NHS Greater Glasgow & Clyde

NHS BOARD MEETING

Dr Jennifer L Armstrong, Medical Director

25th June 2019

Paper No: 19/29

Major Trauma Redesign, GGC Clinical Model Update

Recommendation:-
The Board is asked to support the proposal for NHS Greater Glasgow and Clyde to implement the national priority to establish a major Trauma Network in the West of Scotland. This involves the creation of Major Trauma Centre, Trauma Units, local emergency hospitals and a rehabilitation service.

Purpose of Paper:-
To update the Board on NHSGGC's proposed clinical model for trauma service.

Key Issues to be considered:-
Patient flows and capacity requirements at the QEUH and the RAH. Opportunities offered to utilise capacity at the IRH to develop elective work.

Any Patient Safety /Patient Experience Issues:-
The content of the paper supports the delivery of the clinical model for GGC's trauma network which is focussed on saving lives and improving outcomes for patients.

Any Financial Implications from this Paper:-
Work is ongoing to finalise the capital and revenue implications of this development. Funding of £10m for the delivery of the MTC and trauma triage tool has been secured. An additional allocation of £7m has been made available to develop Trauma Units in the West of Scotland. Additional costs associated with delivering a single trauma receiving unit for Clyde will be further developed.

Any Staffing Implications from this Paper:-
Workforce requirements across the network have been identified as part of the modelling work. A number of key roles have already been appointed to for the MTC as well as Clinical Leads for all Boards. The recruitment to posts will continue as per the workforce plan to ensure delivery of the network within the timelines required.

Any Equality Implications from this Paper:-
None

Any Health Inequalities Implications from this Paper:-
None

Has a Risk Assessment been carried out for this issue? If yes, please detail the outcome:-
Risk register for the project in place.

Highlight the Corporate Plan priorities to which your paper relates:-
Delivery of national strategy.

Authors – Heather McVey, Planning Manager, Jacqui McGeough, Head of Planning,
Date – June 2019

NHS BOARD MEETING – 25th June 2019
MAJOR TRAUMA REDESIGN
GGC CLINICAL MODEL UPDATE

1. Background

Major trauma is the leading cause of death in people under the age of 45 years and is a significant cause of short and long-term illness or poor health. Evidence from across England and Wales shows a significant increase in the number of patients aged over 60 years who suffer severe injuries as a result of falling from a standing height (Tarn, 2017). There are around 2,000 major trauma patients in the West of Scotland each year recorded through the Scottish Trauma Audit Group (STAG) system.

A major trauma network is a group of hospitals, emergency services and rehabilitation services that work together to make sure a patient receives the best care for life-threatening or life-changing injuries. A major trauma network will normally have one major Trauma Centre and a number of Trauma Units spread across the region. Networks like these are important in managing patients who are further away from the major trauma centre. Major trauma patients often have complex injuries and need expert care to have the best chance of surviving and recovering. The network will provide all aspects of trauma care, from the point of injury to rehabilitation across the region. Patients are more likely to survive and make a full recovery if they have a major trauma in a region where there is a major trauma network, regardless of how far away they are from the major Trauma Centre.

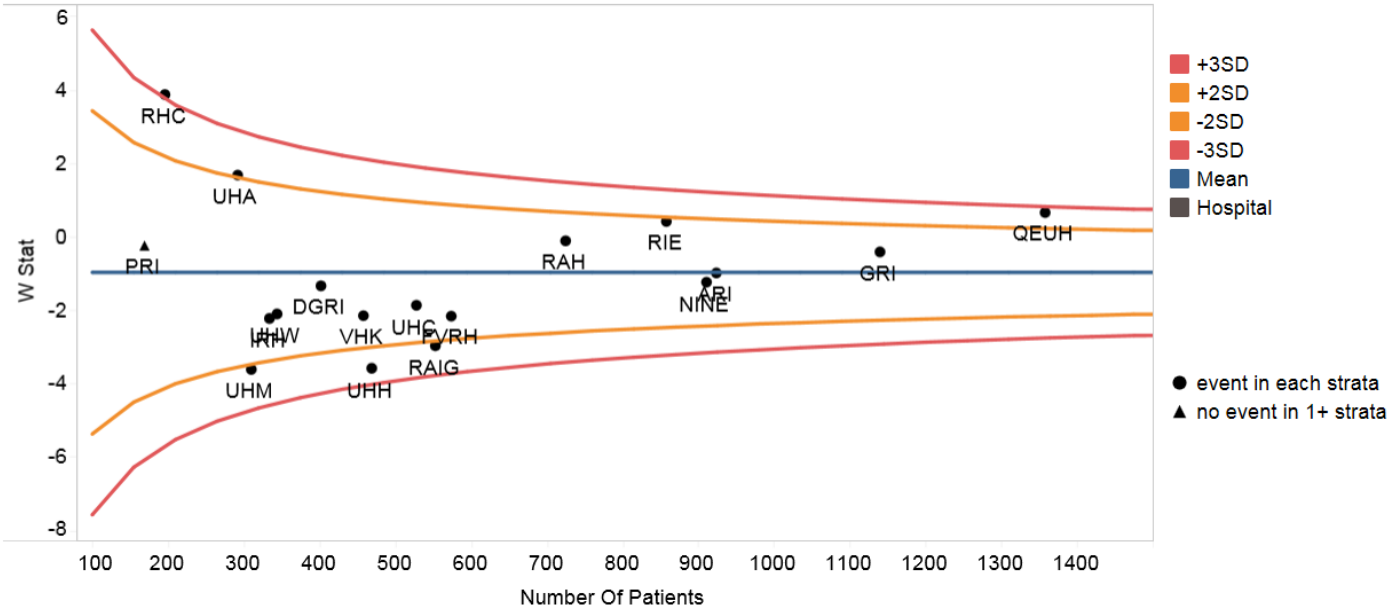
Examples of the benefits of a major trauma network have been demonstrated recently in the terror attacks in London and Manchester, where patients were treated across several major Trauma Centres and Trauma Units. Knowledge of the network and co-ordination between centres and units allowed ambulance teams to triage patients (decide where and in which order they should be appropriately treated) and so keep to a minimum the number of patients needing to be transferred to a major Trauma Centre. In the major Trauma Centres and Trauma Units, clinical teams had the expertise and resources to manage critical injuries.

In 2014 the First Minister announced the introduction of a Scottish Trauma Network which would comprise 4 Major Trauma Centre Networks, one in the North, one in North/East, one in South/East and one in the West. The Scottish Trauma Network was to be opened on a phased basis with North and North/East opening in October and November 2018 respectively and both the South/East and West scheduled to open in 2021/22.

2. Benefits of the Network

The most significant benefit of accessing the Major Trauma Network is the improvement in survival rates. There have been differences in mortality rates by hospital as detailed in figure 1 below. This variation will be addressed through the implementation of the trauma network and centralisation of the most severely injured patients in specialist Major Trauma Centres.

Figure 1: Mortality by Hospital (revised W-Statistic by Hospital (2015-17)



Note: The numbers of expected survivors is generated from the TARN database (2010-2013) which includes data on patients who have already been treated for similar injuries. The revised W statistic shows the number of excess survivors per 100 patients.

Source: STAG Audit Report 2018

There are a number of other clear benefits and these are detailed in the following table:

Benefits of a major trauma network for patients: ➢ More people survive. Evidence shows that if you are severely injured, you are 15% to 20% more likely to survive if you are admitted to a Major Trauma Centre ➢ Patients will receive the best possible care from specialised teams providing emergency access to consultant care 24 hours a day, seven days a week ➢ Patients are less likely to have a long-term disability and will need less long term NHS care ➢ Patients will be more able to return to work and do other activities ➢ The NHS is able to better plan for and respond to major incidents, improving the care patients would receive ➢ Patients will have access to specialist doctors and clinical support staff in hospitals specialising in major trauma ➢ For patients attending local emergency departments their care is less likely to be disrupted by inappropriate major cases being prioritised that can affect the ability of the department to manage its routine work
Benefits of a major trauma network for organisations who are part of the network: ➢ It provides an opportunity to develop the skills and expertise of existing staff at the Trauma Units and local hospital sites through closer working with the highly specialist clinicians and other staff at the major trauma centre ➢ Likely to have a positive impact on recruitment across the network ➢ Likely to receive support from the Deanery, so that trainee doctors will be allocated to hospitals across the network to do their training ➢ Services are delivered within a clinical network which allows improvements to be made through an integrated, 'whole system' approach, resulting in standardised services and improved patient outcomes and experience ➢ Clinical services in West of Scotland for major trauma will be in line with the rest of Scotland and UK and will allow the West of Scotland NHS to be more effective as part of the national response to major emergencies.

3. Rehabilitation

Rehabilitation is a key part of the major trauma network and vital to good trauma care and recovery. The Chief Medical Officer, in developing Major Trauma Networks, speaks of not only Saving Lives but Giving Lives Back. Rehabilitation is essential for patients to address the physical and psychosocial needs that result from their injuries and experiences and is therefore fundamental to the aspiration of "giving lives back". Without appropriate rehabilitation, patients are unlikely to return to their maximum levels of function which would have significant implications for them, their formal and informal carers and wider society.

Key principles agreed by the Scottish Trauma Network for delivering effective rehabilitation include

- Being ***person centred*** and will support ***decision making with*** patients.
- ***Should start as soon as is appropriate*** after admission including in the critical care setting,
- Should be delivered at ***the intensity required***, and for ***as long as is necessary***, at ***all points*** along their ***entire rehabilitation care pathway*** in order to achieve their ***functional potential***.
- The rehabilitation and transfer aspects of the ***patient's pathway should be planned collaboratively*** across the regional network.
- There should be ***adequately skilled and resourced multi-disciplinary rehabilitation teams*** in all of a network's services which cover all ages of major trauma patients.
- There should be a ***coordinated development of rehabilitation services and long-term support*** in the community which can deliver comprehensive and effective rehabilitation making the most of technologies to meet the needs of trauma patients irrespective of age.

Benefits of Specialist Trauma Rehabilitation for Patients and Families

- Provide an early focus on specialist rehabilitation to maximise patient potential and outcomes
- A rehabilitation plan that is commenced early and follows patients through their rehabilitation journey, ensuring timely access to the most appropriate rehabilitation services and facilitating a seamless journey home
- Improved experience and long term clinical outcomes for people who have experienced major trauma and their families;
- Empowers patients and their families to be actively involved in the planning of their rehabilitation goals and decision making
- More likely to return to previous level of activity / work.

Benefits of Specialist Trauma Rehabilitation for Health and Social Care Services
➢ Supports reduction in length of in-patient stay; hence ssupports bed availability and patient flow within the MTC; ➢ Facilitate early discharge from Neurosciences / critical care ➢ Achieve MTC Key Performance Indicators (KPIs) for rehabilitation; ➢ Supports Scottish Brain Injury Managed Clinical Network proposals for reconfiguration of acute Brain Injury ➢ Consistent with proposed plan for South East Trauma Network strongly supported by Headway, the largest charity for people who have experienced head injury ➢ through early intensive rehabilitation patients have better outcomes and are less dependent on community/social care input

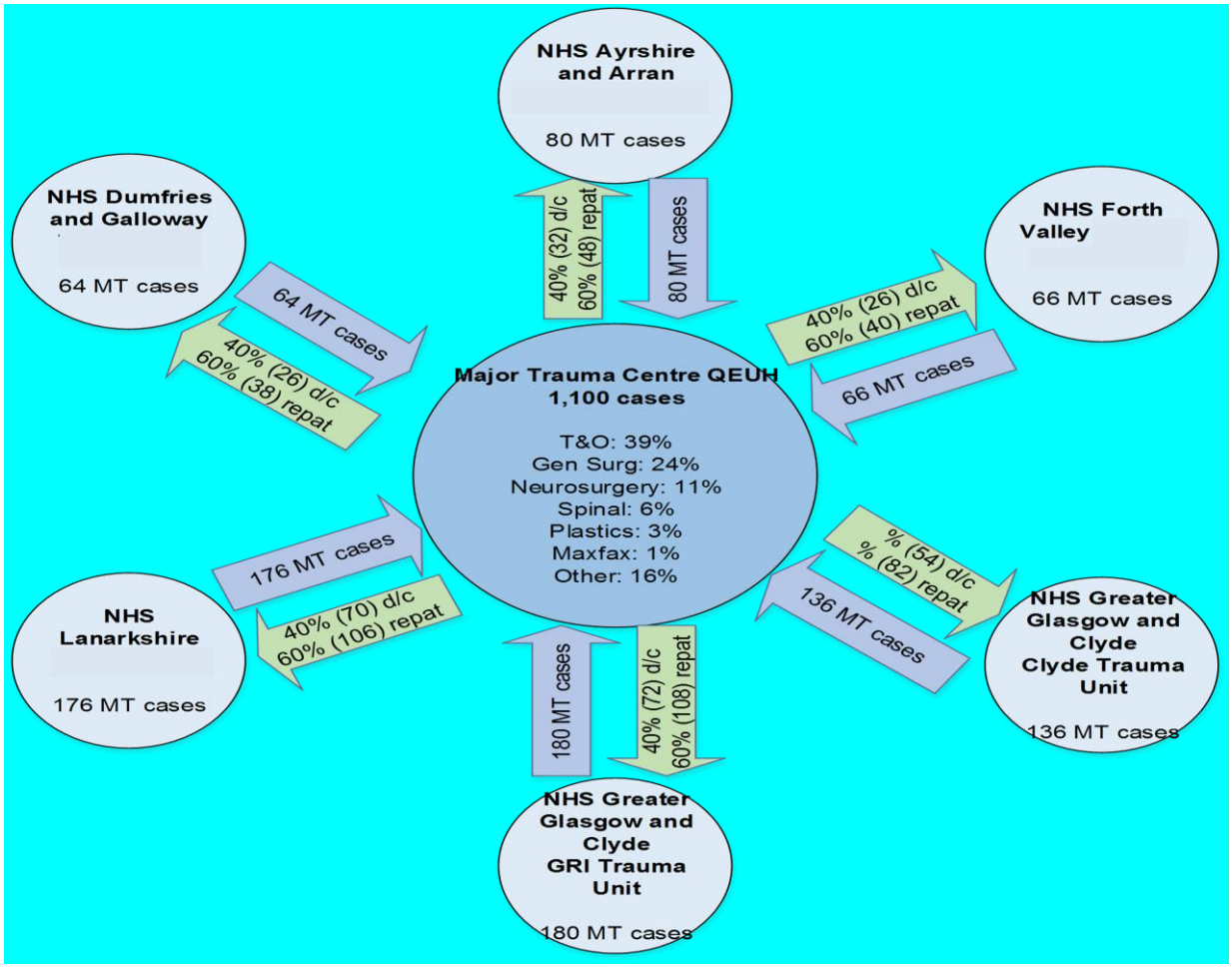
4. West of Scotland Trauma Network

In 2015, the West of Scotland region outlined its vision for the development of the regional major trauma network and the indicative costs associated with this model. The delivery of the network is an exciting opportunity to change the way in which care is currently provided with the ultimate aim of not only saving lives but giving lives back with improved outcomes for patients.

At the heart of the regional network, is the Major Trauma Centre which, it is proposed, will be sited at the Queen Elizabeth University Hospital (QEUH) in Glasgow and will provide care for around 450 - 550 critically and severely injured patients per annum. A further cohort of moderately injured patients estimated at around 450-550 will also be taken to the MTC based on an expected over triage for admission at 100%. This equates to an additional 700 plus patients per annum attending QEUH compared to current levels. Modelling work has indicated 40 beds (24 Major Trauma Ward, 6 Critical Care and 12 Hyper Acute) are required within QEUH to support Major Trauma/ Trauma admissions from across the WoS.

The trauma network will also make appropriate links, via the NHS Boards, to social care and the voluntary sector. There will be a Paediatric Major Trauma Centre which will be located in Royal Hospital for Children (RHC).

The diagram below provides a visual of the flow of patients across the region into and out of the Major Trauma Centre. It is estimated that 40% of the patients will be discharged directly from the MTC, with 60% being repatriated back to local Boards for ongoing care or rehabilitation. The following diagram describes the patient flow activity into the major trauma centre from each of the Board areas and the flow back out of patients from these areas either repatriation (repat) or discharged (d/c) directly from MTC.



The MTC will be supported by a number of Trauma Units and a range of Local Emergency Hospitals and Remote and Rural Community Hospitals for which there will be in place clear clinical pathways into the local Board areas and the major trauma centre. Based on the specification and requirements outlined in the standards/minimum requirements and trauma triage tool, the West is proposing 6 stand alone Trauma Units. The Queen Elizabeth University Hospital (MTC) will also be a Trauma Unit for its catchment population. For paediatrics, Greater Glasgow & Clyde, RHC will be the Trauma Unit for its population catchment and the Trauma Units in the other Board areas will also be the paediatric Trauma Unit for their catchment areas.

Trauma Units and Local Emergency Hospitals are an integral part of the network.

Trauma Units are specialist centres of excellence which support the trauma pathway by delivering expert care for patients suffering complex traumatic injuries. The development of the Scottish Major Trauma Network has provided the opportunity to see significant investment in creating these centres of excellence which will drive improved benefits for trauma patients. In GGC establishing a Trauma Unit will require a redesign of emergency trauma pathways to create the Trauma Units. The model which will be supported by this will see a reduction in the number of areas where emergency inpatient care is provided for trauma patients. In the main, patients would have their clinics, pre-admission assessment and rehabilitation locally but with specialist surgery provided in centres of excellence covering the whole of the network population.

Local Emergency Hospitals will continue to see and treat emergencies and trauma and in providing initial care and resuscitation of MT and TU patients until patients can be safely transferred to definitive care.

They will also have a role in providing rehabilitation for their local population. Local Emergency Hospitals will also become centres of excellence for the provision of high volume elective activity.

Benefits of the Trauma Unit Model for Trauma Units and Local Emergency Hospitals

- The model will support a concentration of experience and expertise that will result in both consistency of practice and improved outcomes for patients.
- Access to a TU trauma team, diagnostic imaging, high level care (HDU/ITU), trauma theatre, rehabilitation and ortho-geriatric care will all be more appropriately and reliably provided and coordinated within the remit of a Trauma Unit adhering to the national minimum requirements as part of a regional network.
- It will support reducing length of stay for patients
- Patients are less likely to have a long term disability
- Will support achievement of the KPIs – Scottish Standards of care for Hip Fractures (2018)
- Will support meeting waiting time standards and eliminate dependence on capacity provided out with core activity
- Establish a sustainable workforce (medical and non medical) with new models of working
- Concentration of Trauma on a site with the relevant skills and experience bring a number of opportunities to further develop pathways that will improve outcomes and reduce bed days through admission avoidance – this includes
    - Non operative pathways for patients >65 years
    - Increased use of Day Surgery for Trauma/Upper limb patients
    - Reduction in transfers to orthopaedics through revised pathways and training
- Evidence supports gains achieved from protected elective working – securing ring fenced beds for elective patients reduces on the day cancellations which would increase the elective activity undertaken
- For the Local Emergency Hospitals this will ensure their population gets access to the expertise and skills within major trauma centre and trauma units. They will become centres of excellence for their local population, delivering high volume elective activity and non operative pathways, supported by good rehabilitation which will support reduction in length of stay in hospital through early discharge and co-ordinated access to community care.

A number of factors influenced the decision on the number of Trauma Units within the region - this included:

- **National minimum requirements for Trauma Units** – these indicate that all Trauma Units should have :
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- An ED consultant available within 30 minutes;
- Competent member of middle grade staff should be present over 24 hour period
- An Anaesthetic consultant within 30 minutes;
- A Major Haemorrhage protocol for trauma patients;
- A General Surgical Consultant within 30 minutes;
- An Orthopaedic Consultant within 60 minutes;
- A multidisciplinary trauma team consisting of a trauma team leader, an anaesthetist and a general surgeon;
- Access to CT and CT reporting 24 hours a day (within 60 minutes);
- 24/7 Access to emergency theatre;
- 24/7 Access to critical care;
- A rehabilitation service;
- 24/7 access to physician with paediatric trauma experience.

The Scottish Ambulance Service Trauma Triage Tool is nationally agreed and will ensure that trauma patients are taken to the appropriate place and will follow the same clinical pathway everywhere in the West of Scotland.

5. West of Scotland Rehabilitation Model

Major Trauma Rehabilitation for the West of Scotland will see rehabilitation delivered in a hub and spoke model with specialist input and / or support along the whole patient journey ensuring complex rehabilitation needs are identified and addressed in a timely manner and patient outcomes are optimal. The proposed model has been based on British Society of Rehabilitation Medicine (BSRM) guidance and clinical guidelines. Rehabilitation will commence in the Major Trauma Centre and may continue in a Trauma Unit, Specialist Rehabilitation service or in the local community.

Unlike many clinical specialties, Specialist Rehabilitation input is determined by complexity of patient need rather than diagnosis. Hence not all Major Trauma patients will require similar levels of rehabilitation. Some individuals will follow an uncomplicated rehabilitation and recovery pathway whilst others will require specialist, intensive input from highly skilled multidisciplinary teams over a prolonged period.

The proposed model for rehabilitation however will ensure that ***all*** Major Trauma patients will have their ***rehabilitation needs assessed within 72 hours*** through completion of a rehabilitation plan. This plan will be revised and updated throughout the individual's rehabilitation journey ensuring access to the level of rehabilitation that is both appropriate and timely.

Key elements of the rehabilitation model:

- **Hyper Acute Rehabilitation Unit** – will deliver a new model of care for WoS in a specialist rehabilitation unit with a highly specialist multidisciplinary team, skilled in managing complexity bringing focus on rehabilitation as early as possible after trauma to optimise potential outcomes.
- **Specialist Rehabilitation Services -** all WOS Health Boards will see investment to deliver enhanced rehabilitation services offering level of specialty and intensity required, determined by individual patient need
- **WoS Specialist Rehabilitation Service Network** – all boards supported through specialist regional network staff to provide outreach / inreach across WoS

5.1 Hyper Acute Rehabilitation Unit

Hyperacute rehabilitation units provide early specialist in-patient multidisciplinary rehabilitation combined with management and stabilisation of inter-current medical / surgical problems as well as neuro-cognitive problems. Such units provide an early focus on specialist rehabilitation to maximise patient potential and outcomes.

Introduction of an earlier focus on rehabilitation or "continuous chain" rehabilitation has been shown to have a positive impact on patient outcomes. Favourable outcomes were seen in 71 % of patients receiving continuous chain rehabilitation (early initiation of rehabilitation) versus 37 % in those receiving broken chain rehabilitation (after acute phase). Disability Rating Scale scores were also significantly better for those receiving early rehabilitation when measured 12 months after trauma. (Andelic et al 2012). Patients most likely to benefit from such an approach are those with moderate to severe brain injury.

Development of this 12 bedded unit; co-located with major trauma centre and neurosciences will be the first such unit in the West of Scotland .

The hyperacute unit will:

- Facilitate early discharge from neurosciences/critical care / Major Trauma ward
- Provide an early focus on specialist rehabilitation to maximise patient potential and outcomes
- Facilitate timely onward flow along the rehabilitation pathway to local complex rehabilitation services where appropriate

5.2 Specialist Rehabilitation Services

Specialist Rehabilitation may be defined as ***"the total active care of patients with a disabling condition, and their families, by a multi-professional team who have undergone recognised specialist training in rehabilitation"*** (British Society of Rehabilitation Medicine).
Lower lengths of stay and lower costs are seen for the majority of patients with greater access to specialist rehabilitation compared to routine care (NHS England, Duarte et al, 2018) with length of stay up to 34 days longer where access to specialist rehab is limited.

Family and carer support can be an essential element of successful rehabilitation therefore being able access appropriate rehabilitation as close to home as possible is desirable for most individuals. The proposed model will therefore see investment to allow ***all WOS Health Boards*** to deliver specialist rehabilitation services to their local population.
The WOS Specialist Rehabilitation Services will:

- Support patients with complex rehabilitation needs to be repatriated in a timely manner, continuing to access appropriate rehabilitation closer to home
- Provide rehabilitation at an intensity that is required for patients with complex needs
- Be delivered as in-patient, as a day case and/ or an out-patient basis

5.3 Specialist Rehabilitation Network

For some specialist rehabilitation roles, due either to the highly specialist nature required or relatively small numbers, recruitment can be challenging, particularly for part time hours Similarly when patients are discharged from a highly specialist service it is essential that they continue to have access to appropriate skills and expertise.

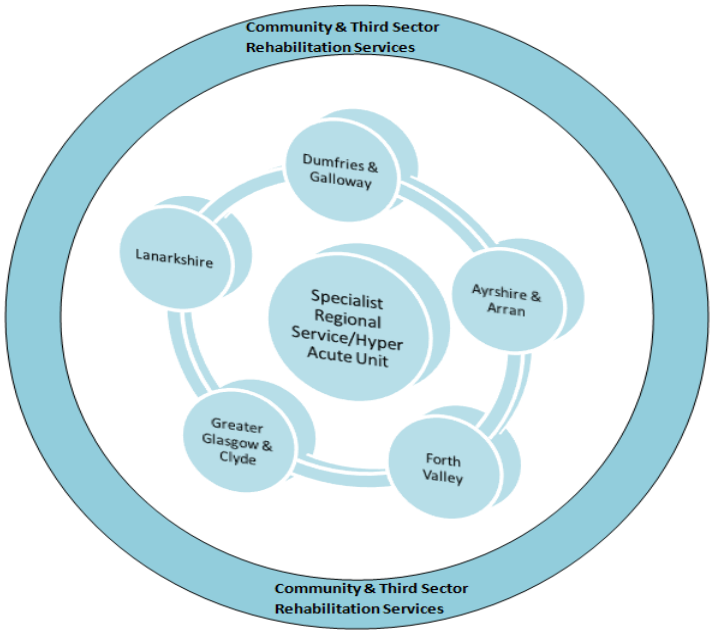
The third component of the proposed model will therefore see a Specialist Network Resource for Rehabilitation developed to address recruitment challenges and ensure appropriate rehabilitation expertise available for all major trauma patients across the totality of their rehabilitation journey.

Network staff will work across both the MTC / hyper- acute rehabilitation Unit and individual boards. Appointments will be made on a joint basis and job plans will be clear to ensure there is clarity in regards the resource allocation to each individual Board including:

- Rehabilitation co-ordinators
- AHP Rehabilitation Consultant
- Neuropsychiatry Consultant
- Rehabilitation Medicine Consultant
- Neuropsychologists
- Vocational Rehabilitation

Community Health & Social Care Rehabilitation Services
As part of the development of the model for delivery of rehabilitation services close links will require to be in place with community partners to ensure patient needs are being met across the spectrum of the pathway and this is an area of work that will require to be progressed

further. There has been some initial informal engagement on a small scale in this regard but this needs to be extended and formalised.



6. Finance

The Scottish Government have committed £17m to the development of the West of Scotland Major Trauma Network and this investment will support the introduction of over 300 staff to support improving the management of care for trauma patients across the network.

£10m of this funding was allocated to West of Scotland in 2017 for delivery of the Major Trauma Centre. This will deliver:

- 24 bed adult major trauma ward
- 6 Critical Care beds
- 24/7 Emergency Department Consultant service
- Major Trauma Co-ordinators
- Associated theatre and workforce to support additional MT activity to QEUH

A further £7m funding package for rehabilitation and trauma units was recently announced and will be introduced over a 5 year period from 2019/20 to 2023/24. Discussions are ongoing with the STN Core Group around the distribution of the funds in each of the years. Key principles have been agreed nationally on the priorities for allocation in the following order:

1. Major Trauma Centres
2. Scottish Ambulance Service
3. Trauma Units
4. Specialist Rehabilitation
5. Community Rehabilitation

There is an immediate focus on ensuring that the funding for Trauma Units for additional front door support and rehabilitation is in place at the point the Major Trauma Centre (MTC) becomes operational. This was originally planned for March 2022 but Scottish Government have requested consideration be given to opening this a year earlier in March 2021.

A separate paper for the West of Scotland is currently being prepared which sets out clearly what can be delivered in each of the years and the risks associated with full funding for the network not being available at the point of opening of the Major Trauma Centre.
This paper will form part of the national paper being prepared by the Scottish Trauma Network for submission to Scottish Government outlining the risks and challenges and acknowledging that the specialist rehabilitation aspect of the network will not be in place until 2023/24.

7. Communication and Engagement

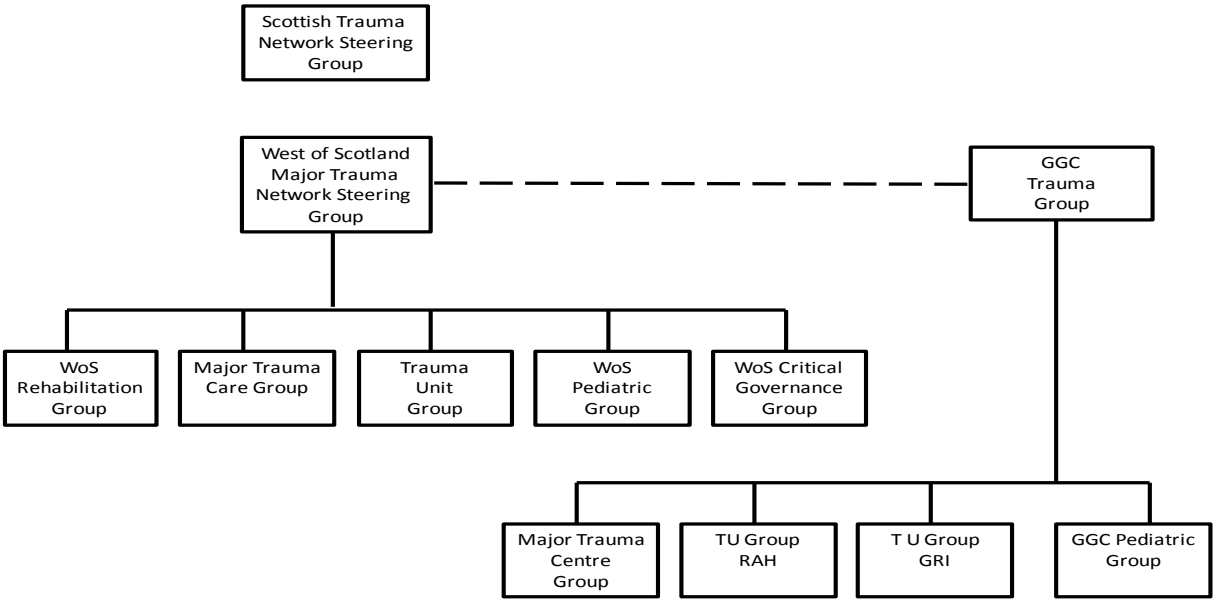
The development of the Major Trauma Network is a national Government policy which aims to improve lives. The WoS Communication and Engagement Plan outlines the principles, processes and systems for communicating and engaging with stakeholders. This is consistent with both the national and other major trauma network regional plans. In GGC, communication and engagement is being led through our Moving Forward Together (MFT) programme. This programme has an active Stakeholder Reference Group and a proactive communication strategy linked to the 6 Health and Social Care Partnerships. The tiered model of care has been widely tested and supported by both the central Stakeholder Reference Group and by the local engagement sessions. It will be further tested at a Third Sector engagement event on 19 June 2019.

In the wider context a West of Scotland Engagement Strategy has been drafted to ensure a consistent and robust approach is adopted to support the delivery of the Trauma Network across the Region. As with the MFT work, there are a key set of stakeholders identified and these are noted as follows:

- Front line/ All Staff across NHS GGC, Lanarkshire, Forth Valley, Dumfries & Galloway; Ayrshire & Arran; Highland and Western Isles
- West of Scotland Health & Social Care Programme Board
- West of Scotland Chief Executives Group
- West of Scotland Major Trauma Steering Group
- Major Trauma Centre Groups
- Trauma Unit Groups
- Health and Social Care Partnerships
- Patient Public Forums
- General Public (West of Scotland)
- Scottish Trauma Network - Including other 3 Regions and SAS
- Scottish Government and politicians
- Organisational Development
- Communications Department
- Media
- User/Carer Reference Group

The intention of this strategy is that West of Scotland Boards adopt a consistent approach to deliver the engagement and involvement and communications required to successfully establish the Network.

Clinical support and engagement has been central to the development of the Scottish Trauma Network, the West of Scotland work and our work in GGC. Local clinicians are involved in planning at each level.



Within NHSGGC the trauma redesign has been approved by the Area Clinical Forum. Wide engagement has taken place with the clinical teams who have been focused on developing initial pathways for patient flow into the units and considering the capacity and re-design implications across the acute sites. This work has included and involved clinicians from a wide range of specialties including Orthopaedics and Trauma, General Surgery, Medicine, Emergency Department and Rehab Medicine. The work is now nearing the stage where wider engagement is required to inform and support further development of the pathways and the broader re-design required.

8. Scottish Ambulance Service

The Scottish Ambulance Service is a key partner in delivering the major trauma network. In addition to the pre-hospital arrangements for ensuring patients are transferred to the right place at the right time there are also the secondary transfer requirements for patients to Major Trauma Centres and Trauma Units. Key to retaining flow through the MTC and TUs is the repatriation of patients back to local areas.

9. NHSGGC Context

The delivery of the Major Trauma Network is a key priority and there has been a clear focus on delivering this model across the West of Scotland and within NHSGGC. Modelling and planning for the QEUH Major Trauma Centre and the 2 GGC Trauma Units is continuing to evolve as clinical pathways are developed and agreed across the West of Scotland Region. The establishment of both MTC and TUs requires re-design of patient pathways across the West of Scotland. For NHSGGC hospital sites this remains a key focus of work. The emerging TU models are consistent across West of Scotland Health Boards.

In delivering the models, contextually there are a number of organisational considerations as the model and pathways develop including:

Moving Forward Together

- Services designed on a tiered model of care -
- Communication and interface work between community and secondary care as patients move through pathways of treatment.

Unscheduled Care

- In considering current admission patterns there are opportunities to look at models which reduce demand for acute hospital services related to emergency admissions.
- Examination of rehab pathways may support earlier discharge and therefore support the HSCPs' requirement to deliver a reduction in the use of unscheduled bed days and a reduction in readmission rates.

Planned Care

- Opportunities to optimise delivery of the elective programme on sites which will be unaffected by fluctuating demands for emergency care. This will have a positive impact on waiting times.

9.1 Current Model

Across GGC there are currently 5 Emergency Departments which receive major trauma. These are Royal Alexandra Hospital, Glasgow Royal Infirmary, Queen Elizabeth University Hospital, Inverclyde Royal Hospital and Royal Hospital for Children. GGC currently receives trauma from Argyll and Bute; NHS Highland and Western Isles. Patients from these areas are transported by SAS/EMRS to Royal Alexandra Hospital, the Queen Elizabeth University Hospital and the Royal Hospital for Children.

The proposed model changes the current configuration of trauma receiving across GGC, with all five Emergency Departments focussing on getting trauma patients to either the Major Trauma Centre or a Trauma Unit (depending on severity of injury) to improve outcomes.

9.2.1 West of Scotland Major Trauma Centre

The Major Trauma Centre will be sited at the Queen Elizabeth University Hospital (QEUH) in Glasgow and will provide care for around 450 - 550 critically and severely injured patients per annum. A further cohort of moderately injured patients estimated at around 450-550 will also be taken to the MTC based on an expected over triage for admission (modelled at 100%.) This equates to an additional 700 plus patients per annum attending QEUH compared to current levels. Modelling work has indicated 40 beds are required within QEUH to support Major Trauma/ Trauma admissions from across the WoS. (24 Major Trauma Ward, 6 Critical Care and 12 Hyper Acute). Recruitment has started on a phased basis.

Delivering the Major Trauma Centre within the QEUH presents a number of capacity challenges. Work is ongoing to develop options to create the required capacity to deliver this model. This is to be considered in the broader context of the other service redesign work.

The Queen Elizabeth University Hospital (MTC) will also be a Trauma Unit and Local Emergency Hospital for its catchment population.

The West of Scotland Paediatric Major Trauma Centre will be located in Royal Hospital for Children (RHC) and will be the Trauma Unit for the GGC population catchment. Trauma Units in the other Board areas will be the paediatric Trauma Unit for their catchment areas.

9.2.2 NHS Greater Glasgow & Clyde Trauma Units

Within NHSGGC it is proposed there will be 2 Trauma Units, one located at Glasgow Royal Infirmary and one at Royal Alexandra Hospital.
Glasgow Royal Infirmary is already a Trauma Unit for its current catchment population and no significant redesign of pathways is envisaged for this unit. The Queen Elizabeth University Hospital will also provide a Trauma Unit to its local population.

9.2.3 Clyde Trauma

This model to improve patient care will require changed trauma pathways in the Clyde area. The most effective way to manage trauma in the Sector will be to reprofile existing resources to form a single dedicated Trauma Unit located in the Royal Alexandra Hospital. A sectoral approach will be taken in Clyde which will redesign elective and trauma activity to allow the RAH to see 14 additional trauma admissions per week (700 per annum) with increased elective work at Inverclyde.

IRH

Inverclyde Royal will operate as the sector Local Emergency Hospital and will continue to receive medical and general surgery patients. There has been very recently approval to expand the ED consultant numbers and availability within IRH to support emergency flow. Trauma activity will continue to present and be assessed within IRH ED and the most significant change in the current pathways and patient flow will be in those requiring hospital admission.

In total, Trauma activity accounts for 8% of all emergency admissions within IRH, so 92% of all activity will be unaffected. Based on this reduction there will be clinical capacity realised to further develop the elective programme on the site, particularly as theatre capacity will be freed up. This requires a redistribution of elective work from across the Sector to develop the site as an elective Centre of Excellence. Modelling work suggests that there will be capacity for an additional 358 elective cases per annum. Types of cases that would be accommodated would include Soft Tissue Knee (ACL or Scopes) / Hand / Upper Limb (Cuff Repair) Surgery cases, and high volume Arthroplasty lists for example Uni-Compartmental Knee Arthroplasty

RAH

Early modelling work to assess the impact of delivering a single Trauma Unit at the RAH has been carried out. The impact on the RAH is anticipated to be:

- Total Trauma Admission Activity ↑ 47%
- Additional 12 Beds required associated with increased admissions
- Additional 7 Theatre Sessions per week associated with additional activity
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More detailed work to develop pathways and assess associated capacity requirements is continuing.

Clyde Patient Flow

In terms of patient flow, it is estimated that:

- Major Trauma Centre :
  - 136 (2 to 3 per week) major trauma patients will flow to the Major Trauma Centre from RAH and IRH.
  - 60% (1 to 2 per week) will be repatriated back to local area for ongoing care or rehabilitation
- Trauma Unit flow from IRH:
  - Approximately 800 (14 – 17 per week) patients will flow to the Trauma Unit at RAH.
  - 60% (8-10 per week) will be repatriated back to IRH for ongoing care or rehabilitation,

10. Next Steps

Across NHSGGC work is continuing to develop the model and pathways required to deliver the trauma network configuration.

Work to conclude the configuration of both the MTC and also the Clyde TU continues and this will include the final configuration of beds, theatres and workforce requirements required to deliver the Network by 2021. Further engagement with GRI is required to finalise the TU model across the Board. A project plan is now being developed to support identification of the critical path and to develop a risk register. Given the level of additional activity anticipated to flow to both QEUH and RAH, work continues to identify opportunities to reconfigure services within the sites and reprovide activity elsewhere. Final plans for this need to be developed and presented for consideration. An implementation plan and business case will now be developed and a further report will be presented to the NHS Board in October 2019.

At a regional level a body of work is progressing including:

- Developing the WoS rehabilitation network model,
- Agreeing and implementing repatriation protocols (Oct 2019)
- Establishing a West of Scotland Clinical Governance Morbidity and Mortality Network (Oct 2019)
- Continuing to work with Scottish Ambulance Service on regional patient pathways model.
- Developing engagement process
    - Create a User/Carer Engagement Reference Group
- Planning and Delivering West of Scotland Network Event (6th September 2019)
- Agreeing processes for and undertaking EQIAs in each of the Board areas