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STUDY PROTOCOL

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Identifying research priorities for post-collision care in the United Kingdom: protocol for a road injury priority setting partnership

Tim Nutbeam[1,2*], Caroline Leech[3,4], Claire E Baker[5], Elizabeth Box[6], Lauren R Rodgers[1], Kerry Dungay[1], Louise Johnson[7], Brian Lee[1], Marilyn MacQueen[1], Rob Fenwick[1,8,9], Ian Marritt[10], Ian Dunbar[11] and Ed B G Barnard[12,13]

Abstract

Background Road traffic injury remains a significant global health challenge, causing over 1.2 million deaths and tens of millions of non-fatal injuries each year. In the United Kingdom (UK), more than 1,600 people died and nearly 30,000 sustained serious injuries on the roads in 2024. While improvements in vehicle design, road infrastructure, emergency response, and road user behaviour have contributed to a sustained reduction in road deaths over recent decades, outcomes for those injured remain variable, and post-collision care has received comparatively less research attention. The Road Injury Chain of Survival framework identifies five interdependent stages where timely, coordinated interventions can improve survival and recovery, however, there has been no systematic effort to define the most important research questions in this area.

Methods This protocol describes a UK-wide Road Injury Priority Setting Partnership (PSP) conducted using the established methodology of the James Lind Alliance. Research uncertainties will be gathered via a national open-access survey and supplemented by a targeted evidence scan of published research recommendations and clinical guidelines. Submissions will be collated, categorised, and checked against the current evidence base to ensure that only true uncertainties progress. A multi-stakeholder consensus workshop, using the Nominal Group Technique, will identify a 'Top 10' list of research priorities. A secondary output will map priorities to each stage of the Road Injury Chain of Survival to guide targeted research and innovation.

Discussion This is the first PSP focused specifically on post-collision care in the UK. By integrating the perspectives of patients, carers, bystanders, clinicians, policymakers, and researchers, the PSP aims to produce priorities that are directly actionable and relevant to national needs. The findings will inform funders, guideline developers, and service providers, supporting more effective allocation of resources and driving improvements in survival, recovery, and patient experience after road traffic injury.

Trial registration Open Science Framework Registration: https://doi.org/10.17605/OSF.IO/NB9YM.

*Correspondence:
Tim Nutbeam
timnutbeam@nhs.net

Full list of author information is available at the end of the article

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Keywords Road traffic injury, Trauma, Post-collision care, Research priorities, James Lind Alliance, Patient and public involvement, Emergency care, Rehabilitation

Introduction

Rationale and context

Road traffic injury remains a major global health burden, causing an estimated 1.2 million deaths and 20–50 million non-fatal injuries annually worldwide [1]. Despite sustained efforts to improve prevention and vehicle safety, post-collision care remains an under-resourced and under-researched area of trauma systems development. In the United Kingdom (UK), there were 1,602 deaths on the roads in 2024, with nearly 30,000 people sustaining serious injuries [2]. While improvements in vehicle design, road infrastructure, emergency response, and road user behaviour have contributed to a sustained reduction in road deaths over recent decades, outcomes for those injured remain variable, and post-collision care has received comparatively less research attention.

In other areas of emergency medicine, such as cardiac arrest care, adopting a structured "chain of survival" approach has transformed patient outcomes [3]. Inspired by this model, the recently proposed Road Injury Chain of Survival framework highlights five interdependent phases where timely, coordinated action can improve outcomes after a road traffic collision (Fig. 1) [4]. These phases comprise early recognition and calling for help, early rescue, early initial care, early transport, and early hospital care and rehabilitation.

Optimising each of these links requires high-quality evidence, effective implementation and system-level innovation. However, there has been limited focused research investment into post-collision care compared to prevention strategies or hospital-based interventions [5, 6]. As a result, critical knowledge gaps remain, spanning pre-hospital care, extrication, bystander involvement, trauma triage, rehabilitation, and psychosocial support.

To address these gaps, we have established a UK Road Injury Priority Setting Partnership (PSP), following the James Lind Alliance (JLA) methodology and reported in line with the REPRISE guidelines [7, 8]. By aligning research funding with stakeholder-defined priorities, the PSP aims to accelerate improvements across the post-collision care continuum, ultimately improving survival and recovery for people injured on UK roads.

Relationship to other PSPs

This PSP complements related work in trauma and injury research while addressing a distinct evidence gap. It aligns with, but remains separate from, the 2024 international Major Trauma PSP, which identified research priorities across the full spectrum of trauma care [9]. Whereas that PSP considered trauma as a whole, this Road Injury PSP focuses specifically on post-collision care within the UK, using the Road Injury Chain of Survival as a guiding framework.

No previous PSP has explored research priorities unique to post-collision care in the UK. By concentrating on the systems, services, and challenges specific to the UK context, this PSP ensures that the resulting priorities are directly actionable for UK-based stakeholders, policymakers, and funders.

Scope

This PSP focuses exclusively on the post-collision phase of road traffic injury care in the UK, covering all aspects of care and response from the moment of collision through hospital discharge and rehabilitation.

For the purposes of this PSP, "post-collision care" refers to care and response beginning at the moment of the collision and extending through to hospital discharge and early rehabilitation. This includes all road users (e.g., pedestrians, cyclists, motorcyclists, passengers, and drivers) and all collision types irrespective of mechanism or setting.

Questions relating solely to primary prevention (e.g., infrastructure design, legislation, or vehicle safety standards) are out of scope, except where these interventions directly influence post-collision care. For example, research exploring the impact of automatic crash notification systems on ambulance response times would fall within scope.

Within scope, we will accept questions on interventions, diagnostics/prognosis, service delivery and pathways, implementation, equity, and health economics relevant to post-collision care. Prevention questions will only be included where they directly influence post-collision outcomes.

The intended beneficiaries are people injured on UK roads and their families. End-users of the priorities include research funders (e.g., Road Safety Trust, NIHR), policymakers, guideline developers, and provider organisations (ambulance services, fire & rescue, and trauma networks).

Governance and funding

Governance

This PSP will be overseen by a Steering Group comprising patient and public representatives, healthcare professionals, researchers, and key stakeholders from across the post-collision care pathway. The Steering Group will ensure that the process is transparent, inclusive, and consistent with JLA methodology.



Fig. 1 The road injury chain of survival

The Steering Group's responsibilities include refining the PSP scope, guiding the survey design and dissemination strategy, overseeing the categorisation and organisation of submitted questions, verifying existing evidence, and supporting the final prioritisation process. Throughout, the Steering Group operates by consensus, guided by JLA principles of inclusivity, transparency, and equal partnership.

Day-to-day coordination will be led by the IMPACT Centre (the Centre for Post-Collision Research, Innovation and Translation), which conducts research and translation activities in collaboration with academic institutions, healthcare providers, and a wide range of national and international stakeholders. The IMPACT Centre works to improve outcomes from road injury through research, innovation, and the translation of findings into practice. Within this PSP, it will manage survey administration, participant communication, organisation of the consensus workshop, and preparation of project outputs [10].

Formation of the steering group

Members of the Steering Group were identified through a structured process to ensure balanced and inclusive representation across stakeholders involved in post-collision care. Potential members were nominated via existing professional networks, partner organisations, patient and public involvement and engagement (PPIE) groups, and recommendations from national and international collaborators.

The Steering Group brings together individuals with a range of perspectives, including patients and family members with lived experience of road traffic injury, healthcare professionals from pre-hospital, hospital, and rehabilitation settings, researchers, policymakers, and representatives from charitable or voluntary organisations (e.g., Brake). Geographic diversity across the UK was considered to ensure that both urban and rural contexts were reflected.

Invitations explained the purpose of the PSP, expected time commitments, and member responsibilities. Where gaps in representation were identified, additional members were sought to include under-represented perspectives.

Conflict of interest

All Steering Group members will declare relevant financial or non-financial interests before participating (as well as receiving regular reminders to declare new interests throughout the project); a summary register of these declarations will be published in the final report. Where a potential conflict is identified, discussions will be facilitated to ensure that no individual exerts undue influence on the prioritisation process.

Funding

This PSP is jointly funded by Transport Scotland and Vision Zero South West. Transport Scotland's contribution supports the print and publication of materials, open access fees for publications, and dissemination activities, while the Vision Zero South West grant supports project coordination, survey administration, and organisation of the consensus workshop.

Both funders are independent of the PSP's methodology and outcomes. They have no role in the design, conduct, analysis, interpretation, or prioritisation decisions, which remain entirely under the authority of the Steering Group.

Patient and public involvement and engagement

Patients, carers, and lay responders are integral to this PSP and are involved at every stage, including the Steering Group, survey development, and the final prioritisation workshop [11]. Recruitment routes have been designed to maximise diversity and inclusivity, and accessibility needs will be accommodated wherever possible. Lay contributors, including patients, carers, and members of the public, will be reimbursed in line with NIHR/

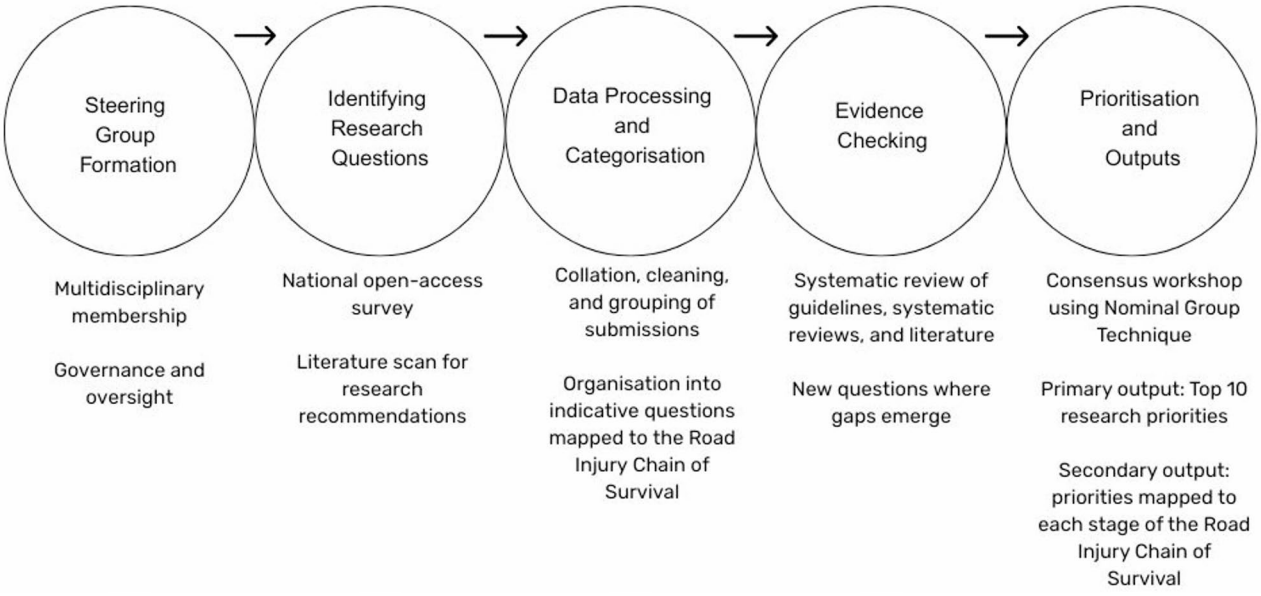


Fig. 2 Priority setting partnership stages

INVOLVE guidance, covering their time, travel, and any other reasonable participation-related expenses (e.g., accommodation, childcare, or accessibility support where required) [12]. Professional contributors will participate as part of their organisational roles unless otherwise agreed. These measures are intended to support equitable participation and minimise barriers to involvement.

Methods

This protocol describes a UK Road Injury Priority Setting Partnership (PSP) reported in line with the REPRISE guideline [7, 8]. The JLA provides a structured, transparent process to identify and prioritise unanswered research questions, bringing together patients, carers, clinicians, first responders, policymakers, and researchers as equal partners (Fig. 2).

Survey design

Research uncertainties will be gathered through a national open-access survey. Respondents will be invited to submit any unanswered questions they have about post-collision care. The survey will be written in plain English to maximise accessibility and piloted with patient and public Steering Group members before launch. An online format (Google Forms, Google LLC, Mountain View, CA, USA) will be used, with alternative options available to ensure equitable access for participants who prefer or require alternative formats.

To ensure broad representation, the survey will include optional demographic questions to help us understand the diversity of respondents and identify groups most at risk of road injury. We aim to receive at least 100 responses across stakeholder groups, ensuring that the longlist reflects a wide range of perspectives. Approximately 30 participants will be invited to the final prioritisation workshop, representing a balanced mix of patients, carers, bystanders, clinicians, researchers, policymakers, and other stakeholders.

We will transparently report the numbers invited, responses received, and workshop attendance, broken down by stakeholder category and key demographics, to enable readers to assess the representativeness of the prioritisation process.

Survey distribution and inclusivity

The survey will be distributed nationally using a coordinated, multi-channel approach to reach a wide and diverse range of stakeholders. Partner organisations and professional networks within emergency services, trauma care, rehabilitation, and road safety will share the survey through established communication channels. Patient, carer, and bereavement support groups, alongside national and regional charities, will also be engaged to ensure strong representation from those with lived experience. In addition, PSP partners will use their organisational affiliations and social media platforms to amplify reach and encourage participation across the UK.

To maximise inclusivity, targeted efforts will focus on groups who may otherwise be under-represented in research priority setting, including lay bystanders, community first responders, survivors of serious road traffic injuries, and families bereaved by road trauma. Alternative participation formats, co-developed with PPIE representatives, will be available to reduce barriers to participation and ensure that the priorities identified

reflect the perspectives of those most affected by post-collision care.

Incorporating literature-derived research priorities

In parallel with gathering stakeholder-generated questions, the Steering Group will undertake a targeted evidence scan to identify published research recommendations relevant to post-collision care. This process will include scanning clinical practice guidelines (e.g., NICE and SIGN), systematic reviews from the Cochrane Library, and recommendations highlighted in published research, such as calls for further investigation identified in recent systematic reviews or related PSP processes. Any recommendations for future research specific to road injury identified through this process will be added to the pool of potential questions to ensure that the long list of indicative uncertainties reflects both stakeholder priorities and recognised gaps in the literature.

Data processing and categorisation

All data generated from the survey submissions will be securely stored on encrypted drives accessible only by the PSP coordination team. All survey submissions and literature derived questions will be collated and reviewed by the PSP coordination team. Each contribution, whether from the survey or the literature will be anonymised and checked for clarity before being organised into a long list of potential research questions. The long list of potential research questions will be shared with the PSP Stakeholder Group for review.

Similar or overlapping questions will be grouped and, where appropriate, merged into a single indicative research question that captures the intent of the original submissions. To maintain consistency and minimise bias, two members of the coordination team will review all submissions independently, resolving differences through discussion or by involving the Steering Group when necessary.

Submissions deemed out of scope will be documented separately, together with the rationale for exclusion, maintaining transparency and reproducibility. The outcome of this process will be a long list of indicative questions that combines stakeholder priorities and literature-derived recommendations, ready for evidence checking and prioritisation.

Evidence checking

Following collation and categorisation, the long list of indicative research questions will undergo an evidence checking process to ensure that only true uncertainties progress to prioritisation. A subgroup of the Steering Group, supported by the PSP coordination team, will oversee this process to ensure rigour and consistency.

Evidence checks will be conducted by research trainees, defined in this context as early-career clinicians, doctoral or post-doctoral students, academic clinical fellows, or other individuals undertaking formal training in research methods. All reviews will be supervised by experienced Steering Group members, who will verify findings and resolve any discrepancies.

Each question will be reviewed systematically against the existing evidence base, using sources such as clinical guidelines, systematic reviews and relevant peer-reviewed literature. Where robust, up-to-date evidence already answers a question, it may be excluded from prioritisation or reframed to focus on unresolved aspects. We will define a question as an uncertainty if it is not answered by an up-to-date systematic review or a current UK or international guideline providing moderate- or high-certainty recommendations. Where no systematic review exists, we will also consider other high-quality evidence sources, including randomised controlled trials, well-conducted prospective studies, and consensus statements. In areas where available evidence is of low certainty, conflicting, or incomplete, the question will remain in scope for prioritisation.

This process may also generate additional research questions. Evidence checks sometimes highlight emerging gaps, inconsistencies between guidelines, or areas of clinical uncertainty that were not raised by survey respondents. These new questions will be added to the pool where agreed by the Steering Group, provided they fall within the PSP's defined scope.

All inclusion, exclusion, and modification decisions will be fully documented and made available in an open-access appendix, ensuring transparency and enabling future researchers and funders to understand how the final long list of verified uncertainties was derived.

Initial shortlisting

The Steering Group will review the verified long list to create a manageable shortlist of approximately 20–30 questions for discussion at the final workshop. Shortlisting will follow agreed criteria to ensure that the retained questions are clear, distinct, relevant, and representative. Closely related submissions may be combined where appropriate, but we will ensure that all five links in the Road Injury Chain of Survival remain represented.

Questions will be prioritised if they have broad potential impact, are highly supported by patient and public representatives, or are reflected in multiple submissions. Items that are unclear, out of scope, or fully answered by robust evidence will be excluded or reframed. All decisions made during this process will be recorded in a transparent decision trail.

Final consensus workshop

An in-person workshop will bring together approximately 30 stakeholders, including patients, carers, bystanders, clinicians, researchers, and policymakers. Facilitated by experienced moderators, the process will use the Nominal Group Technique (NGT) to enable balanced contributions from all participants [13].

Discussions will alternate between small-group and whole-group formats. Participants will begin by individually ranking their personal top priorities before sharing their reasoning in facilitated groups. This will be followed by iterative ranking and discussion rounds designed to achieve consensus across the stakeholder mix.

Consensus will be defined as stability of rankings after two plenary rounds without unresolved objections from any stakeholder group. Where substantial differences remain between stakeholder categories, facilitators will support further discussion to understand the reasons before repeating the ranking process.

To ensure equitable influence, rankings will be weighted equally across stakeholder groups rather than by absolute numbers, ensuring that patient and public perspectives are represented alongside those of professionals. In the event of a tie after two ranking rounds, a final structured discussion will be held, followed by a round-robin re-ranking to resolve the position of tied items.

All prioritisation decisions, including tie-break procedures, will be fully documented to maintain transparency.

Dual framing of priorities

Consistent with JLA methodology, the primary output of this PSP will be a 'Top 10' list of research priorities across the full spectrum of post-collision care. However, because the PSP is structured around the Road Injury Chain of Survival, we will also produce a secondary output: a set of stratified priorities mapped to each link in the chain.

This dual framing will allow stakeholders, policymakers, and funders to identify both the highest overall priorities and the most pressing questions within each phase of care - supporting more targeted research funding and system-level innovation.

Transparency and reporting

Final reporting will follow the REPRISE guideline (EQUATOR Network) for research priority setting, providing a clear account of the methodology, the decisions made, and how the final priorities were agreed [8]. Alongside the main results paper, an open-access appendix will present the complete long list of indicative questions, including those excluded and the reasons for their exclusion, together with details of the literature sources used during evidence checking and the steps taken to reach consensus during prioritisation.

In addition, the supplementary materials will include the survey instrument, the coding framework used to group and categorise uncertainties, the PRISMA-style log from the evidence-checking process, and a full decision trail documenting inclusion, exclusion, and merging of questions. Publishing these resources as supplementary materials alongside the main report will ensure they are available open access.

By making these materials publicly available, the PSP will support transparency and reproducibility, enabling researchers, policymakers, and funders to understand not only the priorities themselves but also the context in which they were derived.

Ethics

This PSP is a consultative process that seeks to identify and prioritise unanswered research questions rather than collecting health data or delivering interventions. In line with established practice for JLA, PSPs, formal review by a Research Ethics Committee is not required [7, 8].

Participation in the survey and workshop will be entirely voluntary. For the survey, consent will be implied through completion, whereas for the workshop explicit informed consent will be obtained at the point of registration. Survey responses will be anonymised prior to analysis. Where participants choose to provide personal data (e.g., contact details to receive project updates), these will be stored securely on encrypted servers accessible only to authorised members of the research team. All processing of personal data will comply with the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018, which together form the current UK data protection framework.

The PSP process will be conducted with particular care and sensitivity, recognising both the nature of the topic and the personal or professional backgrounds of some consultees. All materials and interactions will adopt 'trauma informed' principles and language, ensuring clarity, transparency, and autonomy through informed consent. Participants will also be signposted to relevant support services, such as bereavement charities and helplines, should they wish to access additional help.

The workshop will be designed in line with trauma-informed principles, ensuring that the environment promotes psychological safety, choice, and empowerment for all participants. As part of this approach, a quiet room will be available throughout the event to provide space for reflection or withdrawal if needed.This space will be available for anyone who may need time away from the main activities, and a trained specialist 'Brake Caseworker' will also be available throughout for support. Workshop discussions will be conducted under agreed

confidentiality principles, ensuring that personal experiences shared are not disclosed outside the room without explicit permission. Steering Group members and participants will also be asked to declare any potential conflicts of interest, which will be recorded and managed appropriately.

Limitations

This PSP may be affected by sampling and self-selection bias, with possible over-representation of digitally enabled or professionally engaged stakeholders. Targeted outreach, alternative participation formats, and co-designed dissemination with patient and public representatives are intended to mitigate these risks. Given the limited evidence base in post-collision care, questions without robust systematic reviews or high-certainty guidelines will remain in scope. Participant numbers will be reported transparently to allow assessment of representativeness.

Dissemination and future updates

The PSP will produce two key outputs: a 'Top 10' list of overall research priorities and a secondary summary mapping priorities to each stage of the Road Injury Chain of Survival. This dual framing will support both system-wide planning and targeted funding within specific areas of post-collision care.

The intended end-users include research funders (e.g., NIHR and relevant charities), policymakers, guideline developers, and provider organisations (ambulance services, fire & rescue, trauma networks). We will seek targeted briefings with funders and policy bodies and promote the priorities through professional societies. We will also encourage guideline committees to consider these priorities when updating recommendations, supporting translation into funding calls, implementation projects, and service improvements.

Findings will be published in a peer-reviewed open-access journal and shared with research funders, including NIHR and relevant charities. They will also be disseminated through partner networks such as ambulance services, fire and rescue organisations, trauma care societies, and road safety agencies.

To ensure accessibility, we will produce lay summaries, infographics, and other plain-language resources. These will be disseminated via patient and carer organisations, bereavement charities, and social media platforms. Given the sensitive nature of the topic, findings will be communicated thoughtfully and respectfully, with signposting to support services where appropriate.

Finally, we will monitor the influence of the PSP outputs by tracking related funding calls, publications, and policy changes, providing feedback to contributors where possible. Priorities are intended to guide research over the next 3–5 years. We will review and, if needed, refresh the 'Top 10' within five years, or earlier if substantial new evidence emerges, using the same transparent, stakeholder-led approach.

Acknowledgements

We acknowledge all the Steering Group members, patient and public involvement members, and partner organisations for their contributions to the design of this PSP, and thank in advance the survey respondents and workshop participants who will share their questions and time.

Author contributions

All authors meet the International Committee of Medical Journal Editors (ICMJE) criteria for authorship. All authors made substantial contributions to the conception and design of the protocol, contributed to drafting the manuscript or revising it critically for important intellectual content, approved the final version to be published, and agree to be accountable for all aspects of the work.

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This PSP is jointly funded by Transport Scotland and Vision Zero South West. Transport Scotland's contribution supports the printing and publication of materials, open access fees for publications, and dissemination activities. Vision Zero South West provides funding for project coordination, survey administration, and organisation of the consensus workshop. The funders had no role in the design, conduct, analysis, interpretation, or prioritisation decisions, which remain entirely under the authority of the Steering Group.

Data availability

All data generated or analysed during this study are included in this published article [and its supplementary information files].

Declarations

Ethics approval and consent to participate

This Priority Setting Partnership (PSP) follows the established methodology of the James Lind Alliance and involves a consultative process to identify and prioritise unanswered research questions. In line with James Lind Alliance practice, formal review by a Research Ethics Committee was not required. Participation in the survey is voluntary, with implied consent through completion, and explicit informed consent will be obtained from workshop participants at the point of registration.

Consent for publication

Not Applicable.

Competing interests

The authors declare no competing interests.

Author details

[1]IMPACT, Centre for Post-Collision Research Innovation and Translation, Exeter, UK
[2]University of Plymouth, Plymouth, UK
[3]University Hospitals Coventry & Warwickshire NHS Trust, Coventry, UK
[4]The Air Ambulance Service, Rugby, UK
[5]I-X and Dyson School of Design Engineering, Imperial College London, London, UK
[6]RAC Foundation, 89–91 Pall Mall, London, UK
[7]Leeds Teaching Hospitals NHS Trust, Leeds, UK
[8]Betsi Cadwaladr University Health Board, Wrexham Maelor Hospital, Croesnewedd Road, Wrexham, UK
[9]Wrexham University, Wrexham, UK
[10]United Kingdom Rescue Organisation, World Rescue Organisation, Humberside Fire and Rescue, Hull, UK
[11]Federation Internationale de l'Automobile (FIA), Geneva Ian Dunbar Training and Consultancy, UK, IDEX Fire and Safety, London, UK
[12]Academic Department of Military Emergency Medicine, Royal Centre for Defence Medicine (Research & Clinical Innovation), Birmingham, UK
[13]Emergency and Urgent Care Research in Cambridge (EUReCa), PACE Section, Department of Medicine, Cambridge University, Cambridge, UK

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