



Scottish Trauma Network ANNUAL REPORT 2020/21

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1.0 Introduction from National Clinical Lead

2020 - 21 has been variously difficult, challenging, interesting and rewarding across the many spheres of activity, development and progress for the Scottish Trauma Network (STN). This Annual Report sits alongside and complements the imminent publication of the Scottish Trauma Audit Group's (STAG) Annual Report for the same period. They both reveal and explore much of the data, operational and patient-centred clinical stories around this past year's extraordinary activity within the Network. Set against the pandemic backdrop, the strong message coming from these reports is one of resilience, maintained high-quality patient care and an above-and-beyond spirit of collaboration and pragmatism on a national scale. That key performance and outcome measures have been delivered, yet alone maintained and improved in several areas, is worthy of acknowledgment and appreciation. The reports further explore much of our presentation and discussion at the Scottish Parliament Health and Sport Select Committee in January 2021.

There are many examples to celebrate, but I take this opportunity to highlight and express admiration and gratitude to the Scottish Ambulance Service, the ScotSTAR and EMRS transport and retrieval arms, and the newer Advanced Paramedics in Critical Care red teams therein. Their relentless and complex work in supporting and enabling the pandemic response across trauma and all related critical care services has been inspiring. The STN and patients are thankful to them beyond words. These thanks are expressed in equal measure to all staff and services recruited in good faith and optimism to the STN, yet who found themselves redeployed and reallocated to support the response in other vital areas such as Emergency Departments, Trauma Wards which became Covid High Dependency Units and Critical Care areas, and Theatres.

More interesting still is what much of this tells us about the improved access we now have to data and patient-reported measures. These are the mainstays of why the STN does what it does. With STN Trauma and STAG coordinators now embedded in our hospitals, we are able to reach more broadly across and deeper into the care of trauma patients than ever before. The resulting information and its analysis will further "tell the story" as we move beyond delivery of Phase I later this year, with the opening of the Major Trauma Centres at the Queen Elizabeth University Hospital in Glasgow, and the Royal Infirmary of Edinburgh, and the operational delivery of the Regional Networks in the West and South East of Scotland. These final pieces of the jigsaw will complete the national picture alongside the MTCs at Aberdeen Royal Infirmary and Ninewells Hospital in Dundee opened in 2018, supporting all the component services within our Regional Networks.

It is to be hoped that by the time of next year's report we will be able to reflect upon a time of challenge and change with a more secure feel for what the immediate and medium-term future holds for our service. This learning allows us to reenergise and reconvene with strength, determination and the confidence that comes from surmounting such a significant hurdle.

Every person and every collaborative and linked service involved, described and embraced within the following pages is deserving of the greatest of gratitude and recognition. We are indebted to you all.

Martin McKechnie

National Clinical Lead

Scottish Trauma Network



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2.0 Report Introduction

The Scottish Trauma Network (STN) was established in 2017 with the aim of [“Saving Lives, Giving Life Back”](#) (from the Chief Medical Officer’s report of the same name published in January 2017). The network mission statement describes the patient group and rationale for the network:

**To improve and optimise the health and wellbeing of the seriously injured. Helping them, their families, each other and our nation.
Pioneering clinical excellence, health intelligence, innovation, education and research.**

The network was set up to support the establishment of an integrated trauma care system across Scotland, with improved delivery of care from pre-hospital to rehabilitation. The chance of patients surviving major trauma in England has increased by 20% (1 in 5) in the years since the Major Trauma Networks went live in April 2012. Scotland should aspire to achieve similar results. The network was also tasked with looking at prevention and planning for major incidents with mass casualties.

The network has now been in existence for four years, with much achieved in that time, despite the challenges of a global pandemic which has particularly impacted on the availability of resource within the acute care phase of the trauma patient pathway, due to cross-over with critical care and high dependency unit staffing. This pressure resulted in delays to launching the South East and West of Scotland Networks, these are both now expected to launch in August 2021.

This reporting year has seen the appointment of two new team members within the national STN team. A Senior Educator has been appointed in partnership with NES to lead on the development of Career and Education Frameworks for Nursing and AHP staff working across the patient pathway, further information in section 4.3 Education. A Senior Information Manager has been appointed in partnership with the other Strategic Networks hosted in NSD, they will support the development and delivery against data requirements for the network. Further information on this work can be found in section 4.5 Research and Innovation.

2.1 Pandemic Response

Trauma has continued throughout the pandemic, with some changes in presentations and changes in numbers during periods of lockdown, clinicians across the country continue to respond to trauma calls alongside management of Covid patients. This has presented challenges, as many clinicians working across the trauma pathway have been pulled from their regular trauma work to support the Covid response. Further detail on how this has impacted each region is described in their updates in section 4.

Significant demands on pre-hospital teams during the pandemic, along with some reduction in trauma cases due to lockdown resulted in some strategic changes being made to operations. The modifications to normal operations during the pandemic have suggested some new ways of working that provide opportunities to improve the SAS response to both trauma and other critical illness.

Central to this is the co-ordination of enhanced resources and advanced clinical top cover in SAS Ambulance Control Centre (ACC) for critically ill or injured patients. Work is ongoing to evaluate how advanced practitioners from the ARP and APCC cohorts can be utilised to assist not only with the dispatch of RED trauma teams from the Trauma Desk, but also provide clinical input to cardiac

arrests (“purple calls”), the tasking of APCCs and top cover clinical advice to paramedics attending complex medical and trauma incidents.

3.0 Network Objectives in 2020/2021 and Governance

National networks have agreed core objectives that reflect the Scottish Government’s expectations for managed clinical networks, as described in CEL (2012) 29¹. The network’s objectives are:

- Enhance existing trauma services by co-producing and delivering an inclusive, equitable trauma network, which will save more lives and improve outcomes for injured people across Scotland.
- Have a focus on trauma from prevention through to rehabilitation to support the reduction of incidence of trauma in Scotland and improve the quality of life for those affected by trauma.
- Work within the context of the National Clinical Strategy i.e. Once for Scotland, through population-based planning and delivery with services appropriately resourced to predicted activity.
- Recognise the specific specialist services required to deliver an effective paediatric trauma component across the network.
- Co-produce a fully co-ordinated, unique to Scotland, pre-hospital care solution that will make best use of resources and operate under a unified governance framework, to ensure trauma patients access the right level of care as quickly as possible.
- Be unique, affordable and fit for purpose. It will provide rapid access to complex treatment, delivered in the most appropriate setting(s) and provide definitive care for our most severely injured patients by ensuring that there are good readily available local, regional and national trauma services.
- Deliver the best care possible, through agreed and clearly defined clinical pathways, with appropriate quality assurance and improvement arrangements.
- Work across traditional boundaries to ensure clinicians and managers from across Scotland work together to achieve the best outcomes possible.
- Drive improvement in outcomes through the use of good data and create an excellent environment across Scotland for openness, learning, teaching, research and development.
- Support the development of clinical major incident planning through the provision of an integrated trauma care system.



3.1 Governance

STN governance is conducted through the Core Group, which consists of clinical and planning leads from each of the regional networks and SAS. The Core Group reports to the STN Steering Group. A number of working (“facet”) groups are in place, which produce recommendations and guidance which are subsequently ratified through the Core and Steering Groups. [The full STN Governance Structure can be seen on the STN website.](#)

In addition to regular regional clinical governance meetings, the first STN National Clinical Governance Day was held on Teams in December 2020, where over 100 regional representatives

¹ Please see: https://www.sehd.scot.nhs.uk/mels/CEL2012_29.pdf

presented and discussed case studies highlighting good practice and beneficial lessons to be learned across the network. This proved to be an excellent opportunity for networks to share widely several adult and paediatric patient stories showing how the network has, or will, improve outcomes. Further national meetings will be held on a regular basis to allow clinicians to share experience.

In February 2021 the National and Regional Clinical Leads were invited to present to the Parliamentary Committee for Health and Sport, where a report on progress to date was well received, and the delay to launching the South East and West of Scotland networks was acknowledged due to pressures on resources as a result of the pandemic.

4.0 Progress against Network Objectives



4.1 Data and Audit

The Scottish Trauma Audit Group (STAG) gathers data on patients with significant injuries in Scotland, via a bespoke electronic web-based system, eSTAG. STAG has been working on improving our understanding of the impact of frailty on patient outcomes, and the longer-term effects of serious injury on those who survive to discharge. A review of KPIs relating to CT scanning and reporting of patients with head injuries was carried out to ensure it better met NICE guidelines on head injury management.

STAG published the 2020 annual national report on 15th September 2020 at www.stag.scot.nhs.uk. 2020 data will be published in the STAG 2021 Annual Report in June 2021.



4.2 Rehabilitation

The rehabilitation teams throughout the country continue to seek to improve patient pathways and outcomes. Rehabilitation plans developed in the North of Scotland regional network, and rolled out in the North and East regions during their implementation were reviewed and simplified as these networks matured, and to support a slightly reduced staffing model due to the pandemic. The West and South East regions worked together to develop a rehabilitation plan that would work for their working models, and this was piloted and agreed in 2020. Alongside these amendments, a national minimum dataset was agreed to support better data collection and opportunities to carry out audit alongside a similar dataset collected by TARN, the trauma audit system used by England, Wales and Northern Ireland.

Collection of Patient Reported Outcome Measures (PROMs) continues, and in 2021 STAG will start to collect PROMs in a paediatric setting alongside the adult data already captured.



4.3 Education

Across the network, a number of Education programmes and opportunities have developed, primarily within regional settings. These include a series of educational webcasts organised by the team in the North of Scotland, and national access to internationally recognised major trauma courses (Trauma Care After Resuscitation – TCAR/PCAR for paediatrics) organised by West Network teams for Nursing and Allied Health Professionals (AHP) working in both adult and paediatric services. These have been funded through allocations from Scottish Government to support improvements in care across Scotland.

The STN Education Group progresses the broad Education Strategy, developing and collating education requirements as well as sharing learning and opportunities. A Senior Educator has

recently been appointed, working collaboratively with NHS Education for Scotland to develop and publish Scottish Trauma Network career and education frameworks for Nursing and Allied Health Professional (NMAHP) staff disciplines. A draft Career Framework has been developed in partnership with staff across the network, this is under review with members of the network.

The Consultant AHP for Major Trauma in the West of Scotland has led on the creation of a self-assessment tool for AHPs working in major trauma to support personal development reviews and education for these staff. Further national training is being developed as a result of this.



4.5 Research and Innovation

Working with the other Strategic Networks a Senior Information Manager has recently been appointed, whose key objective will be to support the work of this group around telling the story of the networks using data. The STN also mentors a Scottish Clinical Leadership Fellow (a seconded senior surgical trainee) working with and supporting the Senior Information Manager and the R&I Group on these research initiatives.

The Research and Innovation Group will explore five themes including an economic assessment. Throughout the year a high-level scoping exercise was carried out including collation of data and other information sources across the broader network. This has included links with agencies external to the STN: Public Health Scotland (formally PHI); STAG; Healthcare Improvement Scotland; SAS and Health Economists. The R&I Group are preparing the ground for a full health economic assessment, including scoping a data platform tool to host data to support this assessment as well as future research and analytic requirements of the network.



4.5a The Trauma App

The trauma app is an application being developed by Daysix, EmQuire (NHS GG&C) and the Scottish Trauma Network for major trauma cases, offering high speed data capture and automated, granular reporting.

The project, which has been funded by the STN and Innovate UK, is nearing completion.

Preparation to roll out the app in Scotland by July 2021 is well underway with NHS Education for Scotland providing server support and hosting.

The development of the trauma app has been possible thanks to a unique collaboration between clinicians, developers and the Scottish Trauma Network. In recent months, significant developments include:

- Updated primary survey workflow – lots of additions, refinements and visual improvements
- App into regular clinical release phase – the clinical feature set has matured to a point that regular releases to clinicians across the UK can occur, ahead of roll-out
- NHS Scotland Office365 integration complete - clinicians can now sign into the trauma app with their standard NHS single sign-on

- Server side API integration complete - this allows multiple people to work on the same case simultaneously from different devices, so both the scribe and the lead doctor can now view and input into the same trauma case at the same time

The next few months will see the app being used in parallel with current paper records in real clinical cases to evaluate data completeness.

For more information on the trauma app, please see www.thetraumaapp.com or on Twitter at @thetraumaapp.



4.6 Prevention and Public Health

The Scottish Public Health Network (ScotPHN) event scheduled for March 2020 to launch the Injury Prevention Framework for Scotland was cancelled due to COVID-19. In the meantime, ScotPHN is represented on the STN Steering Group, Core Group and Research and Innovation Group.

In February 2021, Dr McKechnie was invited to present at the Scottish Parliament Cross-Party Working Group on Accident and Injury Prevention, and this helped to form a number of relationships with third sector organisations working in the field of prevention, and scoping is ongoing with ScotPHN around how the STN can improve data completeness to support better injury prevention measures in Scotland.



4.7 Pre-hospital and Transfer

The network continues to work with partners operating in the pre-hospital environment through the Pre-Hospital, Transfer and Retrieval working group to develop a clear strategy for ensuring that patients are managed effectively in the pre-hospital phase of their care and then conveyed to the most appropriate place for treatment in a timely manner. As well as ensuring that the initial journey to hospital is managed appropriately, this work stream includes ensuring that there are robust strategies and guidance for any further patient transfers, whether that is for specialist care, a more local hospital, a rehabilitation facility, or the patient's home.

As a result of the COVID pandemic, the decision was made to delay the opening of the Major Trauma Centres in Glasgow and Edinburgh to later in 2021 however we continue to develop our implementation plans working closely with all key stakeholders. This development will see our staff implement a new bypass protocol for the most seriously injured patients, ensuring they are delivered to a centre capable of delivering an improved outcome. Our overarching strategy is to ensure our pre-hospital response is tailored to each patient's individual need and that these resources can be delivered to the right patient, at the right place at the right time. To support this, we have established an internal programme to support delivery and training on the application and use of the Major Trauma Triage Tool to support clinical triage and decision making.

The pandemic impacted the Scottish Ambulance Service through the enhanced requirements for PPE, and restrictions enforced early in the pandemic around patient transfer, particularly in air assets. This has broadly returned to business as usual, although with additional PPE requirements for responders.

The Scottish Ambulance Service (SAS) is the main partner in delivering this strategy, and a key feature of the SAS trauma strategy has been develop a fully integrated system of trauma care, in which regional variations are minimised to allow maximum interoperability. This has a number of components:

1. Standardised Trauma Equipment on every SAS frontline vehicle with supporting guidelines for equipment, clinical interventions and Patient Group Directives (PGD) for administration of medication.
2. Standardised guidelines and PGDs for enhanced care assets such as BASICs responders, Advanced Practitioners in Critical Care (APCC) and Pre-hospital Critical Care Teams (PHCCT).
3. SAS representative's regularly attending in-hospital trauma case reviews. This promotes shared learning and experience, particularly in the transition, from pre-hospital to in-hospital care.
4. Centralised national tasking from the Trauma Desk in the West Ambulance Control Centre (ACC), using an experienced paramedic/practitioner and dedicated coordinators to identify those incidents requiring a Pre-hospital Critical Care (PHCC) response as well as providing clinical and logistical advice and support to responding ambulance clinicians when required.
5. The increase in geographical coverage of PHCC teams with the introduction of the ScotSTAR North adult retrieval team. They can respond by road or air to emergency incidents as well as providing gold-standard critical care to patients requiring transfers between facilities.

Having successfully delivered on our commitment to meet the standards of pre-hospital trauma care agreed with the Scottish Trauma Network in 2016, we are now looking to the future and our role in supporting and maintaining the standards we have set. To that end there will be a strategic shift in focus from one of implementation to that measurement, audit and feedback to support continual improvement.

Some examples of our audit work include:

- Needle decompression quality improvement project completed with new guidance, checklist and audit process put in place.
- Audit and feedback on STN and Service Trauma KPIs: use of MTTT, appropriate triage, pre-hospital alert calls.
- Audit and feedback on evidence based trauma interventions including: administration of tranexamic acid to patents suffering major haemorrhage and antibiotics to those suffering open long bone fractures.

We also continue to support development of feedback initiatives in Trauma Units and Major Trauma Centres that allow the SAS personnel to access patient outcome data and use it to continually refine their clinical decision-making around treatment and triage.



4.8 Major Incident with Mass Casualty Planning

The Major Incident with Mass Casualty (MI/MC) Plan launched at the 2nd STN National Event in June 2019 was successfully used to support management of the Carmont rail incident in August 2020, where cross-regional working was seen to support pre-hospital and NHS Grampian teams in their real-time preparation to manage a large number of casualties. Fortuitously, due to the local lockdown in place in Aberdeen at

the time, the train was not as busy as the morning Aberdeen-Glasgow commuter service would normally have been. Nevertheless, the MIMC Plan was triggered and provided valuable debriefing and refining opportunities which have occurred at regional and national level, particularly around communications in remote settings and the value of the new EMRS North service. Collaboration between STN and the Scottish Government Health Resilience Unit continues, with various future simulated national major incidents planned.

The lessons from the Carmont incident also highlighted a gap in communications with the Scottish National Blood Transfusion Service (SNBTS), and the STN has been working with SNBTS and SAS colleagues to ensure that this is resolved to allow SNBTS to manage blood stocks to best meet the demands of a major incident alongside business as usual requirements.



4.9 Paediatrics

The Paediatric Working Group has progressed with developing national guidelines for the management of children and young people who have suffered serious injury. Four guidelines for imaging, managing major haemorrhage, child protection and a single point of contact for seriously injured children requiring transfer between centres have been agreed by the group, and are being ratified through network governance.

The paediatric team at the Royal Hospital for Children in Glasgow have worked with local medical illustration teams and patients to develop a story book showing the care pathway for each child following the trauma care pathway (illustrated in figure 2). This has been used to help young children understand the injuries and treatment they have received once they are old enough to do so, and for children to share the story of their injury and recovery with others – helping to reduce stigma surrounding any long term differences following injury on return home, to nursery, school and other environments.

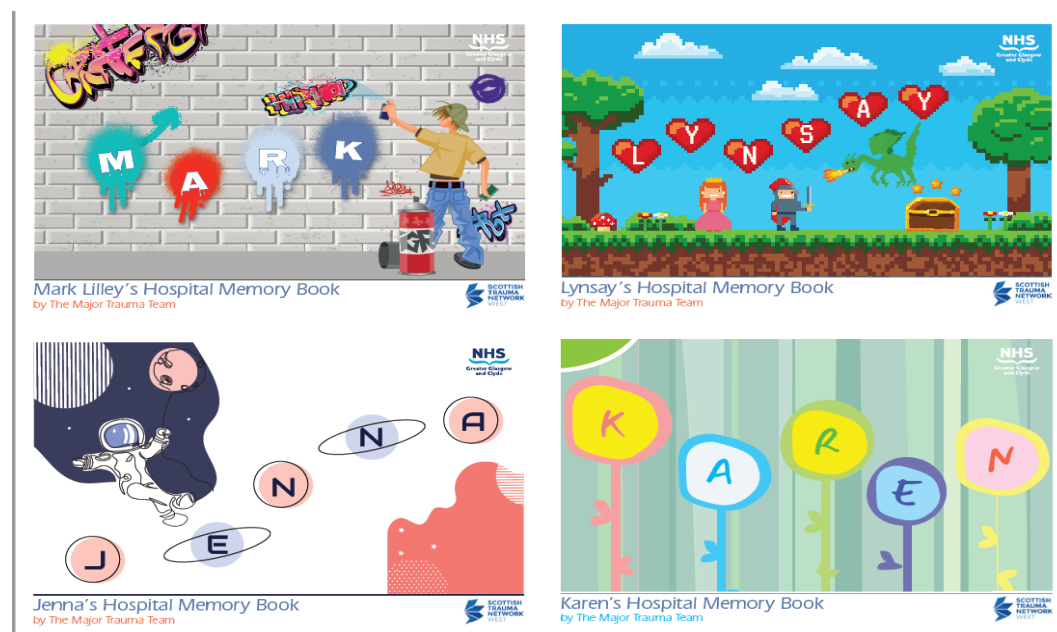


Figure 1 Cover formats for Paediatric Storybooks

The Paediatric Trauma Triage Tool (PTTT) will go live nationally alongside the launch of the South East and West of Scotland regions in August 2021. This, along with the new single point of contact for paediatric transfers through the Paediatric Retrieval Service hosted by ScotSTAR in SAS will ensure that seriously injured children and young people are taken to their definitive treatment facility at the earliest opportunity, and effectively launches the new trauma care pathway for paediatrics.

5.0 Regional Updates

Each of the regional networks has provided the following updates.



5.1 North of Scotland (NoS) Trauma Network

The Network, the MTC for adults and paediatrics at the Aberdeen Royal Infirmary and the Royal Aberdeen Children's Hospital and the Trauma Unit at Raigmore Hospital, celebrated their second year anniversary on 1st October 2020. Since the Network's opening in October 2018 until the end of March 2021, 461 major trauma patients have been cared for across the Network and 638 rehab plans developed with patients/families (which included complex moderate trauma patients).

As with the whole of health and social care services, COVID-19 dominated the agenda in 2020, but despite various restrictions of movement, major trauma incidence was largely unchanged through the year in the north. Major Trauma services are recognised as part of critical business and the Network responded in an agile manner during the first and second wave of the pandemic. Pre-hospital and acute services continues and while some aspects of rehabilitation, case management and outpatient follow-up were impacted by temporary redeployment of staff, core services were maintained: emergency care, theatres, critical care, individual support and follow-up and acute rehabilitation. COVID-19 has accelerated the use of digital technology, such as 'Near Me', and considerable investment in IT hardware allowed out-reach care and multi-disciplinary care to continue into the community.

A Network COVID-19 Plan was developed, followed by a Recovery Plan in the Summer of 2020 and an Escalation Plan to support a robust and timely response for further waves of COVID-19 focussing on maintaining key core services across the Network to effectively respond to trauma. Although some key staff were still deployed, the majority of trauma staff were back in post by the end of March 2021.

Although the pandemic meant developmental and educational plans were initially put on hold, through the year improvement work has progressed such as continued development of an e-Rehabilitation Plan, a twelve-month trial for seven day PICT Service, clinical governance case review procedures, a review of the Single Point of Contact at the MTC and the development of Clinical Guidelines. Improvement work across the network with Local Emergency Hospitals has also taken place on access to radiology support and reporting and the Trauma Unit have developed and implemented CT radiographer protocols. Feedback from patient questionnaires has led to improvement projects such as development of a patient focused video for the MRC and the Neurological Rehabilitation Unit. The response to the Carmont derailment on the 12th August 2020 obviously led to a number of reviews and will continue to provide learning through the next year.

Education opportunities began again later in the year adapting to on-line provision. This has led to greater access for staff and the programme included the network month education sessions, Trauma/Paediatric Care After Resuscitations, psychological training for trauma staff and importantly Trauma Risk Management refresher and new practitioner training. The paediatric MTC has developed an innovation paediatric education programme which will be accessible to all members of the Network through the next year and vocational rehabilitation staff have developed an e-learning module for staff to support patients in their return to work.

The Network continued to focus on rehabilitation services through the year and will remain a focus through the upcoming year whilst new posts come on line and models of care are reviewed to ensure they meet current requirements. Learning from experience of being a live network and providing a continuing service through a pandemic has been vital for improving services and will continue through 2021.



5.2 East of Scotland (EoS) Trauma Network

The East of Scotland (EoS) marked its two-year anniversary in November 2020.

Since the unit opened, it has received and provided care for almost 1110 trauma patients of which 262 had sustained major trauma. It is the ultimate team effort to take a patient with life threatening injuries through the service and enable them to return home safely with ongoing support. Providing this service during the pandemic has been and remains immensely challenging however, the population of the EoS should be assured that they will be afforded the highest level of care should they require our services.

COVID-19 has placed significant pressure on NHS Tayside and it has had to adapt the way in which it operates to ensure patient safety and continuity throughout. However, with the continued volume of critical care patients coming through Ninewells Hospital, our Major Trauma Ward has had to be displaced to become a COVID ICU/HDU due to the fact it is one of our only other wards that has the electrical infrastructure to support a critical care area along with it having a separate oxygen supply to the ward area.

Our major trauma patient numbers did reduce throughout lockdown one, however throughout all other times, our numbers did not really change. Although our pre-hospital and acute care services continued, rehabilitation and case management was directly impacted due to staffing being redeployed to core critical areas. Regardless of these pressures, maintaining the Trauma Network was identified as a priority, all major trauma patients were clinically reviewed on a patient by patient basis to ensure they were placed in the most clinically appropriate ward. From early May, we managed to secure a 4 bedded bay within the Surgical HDU footprint with Surgical HDU having the other 4 beds allowing us to flex numbers as and when required.

The East of Scotland has finalised the Clinical Governance Framework document and has had a relaunch of the Morbidity and Mortality Meetings. This meeting is chaired by the EoS Clinical Lead and is now well established with membership from clinical representatives from across all specialities and includes the Scottish Ambulance Service.

Within the last couple of months, the EoS has developed a Major Trauma Patient Information Leaflet and we are in the process of having a link to Care Opinion. There has also been engagement in recent weeks with the Chaplaincy Services to facilitate soft listening services for both patients and relatives.

We have recently appointed a Clinical Neuro Psychologist and are continuing to review our needs for Paediatric Rehabilitation. Our main focus is on a Paediatric Clinical Psychologist post in order to fully support the rehabilitation for the current and future children and young people in the East suffering major trauma and to ensure the opportunity for them to reach their full potential post trauma.

The Network has made considerable progress in these challenging times in still managing to recruit to posts such as a Clinical Psychologist. Building capacity to respond to trauma and meet the STN minimum requirements for a trauma network and increase compliance with the STN KPIs.



5.3 South East of Scotland (SEoS) Trauma Network

2020/21 has been a significant year for the South East Trauma Network. Teams across Lothian, Fife, Borders and Forth Valley are beginning to implement fundamental elements of the new service and are continuing to deliver improvements to the way trauma care is delivered across the region. The launch of the Network later this year will be a key milestone for the South East Trauma Network and will be central to ensuring that equitable, high quality multidisciplinary care is available to the entire population of the South East of Scotland.

The opening of the Major Trauma Centres (MTC) at the Royal Infirmary of Edinburgh (RIE) and Royal Hospital for Children and Young People (RHCYP) was temporarily postponed due to the covid-19 pandemic. The MTC's will now open later in 2021 in a strengthened position. Construction on the Major Trauma ward at the RIE is now well underway. The Major Trauma Ward will include 4 level one monitored beds and a dedicated gym space for the provision of acute rehabilitation. The RHCYP will also benefit from being better established on the new site, where patients will benefit from world-class facilities, clinical adjacencies to adult services and the capacity for delivering three additional trauma theatre sessions.

A hub and spoke specialist rehab service will also be established to ensure that high intensity rehab is provided and maintained across the trauma pathway. Major Trauma Coordinators have been appointed at each site to support the coordination of care across the pathway. Coordinators have played a pivotal role in the development of these pathways helping to ensure they accurately reflect local trauma unit requirements and geography. In 2020 Forth Valley Royal Hospital (FVRH) successfully implemented a specialist rehab service providing patients with access to hyper acute rehab early in the patient journey. Borders and Fife will also implement improvements to acute and community pathways with the aim of ensuring that high quality care continues to be delivered closely to home.

The Network has benefited from the implementation of a phased approach to recruitment which has ensured that staff who will be working within the Network are directly involved in supporting its development. In the past year the region has recruited to almost all Allied Health Professional/Rehab posts within the adult and paediatric MTC's, and recruitment to rehab services within the Trauma Units is progressing well. Recruitment to other key roles within the MTC has also continued to progress with Nursing staff, Medicine of the Elderly Consultants, Neuro-Rehab Consultants, Advanced Nurse Practitioners and Major Trauma Specialty Doctors all recently appointed to the MTC multidisciplinary team.

A Major Trauma Consultant of the week model has also been agreed for the Major Trauma Centre. Cover will be initially provided Monday-Friday with a look to expanding this to provide 24/7 cover as the service develops.

The Network has remained committed to providing appropriate training and development opportunities to staff despite restrictions resulting from the Covid-19 pandemic. A series of online-

based engagement workshops have taken place to support staff networking and improve knowledge of the new service. Major Trauma Nurse Educators have worked to ensure that nurse training materials have been available to staff online, supplemented by practical experience working within major trauma specialties including Critical Care, Emergency Department and Cardiothoracics. The Major Trauma Mental Health team have also been involved in the development of a staff training package to improve understanding of PTSD, psychological first aid and mental health helping to ensure that the MTC continues to take a holistic approach to improving health.

Staff have also been supported to attend a number of externally run courses including Definitive Surgical Trauma Skills (DSTS), Trauma Care After Resuscitation (TCAR) and Paediatric Care After Resuscitation (PCAR), helping to ensure that the trauma workforce is appropriately trained with enhanced staff confidence.

A robust Clinical Governance framework is now well established across the Network. Local and Regional Mortality and Morbidity meetings (M&M) regularly take place to review patient cases and to monitor the region's compliance with STN Key Performance Indicators (KPI's). A key focus for the Network this year has been improving its collection of Patient Related Outcome Measures (PROMs). The Network is already seeing significant improvement to this, with a 61% increase in the collection of PROMs in the first quarter of 2021 compared with the same period in 2020.

The Network has continued to implement and update protocols and guidance in line with best practice. This has recently included development of a regional rib fracture protocol and new guidance for paediatric trauma transfers. Work is also being undertaken to look at adapting the regional trauma management guidelines into a mobile app, this will ensure that information on a wide range of trauma related topics remains up-to-date and readily accessible to all staff across the region.



5.4 West of Scotland (WoS) Trauma Network

The planning of the Major Trauma Network in the West of Scotland has been ongoing for 4 years. Progress has been reliant on effective working between the Scottish Trauma Network and partner Boards.

This network is focused on managing trauma to a consistently high standard across the West of Scotland. The Network has developed comprehensive care pathways which span geographical boundaries with the key aim of not only saving lives but also giving lives back through effective, co-ordinated rehabilitation. Pathways include Repatriation and Secondary Transfer protocols, management of Head Injury, Patient Rehabilitation Prescription.

5.4a Acute Care

It is anticipated that the MTC at the QEUH will treat 1100 critically and severely injured patients from across WoS. To deliver the major trauma centre there has been significant redesign of inpatient and theatres to reconfigure services to create the capacity to manage this additional major trauma activity.

This redesign will see the creation of a 24 bed major trauma ward delivering multi-disciplinary patient assessment and rehabilitation to improve outcomes for major trauma patients under the care of a major trauma consultant. It will also enable delivery of 24/7 Emergency Department On-site Consultant care. This will be delivered in 2021 prior to the launch of the regional network.

This year recruitment to the majority of roles (Pharmacy, Diagnostics, Nursing, Allied Health Professionals, Psychology and a range of specialist consultants) has been progressing and is supported by a competency based education and training programme to enable staff to deliver excellence in major trauma care.

To create the Trauma Units in the local Board areas has required a redesign of the trauma pathways particularly within NHS: Lanarkshire, Ayrshire & Arran and Greater Glasgow & Clyde as they move from having a number of trauma receiving sites to only one Trauma Unit.

This redesign of services has offered the opportunity to not only improve outcomes for all trauma patients but also to improve the delivery of elective care. By changing how services are configured and concentrating trauma cases within Trauma Units, this will ensure equity of access to specialist services for trauma patients and will create the capacity to allow Boards to develop an elective centre of excellence model of care within their local emergency hospitals.

Significant investment has been made in creating both the Trauma Units and Elective Centres of Excellence through both Scottish Government and local board funding. This new funding has provided additional laminar flow theatres and upgrading of ward areas. All of the Trauma Units are supported by a Board Clinical Lead and Major Trauma Co-ordinators. Additional resources are also supporting the development of rehabilitation services within local boards and recruitment to these posts is progressing across all areas.

5.4b Rehabilitation

Embedded within the MTC will be a specialist rehabilitation service. The focus of this model is on a hub and spoke provision of specialist rehabilitation ensuring complex rehabilitation needs are met for major trauma patients from Day 1. It concentrates specialist services to improve outcomes for patients and to support them to move along the rehabilitation pathway seamlessly. Members of the specialist rehabilitation team include: Rehabilitation Consultants, Head Injury, Neuropsychiatry and Psychology Practitioners and a range of other specialist practitioners. Additional Scottish Government investment in rehabilitation will be phased in from 2021/22 to 2023/24.

5.4e Clinical Governance

The clinical governance for the network is well established with monthly clinical forums taking place which provide the opportunity for clinicians from not only across WoS Boards but across Scotland to participate in sharing case studies and learning. The outcomes of these are recorded and shared widely across the system. Local and Regional Morbidity and Mortality meetings are well established to review patient cases.

The WoS Clinical Governance Advisory Group is well established, chaired by WoS Clinical Lead, and whose membership has Clinical Lead representatives from across all boards and SAS. The focus of work for this group is on quality and improving patient outcomes. There is also now an agreed WoS regional repatriation and secondary transfer protocol. However, validated and demonstrable improved performance against most of the KPIs will only come about when the network is fully functional.

5.4f Education and Training

The network has supported a range of staff to undertake both in-house and externally run courses. It has also supported the delivery of jointly run training events to which staff from across all of the Scottish regions have attended. Staff continue to be encouraged to develop skills supporting development of a range of specialist practitioner roles.

5.4g Investment

To deliver the WoS model has required large scale redesign of services and pathways over the last 4 years. Scottish Government investment in the WoS of £18.5m is supporting delivery of the model, phased in over 7 years, and this has enabled the recruitment of an additional 335 new posts across a range of specialities and services within the WoS including new roles such as Trauma Co-ordinators who work in the MTC and TUs.

As outlined above, investment has also delivered improvements in ward space and increased the number of laminar flow theatres in TUs/LEHs. As well as enhancing trauma services, this additional investment allows LEHs to increase their elective orthopaedic capacity for procedures such as hip and knee replacements.

5.4h COVID-19

The WoS network was scheduled to open the Major Trauma Centre on 18th March 2021, however, the day to day pressures that both clinicians and managers faced managing the current COVID-19 pandemic alongside the annual winter pressures were unprecedented and this stretched the ability of key stakeholders to participate in progressing the plans/movement of services required to launch on this date. The pandemic also led to a delay in completing some of the capital schemes required to deliver the full re-design of orthopaedic services in a number of Boards. Taking all of this into account and in agreement with the Cabinet Secretary it was agreed to delay the opening of the network until 30th August 2021.



5.5 Scottish Ambulance Service (SAS)

Alongside the regional networks, SAS has faced challenges through the course of the past year due to the COVID-19 pandemic. SAS have revised their strategy for responding to the needs of trauma patients, and this can be found on the SAS page of the STN website.

Alongside the implementation of the Major Trauma Triage Tools, SAS have been linking in with the UK National Institute of Health Research (NIHR) funded Major Trauma Triage Tool Study (MATTS) supporting research regarding the triage of paediatric major trauma patients, with input from STN Paediatric colleagues.

The PMTTT will be introduced in early 2021 in conjunction with the West and South East regions going live. This will allow education, guidance and support to be provided to ambulance clinicians simultaneously with the adult MTTT.

5.5a Covid-19

With regard to the role of the STN SAS assets in the pandemic response, the Red teams have been carrying out Covid-patient transfers from remote and rural sites, have developed pre-hospital PPE systems to allow critical care to continue to be delivered to severely injured trauma patients, and provided top cover advice in complex incidents. The APCC cohort from West and East teams have been assisting the service in responding to cardiac arrests, critically ill medical patients and in providing remote support to crews in difficult resuscitation scenarios via the Critical Care desk.

In order to secure the changes to the Major Incident Plan in practice, there have been a number of “road shows” to MTC/LEH/TUs in the network. This roll-out is to continue with a priority for the

Island Health Boards. Training is being developed for those clinicians who may find themselves in the role of either MIO or TMA using clinical time funded by the STN via SAS.

5.5b Future Evolution of the SAS Trauma Strategy

- Many of the agreed future directions have been covered within the relevant sections. These include:
- Completion of Advanced Rural Practitioner training in North
- Training and support for 'Go live' of the MTTT in West and South East
- Training and support for the "Go live" of the PMTTT in all regions
- Complete Major Incident "Road shows" and establish sustainable system for emergency equipment dumps in remote locations
- Enact required additional equipment and vehicle resources for EMRS West to act as National Response Hub
- Establish MIO and TMA training packages for relevant clinicians

In addition to these "task completion" issues, there is a proposal to consider rendering the pre-hospital care in the Network more consistent and sustainable. The two ED based RED teams are operating under an out-moded service model which requires reconfiguration. Both Medic 1 and Tayside Trauma Team deploy staff with variable pre-hospital clinical experience from busy MTC EDs in the middle of a shift. The disruption this can cause to unscheduled care in these departments can be significant and delays in obtaining drivers on occasion can lead to difficulties in mobilising a team in a timely manner. SAS in collaboration with the STN and the East and South East Networks have commenced work to find a sustainable new model of care that ensures these networks have equity of access to a Red pre-hospital critical care team for their catchment populations.

5.5c Summary of Strategic Priorities for SAS Trauma Team

- Emergency lifesaving care through consistent application of GREEN skills
- National tasking of enhanced resources from YELLOW and/or RED assets to assist crews with serious or complex patients
- Rapid movement of patients to best healthcare facility to manage their injuries using road and air platforms
- Timely patient transfers at both acute and repatriation phases of injury without negative impacts on responses to other emergency calls
- Using skills developed in the Trauma Network to enhance the care delivered to other groups of critically ill patients
- Maximise coverage to achieve as much geographic equity as possible while maintaining value for money and adequate clinical exposure
- Developing a sophisticated and resilient pre-hospital system to cope with Major Incident / Mass Casualty Events in Scotland
- Ensure that all pre-hospital investment produces a return in the form of improved outcomes for patients suffering serious injury, in addition to saving lives.

6.0 Report against 2020-21 Workplan

Objective Number	Smart Objective	Planned start/ end dates	Detailed Plan Available / Owner	Description of progress towards meeting objective as at 31/03/2021	Anticipated Outcome	RAGB status
2018-07	Develop education standards that will support the delivery of education for nursing staff working across the trauma care pathway.	01/04/2018 to 31/03/2021	Alison Gilhooly, Chair of Education Group	This was delayed due to discussions and appointment of a Senior Educator to support this work. Now that the Senior Educator is in post, a new objective and timescale will be agreed with the Senior Educator for the 2021/22 workplan	A national curriculum, which supports local delivery of education to meet the needs of nurses around Scotland, will be available.	N/A
2020-01	Review focus of the network as it enters into post-implementation phase	01/04/2020 to 31/03/2022	Alison Gilhooly, Kate Burley, Martin McKechnie	Discussions around this have begun, and a new objective will be written for the 2021/22 workplan	The network will be ready for review, and to enter its next phase.	B
2020-02	Consider requirements for national guidelines in trauma care, and how these can be made available for clinicians throughout the country.	01/04/2020 to 31/03/2021	Alison Gilhooly and Martin McKechnie	A number of guidelines have been developed for managing paediatric trauma, and will be published on the network website once ratified by the Core and Steering Groups.	A suite of national guidelines will have been described and a suitable platform developed to ensure accessibility.	B

Objective Number	Smart Objective	Planned start/end dates	Detailed Plan Available / Owner	Description of progress towards meeting objective as at 31/03/2021	Anticipated Outcome	RAGB status
2020-03	Work with Public Health Scotland and the Scottish Public Health Network (ScotPHN) to establish network priorities for Prevention facet.	01/04/2020 to 31/03/2021	Alison Gilhooly	Following discussions with Scottish Government Policy Lead, the STN team will be presenting to the Cross-Party Working Group on Accident and Injury Prevention and considering how the network and CPWg can work together. Although this hasn't been completed with ScotPHN in 2020/21, a new objective will be in place for 2021/22 agreed with ScotPHN.	The network will have clear objectives linked to the prevention facet.	B
2020-04	Support the work on a feasibility study of the establishment of a single "red" team in the East of Scotland.	01/04/2020 to 30/09/2021	Alison Gilhooly, Kate Burley and Prehospital, Transfer and Retrieval Group	This work is ongoing. SAS are supportive of initial proposals and the next step is to discuss with relevant Board Chief Executives.	The network and Scottish Ambulance Service will be clear on the feasibility of establishing a single red prehospital team in the East of Scotland.	G

Objective Number	Smart Objective	Planned start/end dates	Detailed Plan Available / Owner	Description of progress towards meeting objective as at 31/03/2021	Anticipated Outcome	RAGB status
2020-05	Create research and innovation study teams and themes and generate research questions to progress the projects described in the deliverables log. Progress the economic assessment, having established requirements and data resources.	01/04/2020 to 31/03/2021	Alison Gilhooly and R&I Group	The first phase of this work has been undertaken, with discussions with a number of stakeholders across the network. This objective will be re-drafted to provide an achievable SMART objective for 2021/22.	The network will be well placed to start utilising the data available in Scotland to measure the benefits of the network. Information governance processes will be underway, and some outputs (e.g. posters/infographics) will have been published.	B
2020-06	Work with Firecrest production team to develop a plan for filming a documentary on the Scottish Trauma Network. Ensuring that appropriate agreements and protocols are in place with NHS Boards for accessing clinical spaces, and communication plans and filming plans will be agreed.	01/04/2020 to 31/03/2021	Alison Gilhooly, Kate Burley, Martin McKechnie and NSS Comms	This is well underway. CLO have worked with Firecrest and Channel 4 to agree draft access protocols; an engagement strategy and information pack about the network has been developed to highlight the key themes for the network. The team from Firecrest have initiated conversations with	The network and production company will be in a position to start filming with appropriate protocols and agreements in place, and stakeholders across the network and wider NHS Scotland will be aware of their role in delivering the documentary.	B

Objective Number	Smart Objective	Planned start/end dates	Detailed Plan Available / Owner	Description of progress towards meeting objective as at 31/03/2021	Anticipated Outcome	RAGB status
				individual boards to discuss timelines with crews expected to be on the ground from mid-May for research purposes and filming scheduled to start in June 2021.		

7.0 Report against 2020-21 Workplan

Objective Number	Smart Objective	Planned start/end dates	Detailed Plan Available / Owner	Description of progress towards meeting objective as at 31/03/2021	Anticipated Outcome	RAGB status
2020-04	Support the work on a feasibility study of the establishment of a single “red” team in the East of Scotland.	01/04/2020 to 30/09/2021	Alison Gilhooly, Kate Burley, Martin McKechnie and Prehospital, Transfer and Retrieval Group	This work is ongoing. SAS are supportive of initial proposals and the next step is to discuss with relevant Board Chief Executives. Extended to 30/09/2021.	The network and Scottish Ambulance Service will be clear on the feasibility of establishing a single red prehospital team in the East of Scotland.	G
2021-01	Develop sustainability plan for the network to support ongoing delivery of care for seriously injured people across Scotland.	01/04/2021 to 31/03/2022	Alison Gilhooly		The network will have a new strategy to support the ongoing delivery of optimised trauma care in Scotland.	G
2021-02	Work with the NSD Quality and Performance Team to support a review of the network.	01/01/2022 to 31/03/2022	Alison Gilhooly / Peter Croan		The network will demonstrate delivery against objectives, and funding allocated.	G

2021-03	Develop and publish further guidelines to support best practice in management of paediatric trauma.	01/04/2021 to 31/03/2022	Alison Gilhooly / Chair of Paeds Group		A suite of national guidelines will have been described and a suitable platform developed to ensure accessibility.	G
2021-04	Develop KPI around rehabilitation and repatriation of patients to support best practice for patient care.	01/04/2021 to 30/09/2021	Alison Gilhooly / Chair of Rehab Group		A KPI will be available and measurable for the 2022 STAG report (on 2021 data)	G
2021-05	Finalise the minimum dataset for rehabilitation data held on eSTAG to allow the system to be updated to collate data in 2021.	01/04/2021 to 30/09/2021	Alison Gilhooly / Chair of Rehab Group		Accurate and relevant data will be available regarding the rehabilitation assessment of patients to inform STAG reporting.	G
2021-06	Develop a Trauma data platform, and progress data linkages for telling the story using data.	01/04/2021 to 31/03/2022	Alison Gilhooly / Shruti Babre		A minimum viable product data platform will be available to allow the network to begin telling its story using data.	G
2021-07	Publication of Development and Education Framework for staff working across the in-hospital trauma system.	01/04/2021 to 31/03/2022	Alison Gilhooly / Laura Stewart		Development and education frameworks will be available to support staff development across in-hospital teams.	G

2021-08	Gather and develop education resources to support staff development linked with the development and education frameworks.	01/04/2021 to 30/09/2022	Alison Gilhooly / Laura Stewart		A pool of education resources linked to the Development and Education Framework will be available on the STN website.	G
2021-09	Support Health Boards and Firecrest Productions in the development of the “Trauma” documentary	01/04/2021 to 31/03/2022	Alison Gilhooly, Kate Burley, Martin McKechnie		A documentary will have been produced showing the integrated services that make up the Trauma Network.	G