

Scottish Trauma Network

Pre-hospital Peer Review Report 2026

July 2026

Foreword

Pre-hospital care is the foundation upon which the outcomes of patients with major trauma are built. The early recognition of injury, timely deployment of appropriate resources, and delivery of critical interventions in the pre-hospital phase are essential in determining survival, functional recovery, and ultimately quality of life.

This peer review completes the wider Scottish Trauma Network (STN) review programme and provides a focused assessment of pre-hospital trauma care delivered by the Scottish Ambulance Service (SAS). It reflects a comprehensive process of evidence review, expert discussion and direct observation, aligned to the minimum requirements established during the development of the Network.

The panel found clear evidence of a committed, skilled and highly motivated workforce, supported by strong national leadership and a well-established culture of quality improvement. Major trauma capability is now embedded across the service, and significant progress has been made in areas such as triage, governance, and workforce development. These represent substantial achievements and provide a strong platform for further advancement.

However, as with all maturing systems, this review has also identified areas where further development is required. Most notably, the variation in access to advanced (Red) critical care capability creates an inequity that is difficult to justify clinically. In common with many other networks, continuing work on addressing variation in dispatch processes and strengthening national consistency will further enhance the patient pathway across a geographically diverse national service.

The findings of this report should not be viewed in isolation, but as part of the continued evolution of a whole-system approach to trauma care. Pre-hospital services do not operate independently; they are a critical component of an integrated trauma network, where coordination, consistency and equity of access are paramount.

The recommendations outlined are intended to support the next phase of development for the SAS and the wider STN. Addressing these will require sustained leadership, investment, and collaboration across organisational boundaries. Ensuring equitable access to advanced pre-hospital care must remain a key priority if the Network is to deliver its ambition of improving outcomes for all patients, regardless of location. The panel agreed that, in the future, pre-hospital services should be an integral part of the overall STN peer review.

This report reflects a service that has made significant progress and demonstrates many areas of good and excellent practice. With continued focus, innovation and partnership working, there is a clear opportunity to build on these foundations and further strengthen the delivery of pre-hospital trauma care ensuring that this progress is experienced equally by every patient, in every part of Scotland.

A handwritten signature in black ink, appearing to be 'A Curran', with a stylized, cursive script.

Mr Andrew Curran
Independent Peer Review Panel Chair

Acting Co-Medical Director, NHS Lancashire and South Cumbria Integrated Care Board
Medical Director, North West Air Ambulance Charity
Consultant Emergency Medicine, Lancashire Teaching NHS Hospitals Foundation Trust

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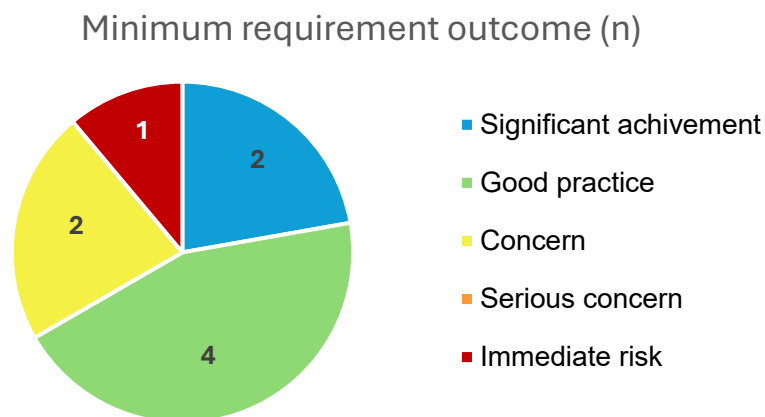
1. Executive summary

This review completes the wider Peer Review of the STN. The national and regional review was concluded in 2024, with this review focusing on pre-hospital trauma care delivered by the SAS.

An independent panel of specialist clinicians and experienced pre-hospital peers was appointed to review submitted evidence followed by an in-person observation at the SAS base at Glasgow Airport in the West of Scotland. Pre-hospital services were assessed against graded criteria ranging from Significant Achievement to Immediate Risk.

Following publication, SAS should produce an action plan which will be monitored by the STN.

Key findings



Achievements

- Major trauma management has successfully been embedded into routine SAS paramedic and technician practice, ensuring widespread capability supported by strong leadership.
- Good progress has been made in patient triage, with improved use of the Major Trauma Triage Tool directing more patients appropriately to Major Trauma Centres (MTC).
- Strong national and regional governance is a significant achievement, with demonstrable improvements in key interventions through effective quality improvement and leadership.
- The SAS is well integrated into national major incident planning and review processes.

Areas for improvement

- While staff are highly skilled and committed, concerns were raised about consistency and reliability in dispatching appropriate resources to major trauma incidents across a national service. This is not specific to Scottish provision, and the panel recognise that work is already ongoing to be able to provide this reassurance.
- Good practice exists where Yellow trauma teams operate, but service provision is uneven nationally. Centralising BASICS mobilisation via the Critical Care Desk (CCD) could improve coverage.
- Secondary transfer arrangements vary due to local practices. Routine auditing at a national level would promote consistency and timely transfer.
- The staffing of the CCD appears effective and pragmatic but dedicated CCD overnight advanced practice clinical support as part of the service could help reassure that there is consistent decision-making and support 24/7. Further review internally could show this is not required overnight, due to potentially less numbers and less competing priorities and so provide alternative reassurance of consistency.

Concerns

- Lack of timely access to Red trauma capability in the South East of Scotland highlights a major regional inequality in response rates.

2. Introduction

The implementation phase of the STN, made up of the four regional networks and the SAS, was largely concluded by 2024. With the Network starting to mature, it was important to assess where the STN and major trauma services currently stand in their ability to deliver the requirements set out in the planning phase of the STN. An external peer review ensures objectivity of this process.

This external peer review of the SAS, specific to major trauma, concludes the wider STN peer review that started in 2023. We are grateful for the commitment and work undertaken by all members of the peer review panel who brought a wealth of knowledge and diligence to the process.

The SAS is an integral part of the STN; the early care and management of trauma patients provided by the pre-hospital teams initiates the chain of events that ultimately determine a patient's outcome. Timely critical interventions and expedited transfer to the most appropriate hospital optimise the patient's condition so that hospital interventions and rehabilitation are likely to produce the best possible functional outcome. The adage of 'getting the right patient to the right place at the right time' continues to hold true and plays a significant part in achieving the STN's mission statement of saving lives, giving life back.

I am in no doubt we are in a stronger position with regards to major trauma management throughout Scotland with the implementation of the STN. However, there remain areas that could be improved to enhance the service further, including equitable access to rehabilitation services and advanced pre-hospital care in some areas of the country. Both are essential for improving survival, functional outcomes and quality of life following traumatic injury. In addition, ongoing education and training continue to be fundamental in maintaining a knowledgeable, confident and engaged workforce and this ethos is very evident in the SAS.

Together we can continue to improve the outcomes of those who sadly suffer severe traumatic injury. With a clear vision, enthusiasm and a collaborative approach we can achieve a great deal.

Dr Tim Hooper

Scottish Trauma Network National Clinical Lead

3. Purpose of the review

This review concludes the complete peer review of the STN.

The review intended to:

- Improve the quality and effectiveness of care
- Improve the patient and carer experience
- Undertake an objective and independent review of services
- Encourage and share good practice
- Provide recommendations to support the development and continual quality improvement program for the network and its members

4. Methodology

A panel of pre-hospital trauma specialist clinicians and managers was appointed to review the evidence for pre-hospital services, as delivered by the SAS.

The panel was led by Mr Andrew Curran, Acting Co- Medical Director at NHS Lancashire and South Cumbria Integrated Care Board and Medical Director of the North West Air Ambulance Charity. The panel included:

- Steve Bell, Consultant Paramedic for the North West Ambulance Service and North West Air Ambulance Charity
- Dr Mike Donald, Regional Clinical Lead for the East of Scotland trauma network and Emergency Medicine Consultant at the East of Scotland MTC
- Dr Nicola Littlewood, Chair of the Scottish Trauma Audit Group (STAG) and Emergency Medicine Consultant at the West of Scotland MTC
- Dr Tim Hooper, National Clinical Lead for the STN and Intensive Care and Anaesthesia Consultant at the North of Scotland Trauma Unit.

Administrative support was provided by Kirstin Thomson, STN Programme Manager and Mark McKeirnan, STN Programme Support Officer.

Each criterion was graded using a scale akin to that of the National Peer Review Report: Major Trauma 2023/24. The scale was as follows:

Significant achievement	Innovative practice relating to the service
Good practice	Common practice undertaken very well

Concern	An issue that is affecting the delivery or quality of the service that does not require immediate action, but can be addressed through the services' work programmes
Serious concern	An issue that, whilst not presenting an immediate risk to patient or staff safety, is likely to seriously compromise the quality of patient care, and therefore requires urgent action to resolve
Immediate risk	An issue that is likely to result in significant harm to patients or staff or have a direct serious adverse impact on clinical outcomes and therefore requires immediate action

The minimum requirements for the STN were agreed during the planning phase of the network, including those for pre-hospital services. This Peer Review, and the wider review in 2023/24 were based on these requirements. The panel recorded whether each requirement was met respectively, through submitted self-assessment evidence and by observation at an in-person visit in March 2026.

Once the final report is published, the SAS will be required to develop an action-plan to address the recommendations and issues identified by the review team and outlined within this report. This work-plan will be monitored by the STN.

5. Review findings

Minimum Requirement 1: Dispatch of sufficient appropriate resources to manage an incident based on information received and modified as the incident progresses via the trauma desk (Critical Care Desk)

Outcome	Concern
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The service benefits from highly skilled and dedicated clinical and non-clinical teams. The panel however considered how the responses to 999 calls are assessed and escalated due to evolving local operational practices and the pan-national service spanning multiple control rooms (whilst recognising their working as one virtual centre). This could potentially lead to variation in management of trauma incidents. Representation of advanced practice clinical support on the CCD from all regions could be one way of identifying any inconsistency in practice.

It was verbally reported that the perception is that approximately 20% of major trauma patients are coded as Red by the CCD. A discussion by the panel raised questions regarding what data could be collected to evidence that this is accurate and consideration given to work with STAG to quantify this and further review.

The requirement outcome is deemed a concern by the panel due to insufficient data to evidence that the correct response has been dispatched and that there is consistency in response to 999 calls. However, the panel acknowledged that this is not a unique challenge for Scotland and can be difficult to evidence, but this does not negate the need to strive towards achieving it.

The review identified a need for greater consistency and reliability in the processes used to dispatch appropriate resources to major trauma incidents. The panel suggested that the service could benefit from quality improvement initiatives such as analysing whether the correct response was given, by carrying out a missed major trauma incident evaluation. This would assess the call interrogation process to determine if incidents are being identified appropriately and whether gaps exist in the identification of high-risk patients. Additionally, a review of Red stand-downs was also suggested, to determine if there are trends in calls which are inappropriately flagged.

Early observations show that some secondary transfer patients, who subsequently meet major trauma criteria on arrival at MTCs were not flagged with a Red response at the point of initial contact, for example significant haemorrhage or the need for rapid sequence induction (RSI). While this may be clinically appropriate in some cases, the absence of a clear review process makes it difficult to determine whether improvements can or should be made in the identification of patients needing an enhanced (Red) response.

It was acknowledged that non-clinicians play a key role in the dispatch pathway and have a wealth of experience in managing these calls, so involving them in the evolution of the process is fundamental.

Ultimately, establishing a robust understanding of the available data is necessary to determine where improvements may be required.

Minimum Requirement 2: Timely response by paramedic crews meeting local key performance indicators (KPIs), and initial treatment commenced using Green trauma skill set

Outcome	Significant achievement
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Green tier paramedics are infrequently faced with responding to major trauma; however, it is vital that this staff group are competent in managing cases when they are tasked. The service was commended for embedding major trauma management training into core paramedic and technician learning and development, as well as additional measures such as the delivery of Trauma Tuesday sessions on the staff intranet.

Major trauma capability is consistently distributed across the wider workforce, reflecting strong organisational commitment and effective leadership in the pre-hospital trauma service over the past decade. In particular, the panel highlighted the extraordinary work in training on needle chest decompression, which was deemed exemplary.

The team utilises feedback on learning from Green teams to improve service delivery. Examples were shared of the national team acting as a support service, by visiting local units to hold debriefs following difficult cases and ultimately turn adversity into positive learning opportunities.

In general, the annual framework for delivery of local and national trauma training is exceptional and the work which has gone into this over the past ten years is a significant achievement for the Service.

Considering the minimum requirement wording, the panel agreed that in the future timely Green response should not be classed as a requirement for the major trauma pre-hospital service as this is outwith the control of the team. This is a wider SAS measure, so should not be cited as a responsibility of the pre-hospital major trauma team.

The Service should now aim to build on this framework and consider further mechanisms for feedback from staff who have responded to major trauma, with consideration of how this feedback could be utilised to enhance learning.

Minimum Requirement 3: Support for paramedic crews from Advanced Paramedics and/or BASICS providers (Yellow trauma skill set)

Outcome	Good practice
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There is strong evidence of good practice in regions where Yellow trauma teams operate. The Pre-hospital Immediate Care and Trauma team (PICT), based out of Raigmore Hospital in Inverness, has been pursuing the desire to carry packed red blood cells with the Scottish National Blood Transfusion Service. This was traditionally under the remit of the Red teams only, however this initiative is something which the panel agreed could be worthwhile.

There is a degree of variability in the Yellow service, with some areas hosting multiple teams and other quite large areas of Scotland lacking Yellow capability entirely. It would be pertinent for the pre-hospital service to analyse the location of the Yellow teams in the North of Scotland where there is overlap and assess whether there could be a pragmatic arrangement and a more equitable model for distributing Yellow trauma resources.

Additionally, there would be merit in centralising BASICS Scotland mobilisation through the CCD to help ensure equity of service, a more coordinated response and timely support across geographical boundaries.

Minimum Requirement 4: Support to paramedic crews in presence of severe life-threatening injuries from regional critical care team using Red trauma skill set

Outcome	Immediate risk
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With two-fifths of Scotland's population lacking timely access to a Red trauma skill set, the panel graded this requirement as an immediate risk, which represents the most serious concern identified by the review.

Prior to the review meeting it has been previously reported that currently patients in the South East may be ten times less likely to get a Red response than patients in the West, with approximately two million people lacking timely access to a Red intervention. This has created a critical equity gap with potentially significant consequences for patients.

The panel welcomed the time and effort which has gone into the Emergency Medical Response Service (EMRS) East Business Case, informed by detailed population-based modelling to determine optimal critical care resource deployment. A consensus was reached that a hospital-based flying squad should not deliver Red care and that a dedicated resource, akin to EMRS North and EMRS West, would be the most realistic long-term solution.

Pre-existing Red assets should not be expected to service the South East, as this would inevitably result in insufficient cover. However, interim measures should be considered to mitigate the most significant inequities while a long-term solution is considered. To address the interim solution and confirm the long-term operation, strengthened governance and engagement with national commissioners will be essential to support sustainable resourcing and reduce risk.

Minimum Requirement 5: Triage to the most appropriate hospital using the triage tool to optimise care and using the most appropriate transport platform (air or road)

Outcome	Good practice
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The service has made meaningful progress in improving trauma triage which is commendable, with more patients now appropriately directed to MTCs through the implementation of the Major Trauma Triage Tool across the workforce.

The service should maintain an audit of transport decisions made for patients who are not routed to the most appropriate initial hospital, in conjunction with review of their clinical need and regional capacity. This will help achieve consistent, evidence-based triage outcomes.

The planned review and refinement of the Major Trauma Triage Tool is welcomed and will be essential to further reduce both under and over triage. This process should include the incorporation of users' feedback on their experiences and how they use the tool, as well as considering the impact any proposed changes will have on the workforce. It could also be helpful to utilise evidence from equivalent bodies in England, who have carried out reviews of their trauma pathways. Shared learning across the network, will also support improvements.

Minimum Requirement 6: Clinical support for triage and treatment decisions of pre-hospital providers via Critical Care Desk (CCD)

Outcome	Concern
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The panel noted that during the hours of 7:00 and 23:00 there was evidence of good practice with the CCD. However, the concern is that CCD advanced practice clinical support is not delivered in-person 24-hours a day, 7 days-a-week therefore leading to inconsistent service delivery. This could result in variability in triage decisions.

Moving toward a model with advanced practice clinical support as part of the 24/7 team will likely improve the consistency and safety of decision-making. Monitoring overnight case volumes and embedding the clinical support function within existing governance

frameworks will ensure an appropriately balanced and sustainable approach to staffing.

Minimum Requirement 7: Arrangements for secondary transfer of severely injured patients taken initially to LEH or TU to an MTC when required, including as part of a “modified primary” co-activation

Outcome	Good practice
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Ultimately the panel determined that good practice exists in many areas, however there are some instances where secondary transfer arrangements are inconsistent due to local historical arrangements.

Standardising transfer pathways across all hospitals, clarifying organisational roles, and introducing clear escalation mechanisms will reduce avoidable delays.

Routine auditing of transfer timelines and outcomes will support identification of bottlenecks and ensure a consistent national approach to moving severely injured patients to MTCs.

Minimum Requirement 8: Integrated response to dispatch initial adequate ambulance resources including SORT and site medical teams to major incidents supported by neighbouring regional networks as required.

Outcome	Good practice
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It is reassuring that the SAS has active involvement in the national Major Incidents with Mass Casualties (MIMC) group led by Scottish Government and are an integral part of the ongoing review of the national major incident plan.

The SAS major trauma leadership team plays a key role in the ongoing review, ensuring that the plans accurately reflect trauma system capabilities and clarifying the respective responsibilities of specialist teams during major incidents. Pre-determined casualty distribution lists, provided by the Service, have been a critical part of the review and enhancing cross-regional interoperability will ensure that policy and practice remain current and effective.

The panel is confident that a response would be well managed by SAS.

Minimum Requirement 9: Robust clinical governance processes at both regional and national level to review tasking, care provided on scene and triage decisions

Outcome	Significant achievement
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SAS senior clinicians have been afforded the time and funding to establish robust clinical governance processes nationwide. The evolution of governance processes is an exemplary piece of work and something which other pre-hospital services would envy.

There is evidence of incredible practice driving improvements in critical interventions, such as the roll-out of Tranexamic acid (TXA) and intravenous antibiotic administration with the latter now being delivered in over 90% of appropriate cases. The panel expressed that this was a fantastic example of a quality improvement project and the figures in STAG were reflective of this. The needle decompression education work shows there is a proactive response to raising of datix incidents and demonstrative of governance systems in place. Taking all evidence into account, the SAS major trauma leadership team clearly demonstrated effective use of national quality improvement methods and strong clinical leadership.

Continued embedding of national improvement cycles, enhanced data-driven performance monitoring, and strengthened feedback loops with frontline teams will ensure continuous progress.

Having senior clinical leadership teams invested in progress is essential to maintaining this excellent standard of governance quality and system-wide best practice.

6. Review panel recommendations

Recommendation number	Review area	Recommendation detail
1	Min. requirement 1: Dispatch	Establish a robust understanding of the available data to determine where improvements may be required
2	Min. requirement 3: Yellow skill set	Review geographic location of Yellow trauma teams to ensure an equitable service
3	Min. requirement 3: Yellow skill set	Consideration should be given to tasking BASICS through the CCD
4	Min. requirement 4: Red skill set	An urgent system-wide business case should be developed, informed by detailed population-based modelling to determine optimal critical care resource deployment
5	Min. requirement 4: Red skill set	Interim measures should be considered to mitigate the most significant inequities while long term solutions are developed
6	Min. requirement 5: Triage	Review and refinement of the triage tool is essential to ensure consistent, evidence-based triage outcomes
7	Min. requirement 6: Clinical support	Review overnight case volume and consider moving to 24/7 clinical support model
8	Min. requirement 7: Secondary transfers	Develop standard transfer protocols to ensure a consistent national approach for patient transfers
9	Min. requirement 9: Governance	Sustain investment in senior clinical leadership to maintain governance quality and support system-wide coherence

7. Conclusion

This review demonstrates that the SAS plays a vital and effective role within the STN, with a skilled workforce, strong clinical leadership, and well-established governance underpinning the delivery of pre-hospital trauma care. There is clear evidence of sustained progress and a service committed to continuous improvement.

At the same time, the findings highlight a small number of critical areas which must be addressed to ensure the system delivers consistently high-quality and equitable care for all patients across Scotland. In particular, variation in access to advanced pre-hospital critical care and inconsistencies in dispatch and clinical support represent key challenges for the next phase of development.

The recommendations set out in this report provide a clear and achievable framework for improvement. Taken together, they offer an opportunity to strengthen system performance, improve equity of access, and enhance patient outcomes.

The STN has achieved a great deal since its inception. The task now is to build on these foundations—ensuring that the principles of delivering the right care, to the right patient, at the right time are realised consistently, wherever patients are injured.

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