



Research in Emergency care,
Avon Collaborative Hub

ANNUAL REPORT 2022-2023



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Foreword

Dear Colleagues

We are delighted to welcome you to the REACH Annual Report for 2023.

As we share with you some of the achievements and impact arising from REACH work over the last 12 months, we also take a moment to consider how much REACH has achieved in the relatively short space of the three years since our official launch in October 2020. The founding aims of REACH were to build on the productive collaborations in applied urgent and emergency care research that existed between the University of Bristol, University of the West of England, the region's providers, commissioners and academic partners. REACH is now delivering a rich programme of funded research that directly addresses some of the contemporary challenges in the delivery of high-quality care, right through the patient pathway. Just as importantly, REACH is supporting the next generation of urgent and emergency care research leaders, as evidenced through some of the key achievements highlighted in this report.

Particularly noteworthy in this year's report is the wide range of successful awards and promotions that the REACH team has achieved, from new PhD funding to Advanced Fellowships and Associate Professor appointments. This demonstrates how sustained development, supported by targeted investment, can be the foundation of a successful long-term research career.

As with all successful collaborations of this nature, much goes on 'behind the scenes' to support the work of REACH both at the strategic and day-to-day levels. We would firstly like to thank Professor Sarah Purdy who, after jointly leading REACH since its inception, has handed on the co-director baton. We would like to wish Sarah a happy retirement from the University, although we understand several other new ventures will be keeping her occupied! Secondly, we are grateful to our REACH Steering Group, chaired by Dr Kieran Flanagan, for shaping and supporting our strategic direction. Thirdly, we'd like to thank all the organisations (logos included throughout the report) who have provided their continuing support and in some cases funding, particularly the Bristol, North Somerset and South Gloucestershire Integrated Care Board. And finally, a thank you to all of those who have contributed in some way to the delivery of REACH's work, particularly our patient representatives and public contributors.

We hope you enjoy reading about some of the activities of REACH in 2023, and look forward to another productive and successful year ahead.



Dr Matthew Booker,
Co-director of REACH
University of Bristol



Professor Jonathan Benger,
Co-director of REACH

Grants awarded in the last 12 months

Prehospital care

REACH lead	Title	Funder	Amount
Prof. Jonathan Benger	Point of care testing in the ambulance service: (PrePOCTED)	HTA accelerator	£197,060.29
Dr Kim Kirby	PRimary and community carE Staff as SURvivors of domestic violence and abuse: (PRESSURE)	NIHR SPCR	£145,256.00
Dr Matthew Booker	Policy Frameworks for 999 Response (PARSE 999)	Policy Support Fund, Warwick University	£45,000.00
Dr Kim Kirby	NIHR Development and Skills Enhancement Award	NIHR DSE	£53,699.00
Dr Kim Kirby	Natural Language Processing to triage chest pain patients more accurately with a particular focus on identifying chest pain patients who are at imminent risk of OHCA.	HEE/ NIHR	£24,961.00
Dr Zoe Anchors	Examining the Occupational Stress Experienced by Ambulance Staff (OCSAS)	BNSSG ICB RCF	£20,760.56
Dr Matthew Booker	Artistry and Emergencies: The relationship between creative arts and emergency skills education	Brigstow Institute	£10,700.00
Dr Kim Kirby	Natural language processing and machine learning to enhance the assessment of patients who contact the ambulance service with chest pain; building networks and collaboration.	Alan Turing Institute	£2,000.00

Urgent primary care

REACH lead	Title	Funder	Amount
Dr Matthew Booker	Evaluation of Hospital Admission Avoidance Initiatives	NIHR Advanced Fellowship	£919,979.00

Adult secondary care

REACH lead	Title	Funder	Amount
Dr Behnaz Schofield	What are the barriers to health promotion advice delivered by staff working in urgent care and emergency departments? (promotED)	RfBP	£140,924.31
Prof Sarah Voss	Implementation of Nursing Associate roles in the NHS: What works for whom, how and why? A rapid realist review (INSERT)	UHBW RCF	£14,770.00
Dr Jo Daniels	Abdominal Pain in the ED: qualitative study	NBT southmead fund	£20,000.00
Dr Laura Goodwin	Streaming and redirection of adult minor acuity patients attending the Emergency Department (STREAM-ED)	RCEM	£9,975.19

Research Delivery

REACH lead	Title	Funder	Amount
Dr Mark Lyttle	Exploring patient and public perspectives on recruitment and consent in cluster randomised trials	MRC	£489,269.00

TOTAL

£2,094,354.35

We are proud that REACH members are expert clinicians and researchers, aiming to improve outcomes for patients receiving urgent and emergency care. Here are some highlights of the recognition our members have received in the last year.

Promotions

- Professor Edd Carlton was given a substantive appointment as Consultant Senior Lecturer, to become the first emergency medicine academic at the University of Bristol. Edd has since appointed REACH PhD graduate Tom Roberts into a rare (only 5 positions across the country) Academic Clinical Lecturer post in Emergency Medicine. This has further bolstered the infrastructure of REACH across Bristol institutions.
- Dr Behnaz Schofield and Dr Laura Goodwin, Senior Research Fellows based at UWE Bristol were promoted to Associate Professors in Emergency Care.

Awards

- Professor Jonathan Benger, co-director of REACH, received a CBE for his services to the NHS.
- Dr Laura Goodwin, Senior Research Fellow, won the 'Research most likely to affect practice' prize at the 999 EMS Research Forum Conference.
- Dr Jo Daniels, Senior Lecturer in Clinical Psychology, won the 2023 University of Bath Vice Chancellors Engage Award.



Professor Jonathan Benger receiving his CBE at Windsor Castle

- Kate Coates, Lead Research Allied Health Professional for the CoMiTED Trial, was awarded the Royal College of Emergency Medicine Category B Award 2023.
- Dr Tom Roberts, Emergency Medicine Registrar, completed his doctoral programme.
- Cathy Liddiard, Research Associate for REACH, was awarded a UWE Bristol PhD studentship.



Paramedics in General Practice

General practices are facing increasing pressures, with a shortage of doctors to meet demand. Practices are turning to other healthcare professionals to help, including paramedics. Numbers of paramedics working in general practice have increased threefold over the last five years, but little is known about how best to utilise their skills in this setting.

We wanted to understand if and how paramedics meet the needs of patients, practices and the wider NHS, as the GP surgery is quite different to the more established emergency ambulance service role. We used an approach called 'realist evaluation' to look at a range of different models of paramedics in general practice (we call this 'PGP'). Realist evaluation asks what works, for who, and in what circumstances. This approach is well-suited to the range of very different ways PGP operates across the country.



Urgent Care



We started by reviewing relevant existing documents, research and reports, and speaking to leaders and experts about PGP. We then recruited 34 'case study' GP practices in England, both with paramedics and without. We collected two questionnaires, 30 days apart, from 489 patients who had seen a paramedic or a GP. These questionnaires helped us compare people's health outcomes, safety concerns, and what services or resources they used (such as hospital appointments and medicines). We interviewed 69 people, including patients, GPs, paramedics and other practice staff. We also analysed consultation records from over 22,000 appointments. We combined (integrated) all of these results together to develop and test our theories about PGP.

We concluded that paramedic care could help improve access to GP services without substantial cost differences. We found that paramedics can meet patient's health needs when their role in general practice is understood. We found that appropriate initial training and on-going supervision are important for PGP to be safe and effective.

Pre-hospital care

The PARASOL study: Paramedic referral for Advance Care Plans for patients approaching the end of life: Scoping work.



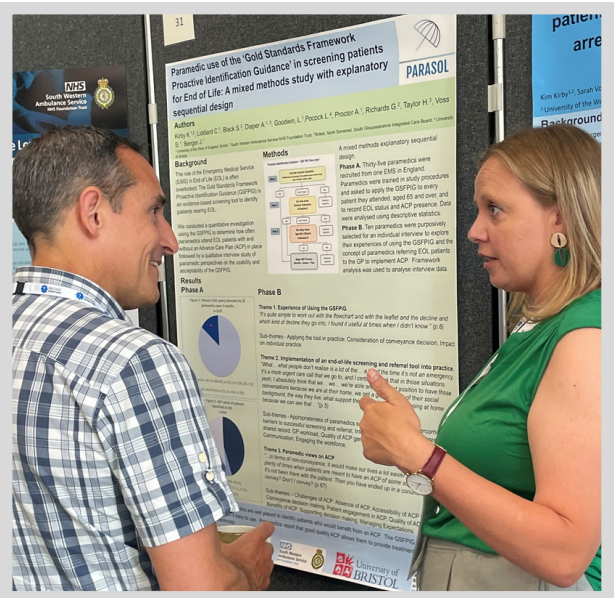
This study aimed to investigate paramedic use of the Gold Standards Framework Proactive Identification Guidance for screening and referring patients where the paramedic suspects the patient is in their last year of life.

There were three work packages. Phase A was designed to determine the proportion of End-of-Life patients attended by paramedics who have an Advance Care Plan in place. Phases B and C assessed the usability and acceptability of the Gold

Standards Framework Proactive Identification Guidance for identification of End-of-Life patients, and the potential for paramedic referral of End-of-Life patients to their GP for advance care planning, from the perspectives of, Paramedics (Phase B) and GPs (Phase C).

During this work we worked with 35 paramedics during Phase A, interviewed 10 paramedics in Phase B and conducted four focus groups during Phase C. We are currently writing up for publication. Cathy Liddiard presented a poster focused on Phase A and Phase B at the 999 EMS Research Forum in Manchester in June 2023.

We have since submitted an application to the NIHR HS&DR scheme to conduct a realist evaluation to evaluate a paramedic screening and GP referral process that identifies patients who would benefit from advance care planning. We are waiting for the outcome of this submission.



Cathy Liddiard sharing findings from the PARASOL study with a paramedic at the 999 EMS forum, June 2023.

Adult secondary care

The RELIEF Trial:



The Randomised Evaluation of early topical Lidocaine patches In Elderly patients admitted to hospital with rib Fractures.



This trial has demonstrated that recruitment of older patients with rib fractures in an emergency setting for the evaluation early analgesic interventions is feasible. Findings also highlight the high morbidity associated with isolated chest injuries in older patients and exquisite need for interventions to improve outcomes in this vulnerable patient group.

The trial was successfully delivered by Edd Carlton, thereby completing his NIHR Advanced Fellowship.

In the last year our members have published **41 papers** in peer reviewed journals, given **37 presentations**, and been **invited to talk on 36 other occasions**.

Our top 3 papers and invited talks are detailed here.

Top 3 publications

BMC Emergency Medicine

Factors influencing conveyance of older adults with minor head injury by paramedics to the emergency department: a multiple methods study.

H Nicholson, S Voss, S Black, H Taylor, D Williams, J Bengner.

[Read here](#)

Emergency Medicine Journal

Cross-cultural adaptation and its impact on research in emergency care.

T Roberts , E Carlton. M Booker, S Voss, S Vaillancourt, A Jabeen Nasir Jafar, J Bengner.

[Read here](#)



GP roles in emergency medical services: a systematic mapping review and narrative synthesis.

A Burrell, G Scrimgeour, M Booker.

[Read here](#)

Top 3 invited talks

“Practical and ethical research during a cardiac arrest”.

Invited plenary presentation to the Annual Conference of the Resuscitation Council UK, Birmingham December 2022.”

“Birth before arrival at hospital (BBA) in the South West: Temperature measurement, inequalities, and 999 call-handler advice.”

Wessex AHSN Maternity and Neonatal Safety Improvement Programme meeting (online), December 2022.

“The impact of COVID-19 on emergency medical service led out of hospital cardiac arrest resuscitation: a qualitative study.”

College of Paramedics National Conference. May 2023.



REACH member Dr Zoe Anchors (UWE), with colleagues Dr Lee Moore and Dr Rachel Arnold (University of Bath) at the 44th Stress, Trauma, Anxiety, and Resilience Society International Conference

The 'reach' of REACH

To help ensure demonstrable impact of our work, we are active members of influential groups and networks, and hold key professional roles that translate urgent and emergency care research into clinical practice.

REACH members are ...

Committee members

- Chair of the Trial Steering Committee for "EVADE SVT", a trial of pre-hospital Valsalva manoeuvre to terminate supraventricular tachycardia, funded by the NIHR Research for Patient Benefit (RfPB) Programme.
- Deputy Chair of the Research Committee of the International Federation for Emergency Medicine.
- Intercollegiate Board for the Training in Pre-Hospital Emergency Medicine (IBTPHEM) Curriculum Committee.
- NIHR Research for Patient Benefit South West Funding Committee.
- RADOSS Steering Committee.
- Royal College of Emergency Medicine ACP Credentialing Sub Committee.
- Selection Committee, National Institute for Health Research (NIHR) Emergency Response and Preparedness Funding Call.
- Study Steering Group, Predictive Risk Stratification Models: Assessment of Implementation Consequences (PRISMATIC2), NIHR HS&DR (NIHR150717).
- Trial Steering Committee for "Frequent Users of the Emergency Department: Improving and Standardising Services-a mixed methods study", funded by the NIHR Health Services and Delivery Research Programme (Project: NIHR132852).

Part of networks and groups

- Vice- chair of National Hems Research and Audit Forum (NHRAF) and co-led the development of this group.
- Members of the:
 - 999 EMS Research Forum sub-group, British Association of Perinatal Medicine (BAPM) Place of Birth working group, College of Paramedics Primary and Urgent Care Specialist Interest Group, Development group for the Prehospital Newborn Life Support course (supported by Resus Council UK), Executive Group of Integrated and Optimal Care theme, Applied Research Collaboration (ARC)-WEST, International Academies of Emergency Dispatch Obstetrics Council, International Academies of Emergency Dispatch Clinical Focus Group, South West Frailty group, and South West Regional Perinatal Equity Network.

Part of strategic decision making

- Invited to the 'Workforce wellbeing roundtable' at the Liberal Democrat Party Conference.
- Member of the NHS England National Resilience Winter Forum.

Professionals

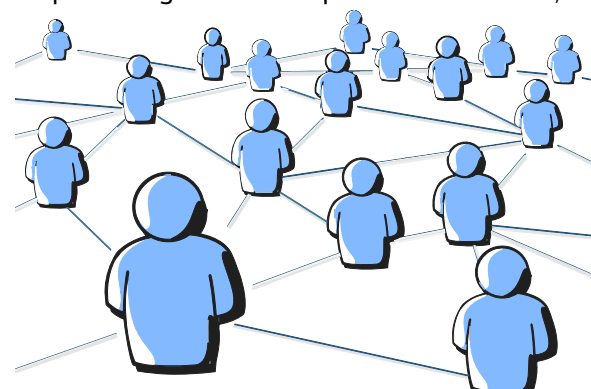
- Associate Medical Director – St John Ambulance (National).
- Chief Medical Officer of the National Institute for Health and Care Excellence (NICE).
- Examiner for the Diploma of Urgent Medical Care, Faculty of Prehospital Care of the Royal Surgeons of Edinburgh (RCSEdin).
- Member of the NHS England Urgent and Emergency Care Hospitals Programme Team - ED Acuity Project.
- National Clinical Advisor in Acute Patient Deterioration, NHS England.
- NHS England Subject Matter Expert – Consultant Practice (seconded - 4 WTE).

Journal editors

- British Paramedic Journal (editorial board).
- International Journal of Paramedicine (Associate Editor).

Conferences organisers

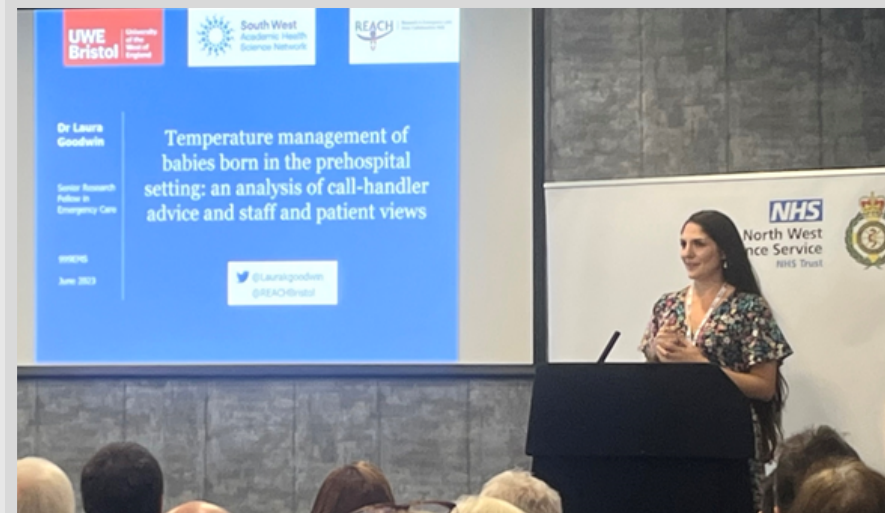
- NIHR Emergency Care Incubator Annual Symposium.
- Primary care and prescribing conference (helping support the organisation).
- Scientific and Organising Co-Chair of the 4th Global Conference on Emergency Nursing and Trauma Care- Hosted by Elsevier. Gothenburg 9-11 November.



Improving care for babies born before arrival at a hospital in the South West

Research lead: Dr Laura Goodwin
Birth Before Arrival At Hospital In The South West: An Exploration Of Inequalities And Call-taker Advice.
 Funder: South West Academic Health Science Network: March 2022-February 2023 (£27,968.53)

Temperature management of babies born before arrival at hospital in the South West: Driving the implementation of recommended changes to call handler advice. Funder: South West Academic Health Science Network: March-June 2023 (£4,972.08)



Dr Laura Goodwin presenting at the 999 EMS forum

Impact outcomes from the research

- South Western Ambulance Service NHS Foundation Trust (SWASFT) initiated a series of service measures to improve neonatal temperature measurement and management:
 - i. A staff-facing 'winter campaign' around neonatal hypothermia with a poster displayed at ambulance stations.
 - ii. An audit of axillary thermometers to facilitate the replacement of lost or broken equipment
 - iii. A new record page for newborns within the electronic patient care system which emphasises the need for neonatal temperature measurement and management.
- Findings from the research have also contributed to the Resuscitation Council UK's new 'Prehospital Newborn Life Support Course', which is being disseminated to healthcare professionals throughout the UK.



- At the University of the West of England, study team member Nick Miller (Senior Lecturer in Paramedic Science), has integrated temperature management as a key learning outcome for Paramedic Science students in their Year 3 maternity simulations.
- The two UK providers for telephone triage systems supporting the remote assessment of callers to urgent and emergency services (NHS Pathways and the Medical Priority Dispatch system) are in the process of making changes to their call-handler advice for 999 calls on neonatal temperature management with support from Laura Goodwin. Laura has also been invited to join the Medical Priority Dispatch system's 'obstetric council', and lead a workshop at the NHS Digital team meeting in September.

Our patient and public contributors are at the heart of our work; shaping research questions, study design, and dissemination.

A key area they helped inform this year was paramedic decision making and when to take patients to hospital...or not.

'HOSPITAL OR NOT?' PPI EVENT - NOVEMBER 2023

Dr Helen Nicholson led our 'Hospital or Not?' event, exploring how to decide when hospital would benefit patients aged 65 or over.

The event was fully booked and saw a fantastic mix of over 60 paramedics, geriatricians and members of the public, who enjoyed lively discussion sessions in-between presentations about frailty, minor head injury and major trauma.



Event attendees discussing their research priorities

The discussions throughout the day were fascinating and helped to inform our research in the area of emergency care for older people including: research priorities, preferred outcome measures, and factors influencing transport decisions.

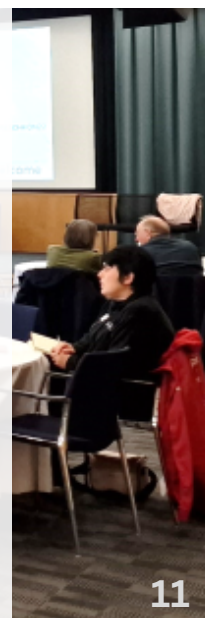
The event has also led to the expansion of collaborative networks and the development of an ongoing PPI group around emergency care for older people.



UWE student paramedics and Dr Helen Nicholson

Speakers

Jean and Edmund Palmer - Members of the public shared their experiences of using emergency care services;
 Professor Jay Banerjee (University of Leicester) - Frailty and patient-centred outcome measures;
 Dr Philip Braude (consultant geriatrician) - Frailty in Trauma 9FiTR) studies and the potential for age discrimination in trauma care;
 Dr Helen Nicholson (UWE Senior Research Fellow) - Minor head injury in older people;
 Emma Page (North Bristol Care Home Interface Project) - Reducing avoidable admissions from care homes;
 Bristol Student Paramedic Simulation Society - Demonstrated an ambulance crew attending an older person who had fallen.



REACH helps to develop researchers in our field by; providing support to the NIHR Emergency Care Incubator and The Trainee Emergency Research Network (TERN)

The NIHR Emergency Care Incubator supports academic careers for aspiring researchers.

In the last year the Incubator has:

- Gained 122 new members;
- Received renewed funding;
- Held three forums that have greatly facilitated interaction and networking in the Emergency Care research community.



"The infrastructure provided by the NIHR Academy, through renewed funding of an administrator post, together with funding for events and website development, has continued to increase the opportunities for those pursuing academic careers in Emergency Care at a national level.

We have seen tangible outputs in new posts being supported at post-doctoral level nationally, together with successful applications to high-level NIHR personal awards from our members. "

- Professor Edd Carlton

The Trainee Emergency Research Network (TERN)

Highlights

The SHED (Subarachnoid Haemorrhage in the Emergency Department), which aims to describe the sensitivity of CT for diagnosing subarachnoid haemorrhage in the ED, closed to recruitment on 1st February 2023. It involved 76 UK sites, recruiting more than 4,000 patients in two years.

ACS:ED (Acute Coronary Syndrome in the Emergency Department) aimed to evaluate different strategies for investigating suspected cardiac chest pain in the ED. Sites recruited for 7 days within the 6 week window. We were delighted to be able to involve 94 UK sites, recruiting over 8000 patients – this represents just over 5% of ED presentations during the 7 day period. Because of the success of the study, the TERN Team won the NIHR West of England Research Award in the 'Embedding research in health and care' category.

NIHR | Clinical Research Network
West of England

Embedding research in health and care

Awarded to

**Trainee Emergency
Research Network**

This year, we have been awarded 2 new fellowships and
2 new PhD studentships.
We also continue to support our existing PhD students.

Fellowships

- **NIHR Advanced Fellowship** (2022 – 2026) Matthew Booker
Evaluation of Hospital Admission Avoidance Services (ENHANCE): a mixed-methods realist informed study of initiatives in England.
- **NESRC UKRI funded Policy Fellowship with DHSC:** (Jan 2023 - June 2025) Jo Daniels
Shaping and supporting the health and social care workforce of the future

Studentships

- **NIHR Clinical Doctoral Research Fellow** (2022 - 2026) Alyesha Proctor
Developing an intervention to support Paramedics in safely assessing and managing children with minor head injury.
- **DPhil by publication** (2022 - 2025) Philip Braude
Frailty and injury in older people
- **Royal College of Emergency Medicine funded Doctoral Fellowship** (2020-2023) Tom Roberts
Developing a complex intervention for patients presenting to the Emergency Department with acute severe headache.
Tom has gone onto become an Academic Clinical Lecturer in Emergency Care at the University of Bristol.

New PhD studentships due to start 2023/24

- Ambulance staff assessment of pain in people living with dementia who are attended by an emergency ambulance (funded by UWE Bristol)
- Optimising prehospital critical care dispatch: An investigation of the opportunities and challenges in critical care resource allocation (funded by Dorset and Somerset Air Ambulance and UWE Bristol).



**THANK YOU TO ALL OUR FUNDERS, PARTNERS, AND
PATIENT AND PUBLIC CONTRIBUTORS.**

YOU MAKE OUR WORK POSSIBLE.



**University Hospitals
Bristol and Weston**

NHS Foundation Trust



**South Western
Ambulance Service**
NHS Foundation Trust



**Health Innovation
West of England**



Applied Research Collaboration
West

University of Bristol



**Avon and Wiltshire
Mental Health Partnership**

NHS Trust



**Bristol Health
Partners**



**People in Health
West of England**



**Bristol, North Somerset
and South Gloucestershire
Integrated Care Board**

NIHR | National Institute for
Health and Care Research



**North Bristol
NHS Trust**

For more information on REACH www.reachbristol.co.uk

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

For latest updates  (formerly Twitter) @REACHBristol