health Services Research

Our researchers are world leaders in interdisciplinary HSR and we actively promote our findings across the world through international invited training workshops, educational sessions, seminars and webinars.

We also built research capacity in low- and middle-income countries through a series of European Union-funded grants that built tools, protocols and workshops for researchers in those countries to undertake implementation research (***Afroimplement***) and trial methods (SUPPORT and ***PRACTIHC***). At that time, these were the first freely-available protocol and trial management template development tools for trials.

These tools were used by many hundreds of researchers across South American and South African countries, as well as being promoted throughout the UK and EU. We continue to make all our resources freely available to all via our website.



Impacts on Research

The methodological innovations arising from our research have transformed international academic and research practice. Our researchers embrace major methodological challenges, create innovative and appropriate solutions, develop practical guidance, toolkits and training to aid the adoption of solutions into routine research practice. This sustains our enviable reputation as a world-class institution at the cutting edge of health service research.

Some examples include:

Enabled significant inward investment to Scotland resulting in outstanding research outputs, innovations and insights

HSRU have been awarded 814 research grants to date, totalling over £300 million, and bringing in £182 million in new monies into Scotland. This means that £12.6 pounds of research income was generated for every one pound the CSO invested in the Unit, of which £7.4 was brought into Scotland.

Our researchers have conducted around 1,000 studies to date, including: 130+ large-scale clinical trials involving over 80,000 participants from 1,500+ sites worldwide; approximately 80 full HTAs; 100+ in-depth systematic reviews (comprehensive scientific reviews of all available evidence to guide the management of specific clinical problems); approximately 300 other types of health services research study.

The insights from these studies have been disseminated across more than 1,800 peer-reviewed publications and many thousands of additional presentations. This endeavour has produced genuine depth of innovation with outstanding, demonstrable tangible societal benefits.

An early-adopter and leading global innovator of trial methods

Evidence-based healthcare is undermined by poor design, conduct and reporting of research. From the outset, the Unit has championed the use of novel study designs from the early use of efficient designs such as the use of balanced incomplete block designs (**GIG** and **NEST**), fractional factorial designs (**KAT**) to the present innovative use of Bayesian adaptive approaches (**REBOA** - the first Bayesian trial to be funded by the National Institute for Health and care Research). Today we continue to be a leading innovator on trial methodology with our researchers leading global initiatives in:

- **Applying behavioural science to trials:** framing problems of recruitment and retention as behaviours and exploring the opportunities to improve these aspects through the design of participant centred, theoretically informed, interventions (**the BOOST study**)
- **Improving efficiency of trial processes through the Trial forge initiative,** which aims to be more systematic about how we generate and use research evidence in making trial design, conduct, analysis and reporting decisions more efficient
- **Patient and public involvement in numerical aspects of trials** which uses participatory methods to improve involvement of patients, and the public in discussions related to data and statistics, making their collection, analysis and interpretation more relevant to them (**POINT**)
- **Increasing research integrity** through leadership of **innovative international collaborative research into research misconduct**, which has led for example to the retraction of multiple clinical trials of osteoporosis treatment and nutritional interventions



Setting the international standard for the oversight of data accumulating in clinical trials

Clinical trials involve the participation of many thousands of patients worldwide. Each trial is required to set up a data monitoring committee (DMC) to identify early, and act upon, any emerging safety issues. Our researchers led **in-depth research into factors influencing the design and organisation of DMCs** and developed an evidence-based charter of best practice.

Before the publication of our DAMOCLES charter there were no internationally-accepted standards for the organisation of these DMCs, resulting in large variations in practice and highly variable protection of trial participants.

The DAMOCLES Charter is now recommended: for all trials funded by NIHR, the UK's largest funder of clinical trials; by the UK National Research Ethics Service; by the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH).

The widespread international adoption of the DAMOCLES Charter has ensured the safety of thousands of patients worldwide.



Improving the experiences of care of NHS patients and workers

As healthcare strives to be more people-centred and inclusive, we lead research to improve experiences of care.

This includes a portfolio of research into **understanding and improving patient experiences of illness and care services**.

Given the growing evidence that patient and staff experiences are closely associated, this work includes a focus on staff perspectives, including staff use of patient experience data, such as Care Opinion.

The work has expanded to include a focus on the impact of exclusion issues, such as rurality.

An exemplar is the Aberdeen-led CSO programme grant Building Rural-Urban healthCare Equity for Scotland (**BRUCES**) which is a multi-methods research programme in cancer, musculoskeletal health and frailty which starts in 2024.



World leaders in novel statistical methods and experimental designs to transform surgical clinical trials

Previously, surgical trials were rare: partly because they were thought to be extremely difficult to design and highly problematic to conduct.

When surgical trials were attempted, they were poorly designed. Novel research undertaken by our researchers has led to HSRU leading one of the most influential portfolios of surgical and other non-drug intervention trials in the world.

- Our pioneering work on the statistical analysis of surgical trials to accommodate learning curve effects has transformed the field, with the methods underpinning international guidance on how to conduct such trials
- We designed and led a large portfolio of 'patient preference trials'. This approach has enabled us to conduct clinical trials of treatments previously thought too difficult to compare directly head-to-head, such as trials of **cholecystectomy versus observation**, different surgical versus medical management approaches for the treatment of heavy menstrual bleeding, and **medical versus surgical management for the treatment of gastro-oesophageal reflux disease**
- We have published widely on the underlying methods, to guide others wishing to undertake or interpret these more complex types of trial. For example, we have led and helped shape key international guidance in the field, eg the **ASPIRE international guidelines** (Applying Surgical Placebo In Randomised Evaluations guidelines) for the use of placebo in surgery.

Developed novel 'patient reported outcome' measures

Nowadays the patient's perspective is recognised to be an essential consideration, with clinical trials expected to include a patient-based assessment of their condition.

Before our work, patient-centred measures of outcome for most surgical treatments did not exist.



We led a substantive programme of research to develop a suite of these outcome measures. Comprehensive development with patients, and subsequent rigorous scientific testing, ensured that our measures are reliable and easily-used by patients.

Examples of our patient-reported outcome measures include: the Beliefs about Surgery questionnaire; the REFLUX questionnaire for use after treatment for gastro-oesophageal reflux disease; the Aberdeen Low Back Pain Scale for assessing low back pain treatments; the Aberdeen Varicose Vein Questionnaire for evaluating varicose veins treatments.

These measures are now in global use and have informed the care of hundreds of thousands of patients.

The use of psychological theories to understand health professional behaviour

The Unit, together with the Aberdeen Health Psychology Group, were one of the first groups to apply health psychology theories to health professional behaviour.

The MRC-funded **Process Modelling in Implementation Research (PRIME)** project proved to be a significant step forward in the use of psychological theories to understand factors that influence professional practice.

It achieved developments in: (a) operationalising psychological theories for use in implementation research; (b) populating these theories with data specific to clinical behaviours; (c) identifying the determinants of practice with respect to five distinct clinical behaviours.

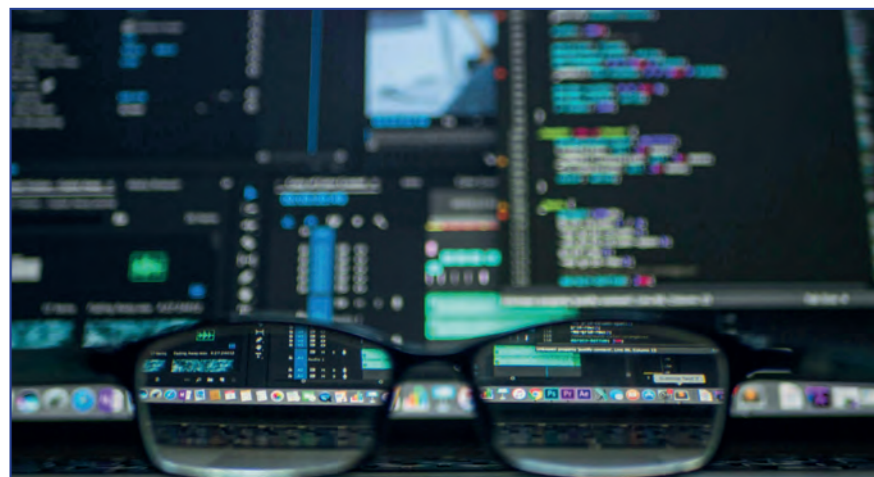
This work informed what was to become the internationally commonly-used **COM-B** approach to behaviour change and implementation research.



Innovating new statistical methods in implementation research

More complex research designs, such as cluster randomised trials or interrupted time series, are required to evaluate interventions in implementation research and other developments aimed at changing health professionals' behaviour.

Previously, cluster randomised trials were rarely used because of their statistical complexity and lack of information underpinning key aspects of their design.



In a substantive programme of research, we pioneered the methodological development of the cluster randomised trial, and interrupted time series and developed publicly-available tools (such as an online sample size calculator and online database of empirical specialist estimates to inform these calculations) that transformed the ease with which researchers could use these designs.

The Unit has made important contributions to the development of these methods and our papers on **CONSORT** for cluster randomised trials and **interrupted time series** are examples of how our methodological work has informed the wider international research community.





Image source: University of Aberdeen

External Recognition

The sustained excellence of our staff and work has been widely recognised nationally and internationally.

Recognising our standing in research, Unit staff are regularly invited to membership of key national and international committees, have served on key funding agencies, and have been recognised for their innovative and impactful research through election to Fellowship of national and international learned societies, including the Royal Society of Edinburgh (Scotland's national Academy), the Academy of Medical Sciences, the Academy of Social Sciences and the international Society of Clinical Trials.

This culminated in the award of the Queens Anniversary Prize to the Unit in 2017 (with our sister unit HERU).

The Queens Anniversary Prize is part of the UK honours system and is the top honour that can be awarded to a Higher Education establishment in the UK and is awarded for innovation with impact. It recognised our “sustained excellence in health services research” which is testament to the impact of the Unit's work over many years.



Queen's Anniversary Prize 2017



Presentation of the Queen's Anniversary Prize at Buckingham Palace

Concluding Remarks

HSRU's sustained excellence in health services research over the last 36 years has produced genuine depth of innovation with numerous, outstanding, tangible societal benefits – locally, nationally, and internationally.

As early pioneers of the discipline, our health services researchers have led, and continue to lead, developments in the field, with insights generated from the 91 (£78 million) ongoing research projects continuing to transform the delivery of health care to millions of people around the world.

Further Details and Contact

With over 1,000 research studies undertaken to date it is only possible to generally describe some of the impacts and insights from over 30 years of research in this impact report.

Full details of the Unit's people and outputs can be found at www.abdn.ac.uk/hsru.

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