



Research in Emergency care,
Avon Collaborative Hub

Annual Report 2021-22

Dear Colleague,

We have great pleasure in welcoming you to the REACH Annual Report 2022.

REACH, the Research in Emergency Care Avon Collaborative Hub, was officially launched in October 2020. It was founded on a strong tradition of applied research in urgent and emergency care at both the University of the West of England and the University of Bristol and builds on existing and effective collaborations with local commissioners, providers and academic institutions.

From the outset, REACH has spanned the multiple disciplines and professions that are involved in the daily delivery of urgent and emergency care, and the research that informs and underpins it. Our list of research staff and active projects has grown steadily, and we now have a wealth of ongoing and completed research that encompasses pre-hospital care, urgent primary care, paediatric emergency care, adult secondary care and service delivery.

None of this would be possible without the guidance of our steering group and the organisations that actively support REACH, the logos of which are shown on this page. We are immensely grateful to our principal funder, NHS Bristol, North Somerset and South Gloucestershire Integrated Care Board (ICB), to our research team and to everybody who has supported REACH during the past 12 months.

In this report you will find some highlights and achievements of the last year; we hope you enjoy reading it.

*Professor Jonathan Benger and Professor Sarah Purdy,
Co-Directors, REACH.*



Bristol, North Somerset and South Gloucestershire Integrated Care Board



This Year, REACH Has...

Led and supported research to improve the delivery of urgent and emergency care.

Created impact on clinical practice and knowledge.

Collaborated as a 'hub', meaning that we have identified the most important research questions in our local health and care system, have experts in our team (many of whom also work in the NHS), and the resources to help with long-term planning.

Trained and developed both clinical and non-clinical researchers to ensure the field continues to progress.



What are the barriers and facilitators to effective health promotion in urgent and emergency care? A systematic review

B. Schofield, U. Rolfe, [...], and J.

Additional article information

Associated Data

- ▶ Supplementary Materials
- ▶ Data Availability Statement

Abstract





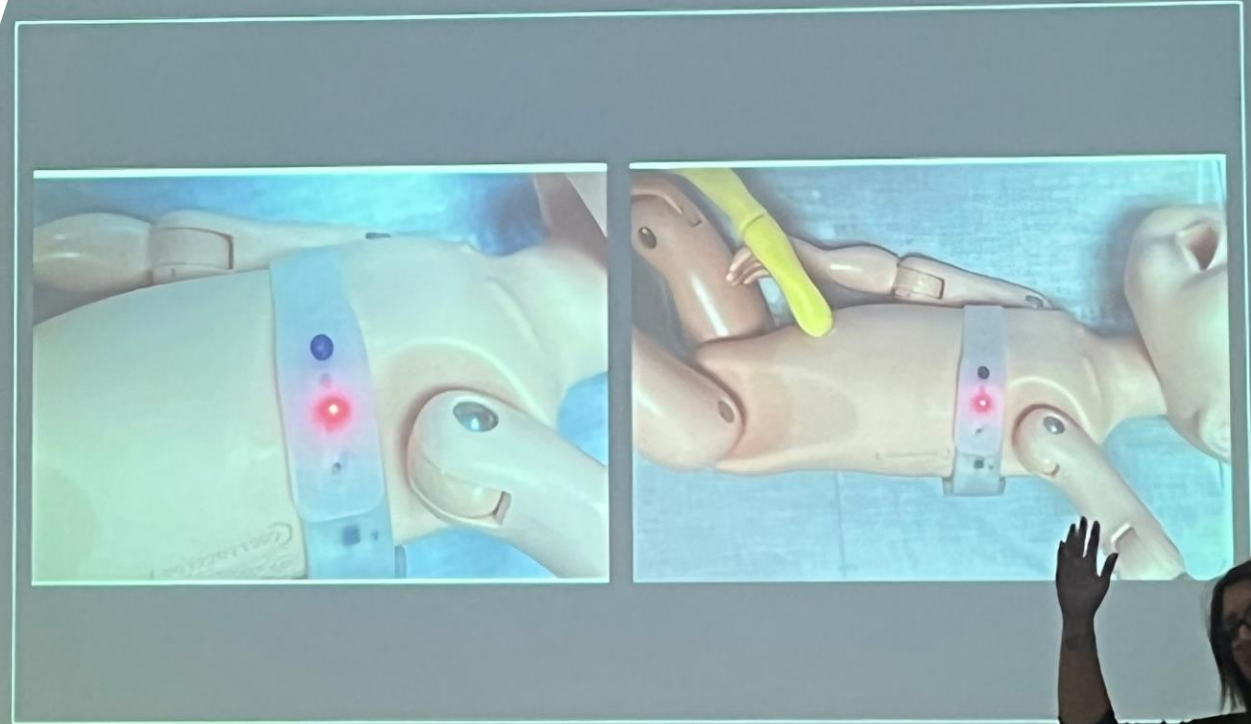
Leading and
Supporting
Research

Organisations Currently Funding REACH Research

- **National Institute for Health Research (NIHR)**
Programmes:
Health Technology Assessment (HTA)
Health Services and Delivery Research (HSDR)
Research for Patient Benefit (RfPB)
Academic Health Sciences Network (AHSN)
Efficiency Mechanism Evaluation (EME)
Policy Research Programme (PRP)
- **Research Capability Funding (RCF)**
Funding has been allocated by:
NHS Bristol, North Somerset and South Gloucestershire Integrated Care Board (BNSSG ICB)
University Hospitals Bristol and Weston NHS Foundation Trust
South Western Ambulance Service NHS Foundation Trust
North Bristol NHS Trust
- **University of the West of England**
- **University of Bristol**
- **Royal College of Emergency Medicine (RCEM)**
- **Academy of Medical Sciences (AMS)**
- **British Paediatric Surveillance Unit (BPSU)**

In Pre-Hospital Care We Are...

- Evaluating the role of GPs working in Emergency Ambulance Services.
- Investigating health inequalities and temperature management in pre-hospital births.
- Working to improve end of life care planning.
- Carrying out trauma research in older people.



Helen McAdam (Senior Lecturer in Midwifery at Sunderland University), introducing her prototype for a new thermometer to monitor babies born pre-hospital, at our 'Birth Before Arrival' event – June 2022



Spotlight On: Trauma Research in Older People

With Dr Helen Nicholson

One of our pre-hospital care projects examines the 'Factors influencing the conveyance of older adults with minor head injuries'. This project involved paramedic interviews, an audit of local ambulance service data and a systematic literature review. The results of the interviews have been finalised and are being prepared for publication alongside the audit data.

Preliminary results were presented at the Age Anaesthesia Association conference in May and were very well received. The systematic literature review is also underway.

Over the last year I have built up an excellent network of potential national collaborators around minor trauma in the older adult.

My proudest achievement this year was being selected for the UWE Accelerator Programme. This will provide support over the next two years to further build my research career.

In Adult Secondary Care We Are ...



Developing Interventions

- Developing a complex intervention to reduce subsequent healthcare use for patients presenting to UK Emergency Departments with acute severe headache (STRETCHED, funded by the Royal College of Emergency Medicine - RCEM).
- Improving the delivery of health promotion in urgent and emergency care (promotED, funded by the NIHR RfPB Programme).

Conducting trials

- A randomised controlled trial of the clinical and cost effectiveness of a supraglottic airway device versus tracheal intubation during in-hospital cardiac arrest (AIRWAYS-3, funded by the NIHR HTA Programme).
- A randomised controlled trial of Conservative Management in Traumatic Pneumothoraces in the Emergency Department (CoMiT-ED, funded by the NIHR HTA Programme).

Evaluating

- Randomised Evaluation of early topical Lidocaine patches in Elderly patients admitted to hospital with rib Fractures: a feasibility trial (RELIEF, funded by an NIHR Advanced Fellowship).
- Evaluating a new streaming and redirection tool in the Emergency Department for adult minor acuity patients (STREAM-ED, funded by RCF:BNSSG ICB and RCEM).



A still from a novel Participant Information Video aimed at increasing inclusivity in research. Part of the CoMiT-ED trial led by Professor Edd Carlton.



Spotlight on Adult Secondary Care

With Professor Edd Carlton

In October 2021 I was appointed as the first tenured Emergency Medicine academic at the University of Bristol as a Consultant Senior Lecturer, at the same time as becoming Professor for the Royal College of Emergency Medicine.

I have embarked on a substantial project with the NIHR HTA-funded CoMiT-ED trial; a complex study evaluating conservative management of traumatic pneumothoraces across the NHS.

I am very proud of the patient and public involvement work in CoMiT-ED, particularly working with community violence reduction teams to make our research more accessible to victims of gang violence. This work was nominated for an NIHR PPI award in early 2022. I continue to work across a broad range of research topics in secondary emergency care including eScooters (featured in The Sun newspaper), diagnostics, respiratory conditions, frailty and trauma.



Professor Edd Carlton

In Urgent Primary Care We Are ...

Much of REACH's work in the theme of Urgent Primary Care this year has focussed on the **urgent care workforce**, and how this workforce is optimally deployed to support patient needs across the system.



READY Paramedics (NIHR HSDR) is approaching completion, however it has already provided insights into the clinical and cost-effectiveness of paramedics working as part of GP teams, including identifying how the range of different models might be best suited to specific practice circumstances.

The **GP-EMS** Project (funded by RCF: BNSSG ICB) has just concluded, mapping the way GPs are working as an embedded part of Ambulance Services, and will shortly publish recommendations to support pathways that don't result in hospital admission.

The **REMAPP** (funded by Academy Medical Sciences) project has studied how Ambulance Clinicians seek advice about managing 'non-emergency' cases from GPs. The way in which urgent care is sought and provided is rapidly evolving, and REACH's portfolio is ensuring evidence is available to support this transformation.



Dr Matthew Booker, GP and REACH expert researcher in Urgent Primary Care.

In Paediatrics We Are ...

Investigating treatments for life-threatening conditions, including in the CRESCENT study (funded by the NIHR EME).

This randomised controlled trial is evaluating whether there is any benefit to providing carbagen gas instead of standard oxygen, to help stop acute epileptic seizures in children.

Informing prevention strategies to reduce life-changing injuries resulting from button battery ingestions (funded by BSPU).

From this international surveillance study of button battery incidents requiring hospital care, we will describe the key features which lead to ingestion and serious injury in children. Doing so will enable the development of primary prevention strategies, and guidelines for clinical care. Engagement with manufacturing, retailing, and politicians is already leading to significant changes in this area.

Evaluating whether an intervention comprising support and advice for new parents can reduce the occurrence of abusive head trauma in young infants (Evaluating ICON, funded by NIHR PRP).

This mixed methods study is being delivered collaboratively to determine whether the intervention should be implemented nationally.



REACH



Impact



Impact from completed research

Pre-hospital care

Cluster randomised trial of the clinical and cost effectiveness of the i-gel supraglottic airway device versus tracheal intubation in the initial airway management of out of hospital cardiac arrest (AIRWAYS-2) 2015 -2020. Funded by NIHR HTA.

- Changed the way ambulance staff resuscitate out of hospital cardiac arrest patients, and the associated guidelines, internationally.

Urgent primary care

Remote Advice to Prehospital Practitioners - A Conversation Analytic Study of Clinical Telephone Advice Calls (REMAPP) 2019-2021. Funded by the AMS.

- Furthered our understanding of how ambulance clinicians seek remote telephone advice from GPs and other doctors to support safe at-scene management decisions, and informed the training of safe, structured communication practices.

Adult secondary care

General Practitioner in Emergency Departments: Efficient Models of Care (GPED) 2017 -2021. Funded by NIHR HSDR.

- Found no consistent evidence to demonstrate that having GPs working in emergency departments improves patient experience or outcomes or is cost-effective. There is huge variation in service provision and successful models are supported by adequate staffing, training, and infrastructure.

Paediatrics

Amoxicillin dose and duration for community acquired pneumonia in children (CAP-IT 2017-2019). Funded by NIHR HTA.

- Has triggered a review of UK antibiotic treatment guidelines after finding that three days of treatment was as good as seven days.



Potential impact from some of our current research

Pre-hospital care

Birth before arrival at hospital in the South West: an exploration of inequalities and call-taker advice. Funded by the AHSN.

- Providing recommended changes to call-handler scripts for birth imminent 999 calls to ensure that inclusive and accessible advice is given to callers regarding neonatal temperature management. Ultimately reducing the number and proportion of 'born before arrival' babies admitted to hospital with hypothermia, and improving neonatal mortality and morbidity.

Urgent primary care

A Realist Evaluation of Paramedics Working in General Practice: An assessment of clinical and cost effectiveness (READY). Funded by NIHR HSDR.

- Providing evidence-informed implementation guidance for general practices deploying paramedics as part of their workforce in a way that is most likely to improve patient experience and outcomes, and be cost effective for the NHS.

Adult secondary care

Randomised trial of the clinical and cost effectiveness of a supraglottic airway device versus tracheal intubation during in-hospital cardiac arrest (AIRWAYS-3). Funded by NIHR HTA.

- Informing guidelines and improving outcomes for patients who have a cardiac arrest while in hospital.

Paediatrics

Button battery surveillance. Funded by BPSU.

- Will inform clinical practice to improve outcomes after button battery ingestion. More importantly, will inform public messaging for primary prevention, and guide changes in the manufacturing and retail sectors.



Collaboration

NIHR Emergency Care Incubator Symposium

On 23th and 24rd June REACH collaborated with the NIHR Emergency Care Incubator to hold an interactive symposium at the Bristol Beacon. This event was the first of its kind, moving away from traditional conference format and instead using small workshops to facilitate discussion between an expert Faculty and attendees looking to develop a research career in emergency care.

Sessions were intentionally informal and delegate led. A novel 'Teddy Bears' Den' (similar to Dragon's Den, but with a lot more encouragement) allowed delegates to pitch research ideas to Faculty and receive valuable feedback. Other workshops focussed on running research studies, grant writing, life as a senior academic, patient and public involvement and time management. Feedback suggested that the interactive format, networking opportunities and approachability of the Faculty members were greatly appreciated. Many delegates reported that the event increased their motivation to pursue research and felt that their research skills had improved.

NIHR Emergency Care Incubator Symposium:
Delegates and faculty in a workshop on publishing research findings.

Spotlight On Collaboration -Professor Robert Crouch

Over the last year I have been involved in developing a number of collaborative research proposals with REACH Colleagues. These focus around Helicopter Emergency Medical Services and point of care testing in both the hospital and prehospital environment. As research lead for Dorset and Somerset Air Ambulance (DSAA), I have worked closely with Dr Kim Kirby around understanding and evaluating the role of Patient and Family Liaison Practitioners both locally and nationally. Nationally, I have been appointed as Vice Chair of the National Helicopter Emergency Medical Services Research and Audit Forum (NHRAF).





Training and
developing
researchers

Trainees

REACH helps to develop researchers in our field by; providing support to 'The Trainee Emergency Research Network' (TERN) and the NIHR Emergency Care Incubator, and by supervising a number of Masters and Doctoral students.

Robert Hirst (2021-2022 TERN Research Fellow) reviews this year...

TERN has had a busy 12 months. We started the year with a four-week prospective multicentre observational study examining e-scooter injuries: SEED-UK. We had 250 recruits from 20 centres and our data helped inform policy for the Parliamentary Advisory Council for Transport Safety.

We completed a Delphi study to determine research priorities for the network incorporating a PPI workshop run with Andy Gibson at UWE, demonstrating the benefits of collaboration with REACH.

We're preparing for our next study looking at suspected cardiac chest pain, ACS:ED, a snapshot study taking place later this year, which will be led by incoming TERN fellow, and Bristol trainee, Fraser Birse. We're all excited to see his work!

But the output we're most proud of this year is SHED; an observational study of subarachnoid haemorrhage. We've had over 2,500 recruits from 75 sites, a fantastic achievement. The future is bright for TERN!



Our PhD Students

Tom Roberts is an Emergency Care registrar at North Bristol and the RUH (Bath).

Since October 2021 Tom has been working on his PhD, which he describes as a 'goldilocks experience':

"My first piece of work was definitely "too big", my second had an inclusion criteria that was "too small" - resulting in real challenges in recruitment. All part of the learning experience."

This year he also won the "Rod Little Prize", for best trainee presentation at the RCEM Annual Scientific Conference.

Kim Kirby is a paramedic at SWASFT.

This year Kim completed her PhD on improving the ambulance recognition and response to patients who are at imminent risk of an out-of-hospital cardiac arrest. She is now Chief Investigator on the PARASOL study, which is investigating how paramedics might contribute to initiating earlier advance care planning in patients thought to be in their last year of life. Kim has also secured two post-doctoral awards that are focused on using Natural Language Processing in emergency call triage.

This year REACH supervised four clinicians who are studying for a doctorate in urgent and emergency care.



Alyesha Proctor is a paramedic working in general practice.

Alyesha has secured a highly competitive NIHR Clinical Doctoral Research Fellowship and aims to develop an intervention to support paramedics in safely assessing and managing children with minor head injury.

This year she also published her first systematic review in BMJ Open: 'What factors are associated with ambulance use for non-emergency problems in children? A systematic mapping review and qualitative synthesis'.

Philip Braude is a Consultant at North Bristol NHS Trust working in geriatric medicine and perioperative care.

Philip is in his first year of a DPhil by publication looking at frailty and serious injuries. As part of his work with REACH he has examined frailty and outcomes in the national trauma database (TARN), is looking at how surgeons view frailty in acute admissions, and is also examining whether frailty and discrimination are present in trauma care.



**To our funders, partners and collaborators -
Thank you.**

For more information on REACH: www.bristolhealthpartners.org.uk/research-in-our-region/reach/

To collaborate or ask a question: REACHcontact@uwe.ac.uk

For latest updates  @REACHBristol