Purpose of the Report

This paper provides an overview of the work which has been undertaken as part of the major trauma project to facilitate the development of a major trauma network for the population of South and West Wales and South Powys. The paper puts into context the recommendations made by an Independent Clinical Panel regarding the development of the major trauma network, how the major trauma network should be led and the preferred location of the major trauma centre for the region.

Supporting evidence

Supporting documents are attached as a technical appendix to the report

Reference is also made to the following:

- Regional Networks for Major Trauma: NHS Clinical Advisory Group (CAG) Report. September 2010
- NHS England Standard Contract for Major Trauma 2013
Engagement – Who has been involved in this work?

The work to support the contents of this report commenced in 2014 and has been developed in collaboration with the following organisations:

- Health Boards across South and West Wales and South Powys, namely: Aneurin Bevan UHB; Cardiff & Vale UHB; Cwm Taf UHB; Abertawe Bro Morgannwg UHB; Hywel Dda UHB; Powys tHB;
- Welsh Ambulance Services NHS Trust (WAST);
- Emergency Medical Retrieval and Transfer Service (EMRTS);
- Collaborative Commissioning Team;
- Welsh Health Specialised Services Commission & Emergency Ambulance Service Commission;
- Regular briefings with Community Health Council Chief Officers;
- Third sector – particularly in relation to rehabilitation model;
- Independent clinical specialists.

Resolution to:

<table>
<thead>
<tr>
<th>APPROVE</th>
<th>ENDORSE</th>
<th>DISCUSS</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. **Purpose of the Report**

This paper sets out the work which has been undertaken to develop a service model for a major trauma network for the population of South and West Wales and South Powys (henceforth referred to as the South Wales region).

There is a significant body of evidence that demonstrates that patients who suffer a major trauma and are treated within a major trauma network generally have better outcomes and a greater chance of survival. Examples of the benefits of a major trauma system have been demonstrated recently in the terror attacks in London and Manchester where patients were effectively managed across several major trauma centres (MTC) and trauma units (TU). System knowledge and coordination allowed pre-hospital teams to appropriately triage patients and subsequently minimise the number of patients needing secondary transfer to a major trauma centre for ongoing care. In the major trauma centres and trauma units, clinical teams had the expertise and resources to manage critical injuries. For the London attacks, the London Trauma System effectively turned a mass casualty event into several smaller incidents that fell well within the capacity and capability of the receiving hospitals (www.kingsfund.org.uk).

The population of North Wales benefit from Betsi Cadwalader UHB being part of the West Midlands Major Trauma Network that supports the major trauma centre in North Staffordshire. South Wales (including South Powys) is the only region of England and Wales that is not part of a major trauma network; patients do not have access to a designated major trauma centre.
The development of a major trauma network for the region will represent a significant step forward in the provision of emergency care in Wales and will build on the current model of care providing greater expertise and resilience to meet both individual and mass casualty events. The network will lead to enhanced roles for a number of hospitals across the region but particularly for the University Hospital of Wales, Cardiff and Morriston Hospital, Swansea.

2. Background

2.1 Establishment of the Major Trauma Project

In 2012 The South Wales Programme (SWP) was established to develop clinically safe and sustainable service models in consultant-led maternity and neonatal care, in-patient children’s services and emergency medicine (A&E) for people living in South Wales. The SWP covered Aneurin Bevan, Cardiff & Vale, Cwm Taf, Abertawe Bro Morgannwg and Powys Health Boards. The Programme did not specifically consider major trauma but as part of the work reviewing A&E services, the clinicians identified the need to develop a major trauma network in South Wales as a priority.

Based on advice and guidance in respect of the ability of a trauma network to improve outcomes for patients, in late 2014, the Health Collaborative was asked by the Chief Executive Officers (CEOs) to develop a service model for a major trauma network for the South Wales region. A project board was established, supported by a clinical reference group (CRG). Both groups comprised representatives from each of the Health Boards in the region, Welsh Ambulance Services NHS Trust (WAST), Emergency Medical Retrieval and Transfer Service (EMRTS) and Welsh Health Specialist Services Committee (WHSSC). The scope was widened to include Hywel Dda University Health Board, which had not been involved previously in the SWP.
The proposed service model for major trauma services for adults and paediatrics was developed by the clinical reference group (CRG) in line with the standards for major trauma and was approved by the Project Board in May 2015. A detailed model for supporting rehabilitation was also developed through a wider stakeholder group. The standards for major trauma have been set by the National Clinical Advisory Groups, the British Society for Rehabilitation Medicine (BSRM) and the National Institute for Clinical Excellence (NICE) and identify which services should be available for a patient suffering from major trauma - from the response to an accident, transfer to a major trauma centre or trauma units, immediate treatment and urgent surgery, ongoing medical care and further surgery, and rehabilitation. The standards also specify those services which should be available in a major trauma centre, in trauma units, and how the network should work.

3. Developing the case for change and the Service Model

3.1 Definition of Major Trauma

‘Major Trauma’ is defined as multiple, serious injuries that could result in disability or death. These might include serious head injuries, severe gunshot wounds or multiple injuries caused by road traffic accidents. It is the leading cause of death in all groups under 45 years of age and a significant cause of short- and long-term morbidity (CAG 2010).

Fewer than 0.2% (2/1000 patients) of the people attending their local emergency department will have suffered a major trauma. In 2016 about 750,000 people across the whole of Wales attended a local emergency department (www.saildatabank.com) (this figure is slightly higher than the data used for modelling purposes (see technical appendix) which was based on 2014 TARN data). The data available at this time did not cover all South Wales hospitals and the Emergency Medical Retrieval and Transfer Service (EMRTS) was not in place and therefore is likely to under-represent the true number of major trauma patients in the region.
Major trauma cases by their very nature are complex. Each individual A&E department will only see 1 or 2 cases a week and due to the small number it is a challenge for hospital staff to maintain their highly specialist skills in trauma care.

In summary, this means that about 1,500 patients attending A&E in Wales in any one year are likely to have suffered a major trauma. This equates to about 20 people each week across South Wales and South Powys.

3.2 Case for Change

3.2.1 Benefits of a Major Trauma Network

In recent years, a number of reports have been produced by organisations such as the National Confidential Enquiry into patient Outcome and Death (NCEPOD), National Institute of Clinical Excellence (NICE), the Department of Health Clinical Advisory Group and the National Audit Office, outlining the provision of trauma care across England, Northern Ireland and Wales. The reports consistently identify that better care and outcomes are achieved when properly constituted formal major trauma networks are in place.

Across the South Wales region major trauma cases are currently managed through informal arrangements across the South Wales Health Boards with some more complex cases either admitted directly or transferred to the bigger regional centres - mostly University Hospital of Wales or Morriston Hospital. Whilst this is clearly beneficial to patients, it does not deliver the proven benefits of an established major trauma network.
A ‘major trauma network’ comprises 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; it includes one major trauma centre and several trauma units spread across the region.

A trauma network aims to make sure that seriously injured patients can be treated quickly and efficiently by the specialised services that will have all the necessary equipment to hand; provides an infrastructure that will allow a patient to leave the specialist centre and continue their treatment at a hospital closer to home or in the community as soon as possible. Where there is a major trauma network, it is expected that more patients will survive and make a full recovery.

3.2.2 Quality improvement

Treatment of major trauma patients within a designated trauma network delivers significant quality improvements for patients. The network is designed to ensure patients have the best outcomes possible and receive the best possible care as part of an integrated clinical network irrespective of where in the region they suffer a major trauma. The key benefits of developing a major trauma network are expected to include:

- More people survive: Evidence shows that severely injured patients are 15%-20% more likely to survive their injuries if they are admitted to a major trauma centre.
- Patients receive the best possible care at the most appropriate site from highly specialised teams, providing 24/7 emergency care with access to the required specialist services.
- Patients are less likely to have a long term disability.
- Patients require less long-term NHS care.
- Patients will have an improved ability to return to work and undertake other activities.
- Services meet clinical standards.
• The network enables access to be optimised to services that support patients to return as close to home as soon as possible.
• The NHS is able to better plan for and respond to major incidents, improving the care major trauma patients receive.
• Hospitals specialising in major trauma need to have specialist doctors and clinical support staff available at all times. The major trauma network facilitates the delivery of this, ensuring the best use of resources, making the major trauma centres and trauma units more sustainable.
• Local A&E units are less likely to be disrupted by admission of inappropriate major cases that can affect the ability of the department to manage its more routine workload.

Establishing a major trauma network also has significant benefits for the individual organisations which 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.
• A network with a clearly identified major trauma centre, trauma units and defined response at scene is likely to have a positive impact on recruitment across the network.
• The establishment of a network provides a stronger base to support doctors in training.
• Services are delivered within a clinical network, this means that each of the units in the network understand their role and responsibility.
• Clinical services in South Wales for major trauma align with the rest of the UK and will allow the Welsh NHS to be more effective as part of the national response to major emergencies.
4. Service Model for a Major Trauma Network

A major trauma network has one MTC and a network of hospitals, known as trauma units. Emergency departments that are not trauma units will continue to treat any person who is seriously ill or has an injury which does not need the highly specialist services only available at the major trauma centre or the specialist services only available at the trauma units.

**99.8% of people who currently attend their local A&E department will still continue to do so even when the major trauma network is established.**

The network model is particularly important in managing patients who are further away from the major trauma centre. Patients are more likely to survive a major trauma in a region where there is a major trauma network, regardless of how far they are away from the major trauma centre.

If a person suffers a major trauma, ambulance crews will make an assessment at the scene using triage tools to ensure that those with major trauma are taken directly to a major trauma centre for urgent treatment. The decision making is supported by the on-call clinician at the major trauma centre and may involve bypassing local hospitals so that patients can quickly receive care with access to highly specialist services and equipment and appropriately trained staff. If the distances are long or patients are identified to have time critical pathology which cannot be managed by ambulance transfer patients may have to be taken to their local trauma unit first for stabilisation before onward transfer to the major trauma centre for treatment.

The very nature of the major trauma centre means that they have on-site access to highly specialist skills and services 24 hours a day seven days a week which are normally time critical when managing a patient with acute
major trauma. Some of these services are likely to only be provided in one place for the whole region.

Across the network, there will be a number of hospitals known as trauma units that will have a higher level of specialist services and care available than a local emergency department so they can support the major trauma centre. The trauma units are important in providing immediate life saving services to those patients further away from a major trauma centre or who need stabilising before being transferred to the major trauma centre.

As soon as a patient is well enough to be discharged from the major trauma centre, they may be moved to a trauma unit in their local region to continue their treatment and recovery. A trauma unit will also be able to recognise patients who are beyond their capability to treat and transfer them rapidly to the major trauma centre.

The trauma network will also develop advice on appropriate transport services (both ambulance and Emergency Medical Retrieval) to facilitate rapid assessment and transfer to the major trauma centre or trauma units 24 hours a day.

4.1 Rehabilitation

Rehabilitation is a key component of the major trauma network and is an essential part of good trauma care and good patient outcomes. Rehabilitation needs will be assessed shortly after a patient is admitted to the major trauma centre and will be delivered during the inpatient phase and be continued in a trauma unit or in the local community. Highly specialist rehabilitation services will continue to be provided across South Wales from Rookwood Hospital in Cardiff and Neath Port Talbot Hospital.

4.2 Pre Hospital Care

A major trauma network will also need to be supported by robust pre admission triage. In 2015, the Emergency Medical Retrieval and Transfer
Service was established in Wales (currently operating 12 hours per day) to support the Welsh Ambulance Service Trust in delivering pre admission triage.

5. Appraising the options

5.1 Phase 1 – Project Board / Clinical Workshop

In June 2015 a workshop led by clinicians considered the options available to support the development of a major trauma network in the South Wales region. The workshop comprised representatives from the six Health Boards (Aneurin Bevan, Abertawe Bro Morgannwg, Cardiff & Vale, Cwm Taf, Hywel Dda and Powys) and WAST. Patient representatives were invited through the third sector support groups and geographical coverage was sought. Community Health Councils (CHC) were also invited in an observer capacity. The workshop incorporated the non-financial option appraisal process and concentrated on the clinical benefits of the different options. The options considered included:

- Do nothing.
- No major trauma centre in South Wales with network arrangement into England (Bristol)
- Single major trauma centre for South Wales based in Morriston Hospital.
- Single major trauma centre for South Wales based at the University Hospital of Wales (UHW), Cardiff.
- Dual site solution based upon both Morriston Hospital and UHW.

The options to do nothing and continue with the South Wales area remaining as the only region not being supported by a major trauma network were quickly eliminated. It was also agreed that to support a population of circa 2 million the network would need to be supported by a major trauma centre located within the region. This ruled out the Bristol option.
The potential for a dual site solution was seriously considered but subsequently eliminated based on the fact that the critical mass for sustainability could not be delivered through such an arrangement.

**The clinician-led process identified that the preferred option was to develop a major trauma network for the South Wales region that contains a number of trauma units supported by a single site major trauma centre.**

Morriston Hospital in Swansea and UHW, Cardiff were the only two hospitals in the region identified as having the potential to meet the necessary clinical outcome criteria and the standards, for a major trauma centre. This is due to the specialist nature of the trauma service itself and the need for co-location with other specialist services.

Following the option appraisal an Equality Impact Assessment was completed to support intended engagement with key stakeholders.

Access to the major trauma centre for individual Health Board populations was also considered through the project and a detailed travel times analysis was undertaken. It is acknowledged that a clear consensus was never reached within the Project Board on the best travel metrics to use but in any event the broad conclusions of the travel times analysis hold good for each option. It is clear that Morriston Hospital is more centrally located within the geography of South Wales minimising overall distance to be travelled and UHW is located closer to the centre of gravity of the population distribution across South Wales minimising travel times for a greater number of people and minimising the potential flow of trauma patients out of Wales to Bristol.

**5.2 Independent panel**

Building on the work of the Project Board and the outcome of the Clinical Workshop, the NHS Wales Health Collaborative Board agreed with the
recommendation for a trauma network to be established with the major trauma centre located in either UHW or Morriston Hospital.

To facilitate the decision on the preferred location of the site for the major trauma centre, the Collaborative Board proceeded to recommend that an independent, expert clinical panel be commissioned to review the available evidence and provide advice. The proposed process for the Independent panel was endorsed through individual (public) Board meetings. CHC Chief Officers were also briefed as part of this process.

The Independent Panel was chaired by Professor Chris Moran, the National Clinical Director for Trauma to the NHS in England and Professor of Orthopaedic Trauma Surgery at Nottingham University Hospital. With the support of Professor Moran, a group of eight experts were identified to be part of the Independent Panel on the basis of their national and international reputations as experts in trauma care and the development of trauma systems.

The panel was provided with all the relevant information required to enable them to consider the position for the region. A session was also convened with the panel where representatives from across the health service in the region alongside other key stakeholders were invited to attend. This included: Clinical representatives from Aneurin Bevan, Cwm Taf, Hywel Dda and Powys Health Boards; Public Health Wales; Welsh Government; Community Health Councils; EMRTS; WAST; WHSSC and the Emergency Ambulance Services Committee (EASC).

When considering the location of any new service, the Independent Panel determined that there were three main factors that need to be taken into consideration:

- **Clinical interdependencies** (services that must be located together)
The Independent Panel advised that one of the most important factors in effective management of major trauma is the immediate availability of key specialist services. Most of those specialist services are already provided in both UHW and Morriston. However, specialist neurosurgery is only provided in UHW and burns and plastics services only in Morriston. Given that approximately 60% of major trauma cases require support for head injuries, the panel advised that same-site provision of specialist neurosurgical services (adult and paediatric) is a key requirement for the location of the major trauma centre.

The panel also recognised the importance of the burns and plastics service as part of the trauma network and identified that whilst co-location was not a critical factor, it is imperative that the burns and plastics centre worked very closely with the major trauma centre to make sure patients receive the care they need.

- **Critical mass**
  The neurosurgery and burns and plastics services are so specialist they can only be provided from one hospital site for the population of South Wales. The same is true for the establishment of a single major trauma centre for the region.

- **Travel times**
  The Panel considered the geography of Wales and made it clear that a major trauma system is expected to improve mortality in all geographical regions of South and West Wales regardless of the transport time to the major trauma centre. It was recognised that irrespective of the location of the major trauma centre at either Morriston Hospital or UHW, some parts of the population in Hywel Dda and Powys will be a considerable distance from the major trauma centre. This is not an unusual situation and most trauma networks in England also support services which are a considerable distance from the major trauma centre. The panel did not believe that either Morriston Hospital or UHW as a major trauma centre
would have any significant advantage over the other in terms of geography.

Working as part of a network, most ambulance services in England operate a bypass system up to one hour. This means that if patients are identified as having suffered major trauma by ambulance personnel they are taken directly to the major trauma centre if it is within one hour travelling time. This can be extended after advice is taken. Patients with more immediate needs will be transported to a trauma unit and stabilised prior to transfer. Only a small proportion of trauma patients require immediate surgery and this is likely to be achieved more rapidly in the major trauma centre mitigating any increase in transport times. The wider network model, (including trauma units, pathways to support direct transfer of a patient to a major trauma centre, EMRTS), has a key role to play in managing patients who may be further away from the major trauma centre.

**Taking all three factors into consideration, the Independent Panel produced a report of their findings making the following unanimous recommendations for consideration by the constituent Health Boards:**

- A major trauma network for South and West Wales should be established with the appropriate clinical governance infrastructure.
- A clear and realistic timetable for the activation of the trauma network should be set.
- The adult and children’s MTCs should be co-located on the same site.
- The MTC should be located at University Hospital of Wales, Cardiff.
- Morriston Hospital should become a large trauma unit and should have the leadership role for the major trauma network.
It is significant that in making recommendations of the development of the wider network, the Independent Panel recommended that Morriston Hospital should be a large trauma unit. As a large trauma unit Morriston Hospital is likely to be able to manage some conditions that other trauma units will not due to the specialist services it already provides. This means that following clinical assessment a more complex patient may not need to be transferred to the major trauma centre (within agreed protocols) and will continue to be managed within Morriston Hospital. This may be different for other units in the region which do not have such specialist services.

The panel also specified that Morriston Hospital should take the leadership role in the major trauma network. This follows the model in England where the leadership for the network is provided from a hospital other than the hospital where the major trauma centre is located. A lead hospital is necessary to ensure the major trauma network works in a coordinated way and makes sure the patient and the whole patient pathway is the main focus rather than the major trauma centre itself.

6. Financial implications

It is anticipated that there will be additional capital and revenue costs associated with establishing the major trauma network across the region. Whilst some outline modelling has been undertaken, full assessment cannot be made until such time as the designated site is confirmed. Research also suggests that in the longer term the development of an effective trauma network will also deliver wider economic benefits associated with improved clinical and social outcomes.

If Boards approve the development of the network in line with the recommendations of the independent panel, there will need to be an incremental approach to implementation supported by business cases, as appropriate, aligned to IMTPs.
Where networks have been developed in other parts of the UK, such an incremental approach has been successful with initial funding identified for any critical shortfalls and a more phased approach to meeting standards over time.

Any capital requirements will need to be considered in the context of the wider site development plans, interdependencies that exist between trauma services and other clinical services and subject to formal business cases to Welsh Government as appropriate.

WAST has also identified some modest resource implications as a result of the changes to patient flows, the adoption of a new triage model and the anticipated increase in requirements for repatriation. Enhanced training requirements for paramedics and the clinical workforce located outside the major trauma centre/trauma units is also likely to require some additional resourcing which will need to be factored into future years Integrated Medium Term Plans (IMTPs).

**7. Next Steps**

**7.1 Board considerations**

The report from the Independent Panel was commissioned to provide advice to support the development of the major trauma network and to recommend a preferred location for the major trauma centre.

The recommendations from the Independent Panel have been reviewed through the Collaborative governance arrangements (Collaborative Executive and Leadership Forum) and the benefits for the population of South Wales associated with developing a major trauma network have been fully considered.

---

**The Collaborative Leadership Forum has agreed in principle to support the recommendations of the Independent Panel and to pass to the constituent Health Boards for consideration.**
Health Boards will now need to consider this report and the supporting documents, including the recommendations of the Independent Panel to establish a major trauma network and a major trauma centre for the South Wales region.

In considering this report, Boards are reminded that:

- The evidence is clear that the establishment of a major trauma network (with major trauma units and a major trauma centre) provides better outcomes for patients and saves lives;
- The South Wales region is not currently part of a major trauma network and as such this is a **new service development** for the region;
- The impact on existing hospitals across South Wales is likely to be very small. Based on the data considered as part of this exercise to date the impact on individual A & E departments is likely to be in the order of 1 or 2 patients per week who would, in the proposed new system be treated in the major trauma centre. These will be the most seriously ill or injured patients requiring a very high level of specialist care – many of whom are already transferred to a more specialist centre (often Morriston or UHW) as part of their ongoing care;
- All other patients attending their local A&E will be unaffected by the development of the major trauma centre but will benefit from being part of the network;

It should also be noted that the financial consequences of moving forward with the development of the network and major trauma centre will be subject of business cases that would need to be approved by Boards prior to implementation.
7.2 Consultation

Health Boards in Wales are required to work with their local Community Health Council to consult with the local population on matters of substantial service change.

Given that the proposal to develop a major trauma network is about enhancing services at existing Emergency Departments, it could be viewed that this does not in itself constitute substantial service change requiring public consultation but would certainly require public and stakeholder engagement to ensure a clear understanding of the developments for the future.

However, a major trauma network cannot be established in isolation from the development of a major trauma centre and it is this development that may result in more significant calls for wider consultation. Whilst the evidence cited in this paper has identified that more than 99% of all patients currently attending their local A&E department will continue to do so, even when the major trauma centre is operational, it is important that the public and other stakeholders have a clear understanding of the role of the major trauma centre within the network.

The key issue for consultation will need to focus on the broader pathway for major trauma patients, from incident through to treatment in a trauma unit, the major trauma centre and ongoing rehabilitation.

Any consultation process will be expected to explain how the proposed trauma system will work to the benefit of patients and at the same time help the NHS to best shape pathways to meet patient need.

If Boards accept, in principle, the recommendations of the Independent Expert Panel, immediate discussion will need to take place with the constituent CHCs regarding the mechanism and timescales of any required consultation which would need to commence as soon as possible (Autumn 2017)
Any consultation documentation will be developed by the Health Collaborative team with individual Health Boards engaging with their local Community Health Councils (CHC), to facilitate the local consultation exercise which will seek views on the development of the major trauma system for the South Wales region and the implementation of the recommendations of the Independent Panel.

If, in conjunction with the CHCs, it is agreed that formal public consultation should be undertaken, the consultation questions will need to be framed around the following proposed questions:

- **We believe there is strong evidence that more lives can be saved and clinical outcomes are improved by establishing a major trauma network – do you agree and are there other considerations you think we should take into account in making the decision to go ahead with this development?**

- **Based on the recommendations of the expert independent panel, what factors would you want us to take into consideration in the designation of further trauma units and designing the patient pathways between the trauma units and the major trauma centre?**

- **We believe that rehabilitation as close to home is an important element to an effective major trauma network – do you agree and if so, what key considerations should we take account of in designing such a service?**

It is expected that any consultation will run for between 6 and 12 weeks (to be agreed with the CHCs) with the outcome and subsequent decisions coming to Health Boards for decision, in public, at the end of the calendar year.
8. Conclusion and Recommendations

A considerable amount of work has been undertaken to review the evidence for the establishment of a major trauma network for the South Wales region. This has included significant engagement with key clinicians from constituent Health Boards and independent scrutiny and advice from a panel of UK clinical experts.

This has culminated in a series of recommendations from the Independent Panel (Appendix 11) which have been accepted by the Collaborative Leadership Forum.

Health Boards, are asked to:

- **Consider and Discuss** the content of this report and the associated supporting evidence;
- **Accept**, in principle to consult on recommendations of the Independent panel as follows:
  - To establish a major trauma network for the South Wales Region;
  - For the network to be led by the trauma unit at Morriston Hospital
  - For the Major Trauma Centre to be located at UHW
- **Agree** to bring back the outcome of the consultation process for decision by Boards, in public. In reaching a final decision Boards will need also to consider more detailed analysis of the financial and workforce implications of the proposed service model.

<table>
<thead>
<tr>
<th>Freedom of information status</th>
<th>Open</th>
</tr>
</thead>
</table>
## Health Collaborative Report

### MAJOR TRAUMA NETWORK DEVELOPMENT

#### TECHNICAL APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix 1</td>
<td>Major Trauma Network Project Board Terms of Reference</td>
</tr>
<tr>
<td>Appendix 2</td>
<td>Service specification</td>
</tr>
<tr>
<td>Appendix 3</td>
<td>Service Model</td>
</tr>
<tr>
<td>Appendix 4</td>
<td>Rehabilitation service model</td>
</tr>
<tr>
<td>Appendix 5</td>
<td>Process for non financial option appraisal</td>
</tr>
<tr>
<td>Appendix 6</td>
<td>Outcome report for Non financial option Appraisal</td>
</tr>
<tr>
<td>Appendix 7</td>
<td>Financial review of proposed MTC</td>
</tr>
<tr>
<td>Appendix 8</td>
<td>Activity modelling</td>
</tr>
<tr>
<td>Appendix 9</td>
<td>Isochrones maps</td>
</tr>
<tr>
<td>Appendix 10</td>
<td>Independent Panel Terms of reference</td>
</tr>
<tr>
<td>Appendix 11</td>
<td>Independent Panel report</td>
</tr>
<tr>
<td>Appendix 12</td>
<td>Equality Impact Assessment</td>
</tr>
<tr>
<td>Appendix 13</td>
<td>Risk register</td>
</tr>
</tbody>
</table>
South Wales Health Collaborative

Major Trauma Project Board

Draft - Terms of Reference

Purpose

The Major Trauma Project Board will oversee the development of, and provide assurance to the South Wales Health Collaborative Board, on the development of the service model and associated business case for a major trauma network and centre for South Wales and South Powys.

Scope and Definition

The major trauma network for South Wales and South Powys will serve the populations of Aneurin Bevan UHB, Abertawe Bro Morgannwg UHB, Cardiff & Vale UHB, Cwm Taf UHB, Hywel Dda UHB and Powys tHB.

The service model will address the needs of the most severely injured patients, meaning those who have suffered potentially life-threatening or life-changing physical injuries, i.e. all those who could benefit from a regional network.

The model for trauma care across the region will be based on a collaborative approach across all stakeholders to plan, provide and manage the treatment of people injured as a result of major trauma and will cover all aspects of trauma care along the whole patient pathway, from the point of injury to rehabilitation.

The trauma network will be a collaboration of the providers delivering trauma care services across the region. The trauma network should include all providers of trauma care, particularly: pre-hospital services, other hospitals receiving acute trauma admissions and rehabilitation services.

The service model will provide a holistic patient-focused care package. The service will comply with accepted best clinical practice and standards, provide improved patient outcomes and have robust governance arrangements. Consideration will be given as to how this service interfaces with other developments, e.g. Emergency Medical Retrieval and Transfer Service (EMRTS), and impacts on other services such as diagnostics, critical care etc.

Project Structure

The Project Board will be accountable to the South Wales Health Collaborative Board and be supported by a Steering Group and Clinical Reference Group/Task and Finish Groups.
### Project Board Membership
(Nominations to be confirmed)

Executive representation from health boards and WAST (one representative from each board, intention to ensure all executive disciplines represented)
- Medical Director, Cardiff & Vale UHB
- Medical Director, Abertawe Bro Morgannwg UHB
- Unscheduled Care Lead, Welsh Government
- Welsh Government representative
- EMRTS Project Board representative
- Wales Deanery
- Workforce representative
- Ambulance Commissioner
- WHSSC representative
- BCU Major Trauma Lead
- SWHC Team
- External independent advisor

The Project Board will be chaired by the Unscheduled Care Lead, Welsh Government.

Members of the Project Board will be responsible for reporting back to their respective organisation and/or their executive peer group.

### Project Board Responsibilities

The Project Board will be responsible for:

- Setting the direction for the project
- Overseeing the project arrangements and ensuring that they are fit for purpose
- Approving the project plan and ensuring that the resources needed are made available to the project when required
- Delivery of the project objectives
- Ensuring that project benefits are identified
- Ensuring that risks to the project are identified and managed
- Delegating authority to the SRO to lead the project on a day to day basis
- Reporting progress to the South Wales Health Collaborative.

The outputs of the project are:

- A clinical model for a major trauma centre and network that:
  - meets accepted best clinical practice and relevant standards
  - describes the clinical pathway from pre-hospital care through the acute phase to in-patient and community rehabilitation
  - identifies the relationship, inter-dependencies and inter-face with other specialities and services
  - consider the options available to deliver the clinical model efficiently and effectively
• A description of the workforce model including workforce movement between sites and trainee requirements
• Projected activity and capacity requirements
• Financial framework that tracks and supports the clinical pathway so that no organisation is financially disadvantaged
• A system of audit and assurance that demonstrates clinical quality and safety, including full participation in TARN reporting and monitoring of patient experience and outcomes
• Performance indicators defined by an agreed set of benchmarks
• The production of a business case, the first stage of which will be preparation of a costed service model

The SRO’s role is to:

• design and execute the project plan
• deal with issues and manage risks that might affect progress
• manage communications with stakeholders

Frequency of meetings

The Project Board will meet on a monthly basis, to meet the intention of the preparation of a Strategic Outline Case by December 2014.

Accountability

The Project Board is accountable to the South Wales Health Collaborative.

Drafted: May 2014
Revised: 27 August 2014
Agreed: 27 August 2014
For review: December 2014
Appendix 1

Reports, standards and guidance

Following initial review, the following reports, standards and guidance have been identified. This list will be developed through the Steering Group and Clinical Reference Group:

Major trauma care in England: National Audit Office (February 2010)

Regional Networks for Major Trauma: NHS Clinical Advisory Groups Report
(September 2010)
http://www.uhs.nhs.uk/Media/SUHTInternet/Services/Emergency/Regionalnetworksformajortrauma.pdf

Standards of practice and guidance for trauma radiology in severely-injured patients: Royal College of Radiologists (2011)
https://www.rcr.ac.uk/docs/radiology/pdf/BFCR(11)3_trauma.pdf

The British Orthopaedic Association Standards for Trauma (BOAST)
http://www.boa.ac.uk/publications/boa-standards-for-trauma-boasts/

http://www.mascip.co.uk/sci-roadmap.aspx

(This report is hosted on the above site – follow link)

Brain Trauma Foundation guidelines for head injury care https://www.braintreeuma.org/coma-guidelines/searchable-guidelines/

Triage, assessment, investigation and early management of head injury in children, young people and adults: NICE Guideline - Head injury (CG176)
http://guidance.nice.org.uk/CG176

Rehabilitation after critical illness: NICE Guideline (CG83)
http://publications.nice.org.uk/rehabilitation-after-critical-illness-cg83


Note: NICE is developing five pieces of guidance relating to trauma, with expected publication dates in June and October 2015 (to be confirmed). Each piece of guidance will focus on a different aspect of trauma care.

- Complex fractures: assessment and management of complex fractures (including pelvic fractures and open fractures of limbs)
• Fractures: diagnosis, management and follow up of fractures (excluding head and hip, pelvis, open and spinal)
• Major trauma: assessment and management of airway, breathing and ventilation, circulation, haemorrhage and temperature control.
• Spinal injury assessment: assessment and imaging of patients at high risk of spinal injury
• Trauma services: service delivery of trauma services
Major Trauma Quality Indicators

These quality indicators have been commissioned by the National Clinical Director for Major Trauma Chris Moran. They have been developed from the National Service Specification for Major Trauma (NHS England D15/S/a 2013) and the NHS clinical advisory group report on Major Trauma Workforce (CFWI March 2011). They support the NHS England Quality Surveillance programme for major trauma services in England enabling quality improvement both in terms of clinical and patient outcomes. The indicators cover the whole organisation of adult and children’s major trauma services including sections for Major Trauma networks, pre-hospital care via ambulance services, Adult Major Trauma centres, Children’s Major Trauma centres and Major Trauma units. Three relevant sections of this document have been replicated below – reception and resuscitation, definitive care, and rehabilitation.

Abertawe Bro Morgannwg and Cardiff and Vale UHBs are asked to complete the template on the basis of services currently available for a Major Trauma Centre at either Morriston Hospital, Swansea or University Hospital of Wales, Cardiff. This will be submitted to the Independent Panel in advance of the meeting on 21st February. At the meeting, both health boards may be asked to provide further information/evidence, in support of the responses.

<table>
<thead>
<tr>
<th>Number</th>
<th>Indicator</th>
<th>Descriptor</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>T16-2B-101/201</td>
<td>Trauma Team Leader</td>
<td>There should be a medical consultant trauma team leader with an agreed list of responsibilities who should be leading the trauma team and available 24/7. The trauma team leader should be available in 5 minutes of arrival of the patient.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T16-2B-102/202</td>
<td>Trauma Team Leader Training</td>
<td>All trauma team leaders should have attended trauma team leader training.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T16-2B-103/203</td>
<td>Emergency Trauma Nurse/AHP</td>
<td>There should be a nurse/AHP of band 7 or above available for major trauma 24/7 who has successfully attained the adult competency and educational standard of level 2 (as described in the National Major Trauma Nursing Group guidance). In units which accept children there should be a paediatric registered nurse/AHP available for paediatric major trauma 24/7 who has successfully attained the paediatric competency and educational standard of level 2 (as described in the National Major Trauma Nursing Group guidance). All nursing/AHP staff caring for a trauma patients should have attained</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
the competency and educational standard of level 1. In centres that accept paediatric major trauma, this should include the paediatric trauma competencies (as described in the National Major Trauma Nursing Group guidance).

<table>
<thead>
<tr>
<th>T16-B-104/204</th>
<th>Trauma Team Activation Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>There should be a Trauma Team Activation Protocol</td>
<td></td>
</tr>
<tr>
<td>The trauma team should include medical staff with recognised training in paediatrics and paediatric trained nurses with experience in trauma.</td>
<td></td>
</tr>
<tr>
<td>The MTC should agree and implement the network imaging protocol for children.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T16-B-105/205</th>
<th>24/7 Surgical and Resuscitative Thoracotomy Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>There should be a surgical and resuscitative thoracotomy capability within the trauma team and available 24/7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T16-B-106/206</th>
<th>24/7 CT Scanner Facilities and on-site Radiographer</th>
</tr>
</thead>
<tbody>
<tr>
<td>There should be CT scanning located in the emergency department and available 24/7.</td>
<td></td>
</tr>
<tr>
<td>There should be an on-site radiographer available 24/7 to prepare the CT scanner for use.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T16-B-107/207</th>
<th>CT Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>There should be a protocol for trauma CT reporting that specifies:</td>
<td></td>
</tr>
<tr>
<td>• there should be a ‘hot’ report documented within 5 minutes;</td>
<td></td>
</tr>
<tr>
<td>• there should be detailed radiological report documented within 1 hour from the start of scan;</td>
<td></td>
</tr>
<tr>
<td>• scans should be reported by a consultant radiologist within 24 hours.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T16-B-108/208</th>
<th>24/7 MRI Scanning Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRI scanning should be available 24/7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T16-B-109/209</th>
<th>24/7 Interventional Radiology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interventional radiology should be available 24/7 within 30 minutes of a request</td>
<td></td>
</tr>
<tr>
<td>Interventional radiology should be located within operating theatres or resuscitation areas.</td>
<td></td>
</tr>
<tr>
<td>There should be a protocol for the safe transfer and management of patients which includes the anaesthetics and resuscitation equipment.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T16-B-110/210</th>
<th>24/7 Access to Emergency Theatre and Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>There should be 24/7 access to a fully staffed and equipped emergency theatre.</td>
<td></td>
</tr>
<tr>
<td>Patients requiring acute intervention for haemorrhage control should be in an operating room or intervention suite within 60 minutes.</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix 2 – Service Specification

<table>
<thead>
<tr>
<th>T16-2B-111/ 211</th>
<th><strong>Damage Control Training for Emergency Trauma Consultant Surgeons</strong></th>
<th>All general surgeons who are on the emergency surgery rota should be trained in the principles and techniques of damage control surgery</th>
</tr>
</thead>
</table>
| T16-2B-112 | **24/7 Access to On-site Surgical Staff** | The following staff should be available on site 24/7:  
  - a general surgeon ST4 or above;  
  - a trauma and orthopaedic surgeon ST4 or above;  
  - an anaesthetist ST4 or above;  
  - a neurosurgeon ST2 or above. |
| (adults only) | | |
| T16-2B-113/ 212 | **24/7 Access to Consultant Specialists** | There following consultants should be available to attend an emergency case within 30 minutes  
  - emergency department physicians;  
  - a general surgeon; (adults and paediatrics)  
  - an anaesthetist; (adults and paediatrics)  
  - an intensivist; (adults and paediatrics)  
  - a trauma and orthopaedic surgeon;  
  - a neurosurgeon; (adults and paediatrics)  
  - an interventional radiologist;  
  - a radiologist;  
  - a plastic surgeon;  
  - a cardiothoracic surgeon;  
  - a vascular surgeon;  
  - a urology surgeon;  
  - a maxillofacial surgeon;  
  - an ENT surgeon. |
| T16-2B-114 | **Dedicated Orthopaedic Trauma Operating Theatre** | There should be dedicated trauma operating theatre lists with appropriate staffing available 7 days a week.  
  The lists must be separate from other emergency operating. |
| (adults only) | | |
| T16-2B-115/ 213 | **Provision of Surgeons and Facilities for Fixation of Pelvic Ring Injuries** | There should be specialist surgeons and facilities (theatre/equipment) to provide fixation of pelvic ring injuries within 24 hours.  
  There should be cover arrangements in place for holidays and planned absences. |
| T16-2B-116/ 214 | **Trauma Management** | The MTC should agree the network trauma management guidelines as |
Critical Care Provision

In exceptional circumstances if children are cared for on an adult ITU prior to transfer to a PICU:

1. there should be guidelines for the temporary management of children that comply with the minimum standards of the paediatric intensive care society;
2. there should be safe transfer/retrieval pathways;
3. the unit should be part of a paediatric intensive care network.

24/7 Specialist Acute Pain Service

There should be a 24/7 specialist acute pain service available for major trauma patients.

The MTC should have pain management pathways for:

- patients with severe chest injury and rib fractures;
- early access to epidural pain management (within 6 hours).

The MTC should audit the pain management of major trauma patients including patients with severe chest injuries (AIS3+), who were not ventilated and who received epidural analgesia.

There should be a 24/7 specialist paediatric acute pain service for major trauma patients.

Administration of Tranexamic Acid

Patients with significant haemorrhage should be administered Tranexamic Acid within 3 hours of injury and receive a second dose according to CRASH-2 protocol. (Adults)

There should be a policy that patients with significant haemorrhage should be administered Tranexamic Acid within 3 hours of injury according to RCPCH guidelines.

| Definitive Care |
|-----------------|-----------------|---------------------|
| Number          | Indicator       | Descriptor                                      |
| T16-2C-101/201  | Major Trauma Centre Lead Clinician | There should be a lead clinician for the Major Trauma Centre (MTC) who should be a consultant with managerial responsibility for the service and time specified in their job plan. |
| T16-2C-102 (adults only) | Major Trauma Service | There should be a major trauma service led by consultants which takes responsibility for the holistic care and co-ordination of management of |
### Major Trauma Coordinator Service

There should be a [major trauma coordinator service available 7 days a week for the coordination of care of major trauma patients. The coordinator service should be provided by nurse or allied health professionals of band 7 or above.]

### Major Trauma MDT Meeting

There should be a single daily multi-specialty meeting for the presentation and discussion of all new major trauma patients following admission. The meeting should include:

- major trauma lead clinician (paediatrics only)
- a trauma co-ordinator
- a physiotherapist
- occupational therapist (paediatrics only)
- speech and language therapist (paediatrics only)
- youth worker (paediatrics only)
- play therapist (paediatrics only)
- psychologist (paediatrics only)
- safe-guarding representative as required (paediatrics only)
- clinical staff for:
  - major trauma service (adults only)
  - orthopaedics
  - general surgery
  - neurosurgery
  - critical care
  - radiology

Accommodation for the meeting should include facilities for:

- Video/teleconferencing
- PACS

### Identification of Social and Welfare Needs

There should be identified members of the team who are trained to assess the social and welfare needs of the child, family and/or carers following a major trauma event whilst they are resident in the MTC. They should have expertise in dealing with complex discharges and be able to
### Identify and Support Child Protection Investigations

They should attend the weekly rehabilitation MDT meetings (T16-2D-202) and should include:
- Rehabilitation co-ordinator
- Safeguarding Team
- Family support services
- Paediatrician

An appropriate needs assessment and outcome measure tool for children admitted to the MTC should be recorded for all complex patients.

<table>
<thead>
<tr>
<th>T16-2C-105 (adults only)</th>
<th>Dedicated Major Trauma Ward or Clinical Area</th>
<th>There should be a separate major trauma ward or clearly identified clinical area where major trauma patients are managed as a cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>T16-2C-106/ 205</td>
<td>Formal Tertiary Survey</td>
<td>All major trauma patients should have a formal tertiary survey completed to identify missed injuries. The survey should be recorded in the patient’s notes. The major trauma service should audit the implementation of the protocol (paediatrics only).</td>
</tr>
</tbody>
</table>
| T16-2C-107/ 206         | Management of Neurosurgical Trauma         | The MTC should have the following neurosurgical provision:

  i. on-site neuroradiology;
  ii. on site neuro critical care;
  iii. a neurosurgical consultant available for advice to the trauma network 24/7;
  iv. a senior neurosurgical trainee of ST4 or above;
  v. all neurosurgical patient referrals should be discussed with a consultant;
  vi. all decisions to perform emergency neurosurgery for trauma are discussed with a consultant;
  vii. facilities available to allow neurosurgical intervention within 1 hour of arrival at the MTC. |
| T16-2C-108/ 207         | Management of Craniofacial Trauma          | There should be an agreed pathway for patients with craniofacial trauma which includes joint management with neurosurgery. Where there are facilities for craniofacial trauma on site they should be co-located with neurosurgery. |
| T16-2C-109/ 208         | Management of Spinal                      | The MTC should agree the network protocol for protecting and assessing |
| T16-2C-110/209 | Management of Musculoskeletal Trauma | There should be trauma orthopaedic surgeons who spend a minimum of 50% of their programmed activities in trauma. There should be paediatric orthopaedic surgeons (paediatrics only). The MTC should provide a comprehensive musculoskeletal trauma service and facilities to support all definitive fracture care and allow joint emergency orthoplastic management of severe open fractures as specified in BOAST 4 guidelines. All patients with complex musculoskeletal injuries should have a rehabilitation management plan. |
| T16-2C-111/210 | Management of Hand Trauma | There should be facilities for the management of patients with hand trauma which include:  
- dedicated hand surgery specialists with a combination of plastic and orthopaedic surgeons;  
- facilities for microsurgery;  
- a dedicated hand therapist |
| T16-2C-112/211 | Management of Complex Peripheral Nerve Injuries | There should be facilities and expertise for the management of complex peripheral nerve injuries, including brachial plexus. Where these are not on site the MTC should name the tertiary referral centre. |
| T16-2C-113/212 | Management of Maxillofacial Trauma | There should be on site maxillofacial surgeons with access to theatre for the reconstruction of maxillofacial trauma. |
| T16-2C-114 (adults only) | Vascular and Endovascular Surgery | There should be facilities for open vascular and endovascular surgery, including EVAR, available 24/7. |
| T16-2C-115/213 | Designated Specialist Burns Care | Burns care should be managed through a designated specialist burns network. There should be a clinical guideline for the treatment of burns. This should include the referral pathway to the specialist burns centre where |
### Appendix 2 – Service Specification

<table>
<thead>
<tr>
<th>T16-2C-116/214</th>
<th>Patient Transfer</th>
<th>The MTC should agree the network protocol for patient transfer T16-1C-104</th>
</tr>
</thead>
<tbody>
<tr>
<td>T16-2C-117</td>
<td>Network Patient</td>
<td>The MTC should agree the network policy for the repatriation of patients.</td>
</tr>
<tr>
<td>(adults only)</td>
<td>Repatriation Policy</td>
<td>T16-1C-115</td>
</tr>
<tr>
<td>T16-2C-118/215</td>
<td>Specialist Dietetic Support</td>
<td>There should be a specialist dietician with specified time for the management of major trauma patients.</td>
</tr>
<tr>
<td>T16-2C-119/216</td>
<td>24/7 Access to Psychiatric Advice</td>
<td>There should be 24/7 access to liaison psychiatric assessment services.</td>
</tr>
<tr>
<td>T16-2C-120/217</td>
<td>Patient Information</td>
<td>The patient and or their family/carers should be provided with written information specific to the MTC about the facilities, care and rehabilitation as specified in the NICE guideline – Major Trauma (NG39)</td>
</tr>
<tr>
<td>T16-2C-121/218</td>
<td>Patient Experience</td>
<td>The MTC should participate in the TARN PROMS and PREMS</td>
</tr>
<tr>
<td>T16-2C-122/219</td>
<td>Discharge summary</td>
<td>There should be a discharge summary which includes:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A list of all injuries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Details of operations (with dates)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Instructions for next stage rehabilitation for each injury (including specialist equipment such as; wheel chairs, braces and casts)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Follow-up clinic appointments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contact details for ongoing enquiries.</td>
</tr>
<tr>
<td>T16-2C-220</td>
<td>Network Patient</td>
<td>The MTC should agree the network policy for the repatriation of patients.</td>
</tr>
<tr>
<td>(paediatrics only)</td>
<td>Repatriation Policy</td>
<td>T16-1C-115</td>
</tr>
<tr>
<td>T16-2C-123</td>
<td>Rate of Survival</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rehabilitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>T16-2D-101/201</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Specialist Rehabilitation Team (adults only)

There should be a multidisciplinary specialist rehabilitation team which should include:

- Consultant in rehabilitation medicine
- Physiotherapist
- Occupational therapist
- *Speech and language therapist*
- Dietician
- *Clinical psychologist/neuropsychologist*

*The team should meet at least weekly to discuss and update rehabilitation management plans and rehabilitation prescriptions.*

There should be specified contacts for the following:

- *pain management specialist*
- Pharmacist
- Surgical appliance services
- *Orthotic services*
- Prosthetic services
- Wheelchair services

### Specialist Rehabilitation Team (paediatric only)

There should be a multidisciplinary specialist rehabilitation team which should include:

- Lead clinician for rehabilitation
- Rehabilitation co-ordinator
- Paediatrician
- Representation from safeguarding team
- Representation from family support services

Where relevant:

- Play therapist
- Youth worker
- Music therapist
- Physiotherapist
- *Speech and language therapist*
- Dietitian
- *Clinical psychologist/neuropsychologist*
| T16-2D-103/ 203 | Rehabilitation Coordinator Post | There should be a rehabilitation coordinator who is responsible for coordination and communication regarding the patient’s current and future rehabilitation available 7 days a week. This rehabilitation coordinator should be a nurse or allied health professional at AFC Band 7 or above with experience in rehabilitation. |
| T16-2D-104/ 204 | Specialist Rehabilitation Pathways | There should be referral pathways for patients requiring specialist rehabilitation for;  
  ● neurological injuries, including t brain injuries  
  ● spinal injuries  
  ● complex musculoskeletal injuries  
  ● return to work (vocational rehabilitation)for patients with & without brain injury |
| T16-2D-105/ 205 | Key worker | All patients requiring rehabilitation should have an identified key worker to be a point of contact for them, their carer/s or family doctor. The key worker should be a health care professional. The name of the patient’s key worker should be recorded in the patient’s notes and on their rehabilitation prescription. |
| T16-2D-106/ 206 | Rehabilitation Assessment and Prescriptions | All patients should receive a rehabilitation assessment including barriers to return to work. All patients should have a Rehabilitation Prescription initiated within 2 calendar days of admission & the first comprehensive Rehabilitation Prescription completed at 4 calendar days following admission |
### Appendix 2 – Service Specification

<table>
<thead>
<tr>
<th>T16-2D-107/ 207</th>
<th>Rehabilitation for Traumatic Amputation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The prescription should be updated weekly at the rehabilitation MDT meeting until transfer into a designated rehabilitation service (T16-2D-102) and prior to discharge and a copy given to the patient. All patients should be reviewed by a Consultant in Rehabilitation Medicine (or an alternative consultant with skills &amp; competencies in rehabilitation eg: elderly care for elderly patients with multiple comorbidities) within 3 calendar days of admission. Patients who have Category A or B rehabilitation needs (using the Patient Categorisation Tool) should have a “specialist rehabilitation prescription” completed by a Consultant in Rehabilitation Medicine or their designated deputy. (1) The specialist RP must accompany the patient on discharge from the MTC, with network arrangements to ensure appropriate referral to specialist rehabilitation services. All patients should receive a rehabilitation assessment. Where a prescription is required this should be completed within 72 hours.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T16-2D-108/ 208</th>
<th>Referral Guidelines to Rehabilitation Services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The MTC should agree the network referral guidelines for access to rehabilitation services T16-1C-113</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T16-2D-109/ 209</th>
<th>Clinical Psychologist for Trauma Rehabilitation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The trauma rehabilitation service should include a clinical psychologist for the assessment and treatment of major trauma patients. Inpatient and outpatient clinical psychology services should be available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T16-2D-110</th>
<th>BSRM Core Standards for Specialist Rehabilitation in the Trauma Pathway</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>For patients identified as having category A or B needs, &amp; so potentially requiring specialist (Level 1 or 2) rehabilitation, the following datasets should be completed as part of the “Specialist Rehabilitation Prescription”, &amp; should be completed by a Consultant in Rehabilitation Medicine or their designated deputy:</td>
</tr>
</tbody>
</table>
- Patient Categorisation Tool or Complex Need Checklist-
- RCS-E or RCS-ET *(dependent on MTC & Network arrangements)*
- Northwick Park dependency Score
- Neurological & Trauma Impairment Set

*Where specialist rehabilitation is not provided at the MTC, & patients are transferred to TUs or other hospitals, the Specialist RP must be updated at the point of discharge from the MTC.*

*The MTC should also participate in the National Clinical Audit of Specialist Rehabilitation for Patients Following Major Injury.*
## Version history

<table>
<thead>
<tr>
<th>Version</th>
<th>Date Issued</th>
<th>Status</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>21.05.15</td>
<td>Final – issued for non-financial option appraisal exercise</td>
<td>RF</td>
</tr>
</tbody>
</table>

## CONTENTS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>Context</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Scope, vision, planning principles, service aims and objectives</td>
<td>3</td>
</tr>
<tr>
<td>2.2</td>
<td>Clinical standards</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Service Model</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Service overview</td>
<td>7</td>
</tr>
<tr>
<td>3.2</td>
<td>Clinical service interdependencies</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Key characteristics of the major trauma network</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>Service models at each level of care</td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Pathways of care</td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>Key risks</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Workforce</td>
<td>15</td>
</tr>
<tr>
<td>5.</td>
<td>Specialised, tertiary &amp; networked services</td>
<td>16</td>
</tr>
<tr>
<td>6.</td>
<td>Key performance Indicators</td>
<td>16</td>
</tr>
<tr>
<td>7.</td>
<td>References</td>
<td>16</td>
</tr>
</tbody>
</table>
SERVICE MODEL – MAJOR TRAUMA

1. Introduction

This paper describes the proposed service model for a major trauma network to serve South Wales, South Powys and West Wales.

The service model is being developed by the Major Trauma Network Clinical Reference Group, which reports to the Major Trauma Network Project Board, and has clinical representation from all participating health boards and the Welsh Ambulance Services Trust (WAST). The service model’s main reference points are the NHS Clinical Advisory Group Report (September 2010): Regional Networks for Major Trauma, the NHS England Standard Contract for Major Trauma (2013), and the Centre for Workforce Intelligence report on Regional Trauma Networks (March 2011) and takes account of other published clinical standards. The process for developing service models is iterative and the model will need to be reviewed on a regular basis.

This service model should be considered in conjunction with service models for emergency medicine, emergency surgery and the Emergency Medical Retrieval and Transfer Service (EMRTS).

This service model is accompanied by, and should be read in the context of, the ‘Standards and Guidance for the development of a Major Trauma Network for South Wales’ document.
### 2. The scope, vision, planning principles, service objectives

#### 2.1. Details of the scope, vision, planning principles, service objectives used in developing the service model are provided in this section.

| **Scope** | The major trauma network for South Wales, South Powys and West Wales will serve the populations of Aneurin Bevan UHB, Abertawe Bro Morgannwg UHB, Cardiff & Vale UHB, Cwm Taf UHB, Hywel Dda UHB and Powys tHB.

The service model will address the needs of the most severely injured patients, adults and children, meaning those who have suffered potentially life-threatening or life-changing physical injuries, i.e. all those who could benefit from a regional network.

The model for trauma care across the region will be based on a collaborative approach across all stakeholders to plan, provide and manage the treatment of people injured as a result of major trauma and will cover all aspects of trauma care, along the whole patient pathway from the point of injury to rehabilitation.

The trauma network will be a collaboration of the providers delivering trauma care services across the region. The trauma network should include all providers of trauma care, particularly: pre-hospital services, other hospitals receiving acute trauma admissions and rehabilitation services.

The service model will provide a holistic patient-focused care package. The service will comply with accepted best clinical practice and standards, provide improved patient outcomes and have robust governance arrangements. Consideration will be given as to how this service interfaces with other relevant developments and impacts on other clinical and support services. |

| **Vision** | To ensure patients have appropriate, timely access to reliable, safe, high quality and sustainable major trauma services at all points along their care pathway from the point of injury to rehabilitation, in line with best practice standard requirements, evidenced by key performance indicators (KPI). |

| **Planning Principles** | Some key principles underpin the ongoing planning processes and require that the new service model should describe a system that will deliver:

- Safe, effective, compassionate and equitable care
- High quality, sustainable major trauma treatment and care from the point of injury to rehabilitation – the four key areas are pre-hospital care, acute care, acute on-going care, and rehabilitation |
### Service Aims & Objectives

To improve the quality and safety of care for patients by:

- Providing a comprehensive system of specialist care for people who have suffered serious injury (major trauma) through the delivery of a regional trauma network
- Improving the functionality, health and psychological well-being in those patients who survive their traumatic injuries, increasing their quality of life
- Ensuring that services meet agreed national clinical and workforce standards.
- Always meeting fundamental standards of care
- Valuing patient experience as much as clinical effectiveness
- Ensuring responsibility for each patient’s care is clear and communicated
- Providing effective and timely access to care, including appointments, tests, treatments and moves out of hospital
- Ensuring robust arrangements for transferring care are in place
- Tailoring services to meet the needs of individual patients, including vulnerable patients
- Supporting staff to ensure that they have the appropriate skills, experience and commitment to provide effective assessment, advice and/or treatment
- Ensuring the quality of the system is monitored and subject to a process of continuous quality improvement.
- Reducing avoidable deaths in the population of patients who would previously have died of their injuries

### Service Model

- Timely access for patients to the ‘definitive place of treatment’ to avoid delays in the patient pathway
- Services that meet national clinical and workforce standards
- Access to senior medical advice and treatment 24/7 for major trauma patients
- Service models underpinned by realistic and deliverable workforce models
- Stable medical teams that deliver high-quality patient care in an effective environment in which to train and educate the next generation of doctors
- Integration of care and effective relationships with other health professions
- An appropriate balance of specialist care and care coordinated expertly and holistically around patients’ needs
- Early access to rehabilitation assessments and to ensure that patients are moved through the system appropriately
Appendix 3– Service Model

To improve the sustainability of services to patients by:

- Providing robust staffing arrangements that comply with employment legislation (e.g. Working Time Directive) and meet the requirements of the Deanery/General Medical Council for clinical training and supervision where appropriate.
- Developing clinical roles to provide future workforce flexibility
- Ensuring the population has access to major trauma services within a reasonable timeframe
- Planning capacity to meet demand and providing appropriate resources across the network
- Ensuring the network is kept under continuous review and responds to changes in relevant strategies, standards and policies

To improve access for patients by:

- Delivering a system based on a pathway of care from the pre-hospital phase through acute care, ongoing care and rehabilitation and a return to socio-economic functioning
- Ensuring effective triage and assessment of emergencies to enable conveyance by the most appropriate means to the most appropriate destination according to agreed criteria
- Improving information and support to patients and families to encourage them to be active participants in their care

2.2 National Clinical Standards

Following initial review, the following reports, standards and guidance have been identified. The key publication is the NHS Clinical Advisory Groups Report (September 2010)*
This list will be developed through the Clinical Reference Group:

*Regional Networks for Major Trauma: NHS Clinical Advisory Groups Report (September 2010)
http://www.uhs.nhs.uk/Media/SUHTInternet/Services/Emergencymedical/Regionalnetworksformajortrauma.pdf

Major trauma care in England: National Audit Office (February 2010)

Standards of practice and guidance for trauma radiology in severely-injured patients: Royal College of Radiologists (2011)
https://www.rcr.ac.uk/docs/radiology/pdf/BFCR(11)3_treatment.pdf
Appendix 3 – Service Model

The British Orthopaedic Association Standards for Trauma (BOAST)
http://www.boa.ac.uk/publications/boa-standards-for-trauma-boasts/

BOAST 4: The management of severe open lower limb fractures
http://www.boa.ac.uk/publications/boast-4-the-management-of-sever-open-lower-limb-fractures/

http://www.mascip.co.uk/scl-roadmap.aspx (This report is hosted on this site)

Brain Trauma Foundation guidelines for head injury care
https://www.braintrauma.org/coma-guidelines/searchable-guidelines/

Triage, assessment, investigation and early management of head injury in children, young people and adults: NICE Guideline - Head injury (CG176)
http://guidance.nice.org.uk/GG176

Rehabilitation after critical illness: NICE Guideline (CG83)
http://publications.nice.org.uk/rehabilitation-after-critical-illness-cg83

Specialist rehabilitation in the trauma pathway: British Society of Rehabilitation Medicine (BSRM) core standards version 1.2 (January 2013)
http://www.bsrm.co.uk/publications/BSRM%20Core%20Standards%20for%20Major%20Trauma%2030-5-13.pdf

Rehabilitation for patients in the acute care pathway following severe disabling illness or injury: BSRM core standards for specialist rehabilitation (October 2014)
http://www.bsrm.co.uk/publications/Specialist%20rehabilitation%20prescription%20for%20acute%20care%202011%2014%200%20a
p1%20redrawn.pdf


Regional Trauma Networks – NHS Clinical Advisory Group on Major Trauma Workforce, Centre for Workforce Intelligence (March 2011)
http://www.cfwi.org.uk/publications/nhs-clinical-advisory-group-on-major-trauma-workforce/@@publication-detail

National burn care standards: National Network for Burn Care (Revised 2013)
Appendix 3– Service Model


Note: NICE is developing five pieces of guidance relating to trauma, with expected publication dates in June and October 2015 (to be confirmed). Each piece of guidance will focus on a different aspect of trauma care.
- Complex fractures: assessment and management of complex fractures (including pelvic fractures and open fractures of limbs)
- Fractures: diagnosis, management and follow up of fractures (excluding head and hip, pelvis, open and spinal)
- Major trauma: assessment and management of airway, breathing and ventilation, circulation, haemorrhage and temperature control.
- Spinal injury assessment: assessment and imaging of patients at high risk of spinal injury
- Trauma services: service delivery of trauma services

3. Service Model

3.1 Service overview

The aim of the service is to provide care to major trauma patients, characterised by an Injury Severity Score (ISS) >15 and most patients with moderately severe trauma (ISS>8), from the point of injury to rehabilitation. Calculation of the ISS requires a full diagnostic work-up and so the service is designed around the triage of patients at the point of wounding, to identify “candidate major trauma patients” on the basis of mechanism of injury and assessment of their symptoms and physical signs. The Major Trauma Centre (MTC) will have all the services available to receive and manage seriously injured adults and children. Patients who have been incorrectly triaged to, or have self-presented with serious injury at a hospital within the network, will be rapidly transferred to the MTC. In addition, some patients will need treatment in the MTC which will require transfer in within the first 2 days following injury.

Following assessment and initial treatment at the MTC or TU, children requiring intensive care will be received at the Children’s Hospital for Wales which provides Paediatric Intensive Care Unit (PICU) facilities. See http://www.england.nhs.uk/wp-content/uploads/2014/04/d15-major-trauma-0414.pdf - annex 1 for standards for provision of services for children.

The service is designed to deliver high quality specialist care to patients of all ages starting from the pre-hospital phase, through admission to the MTC, with full assessment and diagnostics in the emergency department. This may be followed by operative treatment and an episode in the critical care unit and ward. Rehabilitation will be required for a number for patients, and this rehabilitation will start in the MTC and continue through specialist rehabilitation or local rehabilitation services.
3.2 **Clinical service interdependencies:**

The table below sets out the key dependencies for the Major Trauma Centre and trauma units:

<table>
<thead>
<tr>
<th></th>
<th>Acute phase (continuum into ongoing care and reconstruction)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Emergency radiology in ED</td>
</tr>
<tr>
<td></td>
<td>MRI 24/7</td>
</tr>
<tr>
<td></td>
<td>Teleradiology between MTC and TUs</td>
</tr>
<tr>
<td></td>
<td>General Surgery</td>
</tr>
<tr>
<td></td>
<td>Ophthalmology</td>
</tr>
<tr>
<td></td>
<td>ICU</td>
</tr>
<tr>
<td></td>
<td>Theatres / Anaes</td>
</tr>
<tr>
<td></td>
<td>Orthopaedic surgery</td>
</tr>
<tr>
<td></td>
<td>Plastic surgery</td>
</tr>
<tr>
<td></td>
<td>24/7 Interventional radiology</td>
</tr>
<tr>
<td></td>
<td>Vascular endovascular surgery</td>
</tr>
<tr>
<td></td>
<td>Hybrid theatre</td>
</tr>
<tr>
<td></td>
<td>Cardiothoracics</td>
</tr>
<tr>
<td></td>
<td>Max-facial surgery</td>
</tr>
<tr>
<td></td>
<td>Neurosurgery</td>
</tr>
<tr>
<td></td>
<td>Spinal injury</td>
</tr>
<tr>
<td></td>
<td>Liver surgery</td>
</tr>
<tr>
<td></td>
<td>Burns</td>
</tr>
<tr>
<td></td>
<td>Emergency Medicine</td>
</tr>
<tr>
<td></td>
<td>Ear nose and throat surgery</td>
</tr>
<tr>
<td></td>
<td>Transfusion services</td>
</tr>
<tr>
<td></td>
<td>Pathology services</td>
</tr>
<tr>
<td></td>
<td>Organ donation</td>
</tr>
<tr>
<td><strong>Trauma centre</strong></td>
<td>Red</td>
</tr>
<tr>
<td><strong>Trauma unit</strong></td>
<td>Amber</td>
</tr>
</tbody>
</table>

|                      | Ongoing care and reconstruction                            |
|                      | Radiology – MRI, IR, angiography                            |
|                      | Critical care                                              |
|                      | Clinical psychology                                        |
|                      | Rehabilitation                                             |
|                      | Specialist rehabilitation                                  |
|                      | Specialist acute pain service                              |
|                      | Craniofacial trauma support                                |
|                      | Haematology                                                |
|                      | Obstetrics                                                 |
|                      | Respiratory physiotherapy (for pneumothoraces, chest drain and thoracostomies) |
|                      | Complex peripheral nerve support                            |
| **Trauma centre**    | Red                                                         |
| **Trauma unit**      | Amber                                                       |

**Red** Absolute dependency, requiring co-location on the same hospital site

**Amber** Relationship under some circumstances, requiring varying levels of access and contact between specialists but not necessarily co-location
Acute Phase: Defined as the time period immediately after injury and transfer to hospital in which immediately or potentially life or limb threatening problems are recognised, diagnosed and managed utilising damage control principles or definitively where appropriate.

Ongoing Care & Reconstruction: Defined as the subsequent phase in patient care when temporary management is concluded with definitive treatment, integrating rehabilitation, re-ablement and discharge to the community. After the patient’s surgical care is complete, this is likely to require transfer for ongoing rehabilitation, possibly involving repatriation to a hospital closer to the patient’s home.

Major trauma generates complex clinical injuries and problems; successful management involves a number of specialties and agencies. This model will describe how a service which crosses specialty boundaries is delivered to produce a comprehensive trauma service working within a robust governance framework.

3.3 Key characteristics of the major trauma network

Across the network there should be a focus on delivery of patient-centred services which consider all of the health and well-being needs of people who have sustained traumatic injuries. Coordination of medical, nursing and rehabilitation packages of care is crucial and trauma patients should receive appropriate levels of care and rehabilitation at all points along their care pathway. The important role of family and friends should be acknowledged and actively supported.

Rehabilitation should start as soon as is appropriate after admission, typically in the critical care setting, and continue at the intensity required, and for as long as is necessary, to enable patients to achieve their functional potential.

Any hospital within the network receiving trauma patients must have associated governance structures in place.

Organisational and network structures should facilitate follow up appointments to take place in the most appropriate setting.

3.4 Service models at each level of care

**Service Delivery**

Major trauma care is delivered through an inclusive trauma network delivery model. The major trauma network includes all providers of trauma care and, in particular, pre-hospital services, other hospitals receiving acute trauma admissions, and rehabilitation services, and will have appropriate links to social care and the voluntary/community sector.

The major trauma centre (MTC) will provide multi-specialty hospital care to seriously injured patients and manage all types of trauma but specifically will lead the management of major trauma patients, providing consultant-level care and access to tertiary and specialised level services. The MTC takes responsibility for the care of all patients with major trauma in the area covered by the network and provides specialist early/hyper acute rehabilitation as well as a managed transition to rehabilitation and the community.
The MTC will be required to work with the ambulance service, other hospitals receiving acute trauma admissions, and specialist and general rehabilitation services, to ensure delivery of the whole pathway including the specialised component and will itself deliver acute care and surgery, on-going care and acute/early phase rehabilitation.

Services will be delivered in line with the standards of the Regional Networks for Major Trauma NHS Clinical Advisory Groups Report (2010), supplemented with KPIs derived from the NHS England Standard Contract for Major Trauma Services (2013).


Patients with an ISS>8 are covered by this service model.

3.5 Pathways of care

Pre-hospital phase

The requirements for pre-hospital care will be developed in conjunction with the EMRTS Project Board. The NHS Clinical Advisory Group report (2010) on major trauma sets out the following recommendations for pre-hospital care:

- A Trauma Triage Tool should be used to identify patients with major trauma
- A paramedic should be present in the Ambulance Control room 24 hours a day. Their role is to identify potential major trauma patients and coordinate the response
- All patients identified as major trauma should be taken to a Major Trauma Centre. Those who are within 45 minutes travelling time from the Centre should be taken there directly, bypassing other units
- Patients who are further away or who are critically unstable should be subject to further guidance on an individual basis
- Patients with major trauma who are taken to a local Trauma Unit should be transferred to a Major Trauma Centre after initial assessment and optimisation in the Emergency Department
- Enhanced care teams should be available 24/7 to provide care to the major trauma patient
- Major trauma patients should be transferred to an appropriate Major Trauma Centre when indicated
- A structured pre-alert should be given to the receiving hospital as early as possible
- On arrival at the hospital a structured handover should be given to the receiving team
- Secondary emergency department transfer to a major trauma centre should be provided by an appropriate trained team
- For time critical conditions, the transfer should be performed without delay
- A structured checklist and standardised documentation should be used and included in the patients’ clinical records
- All components of the major trauma network including pre-hospital services should submit data for all major trauma patients to a national trauma dataset (currently TARN)
- Regular audit of the pre-hospital phase of trauma care is essential. Pre-hospital care providers should be given feedback on the patients they manage and should attend audit and other meetings in the MTC and network as part of good clinical governance.

**Referral**

Patients will be triaged to the MTC directly or through a secondary transfer protocol. The MTC will have a policy of automatic acceptance for patients requiring MTC care from within the network. Hospitals within the MTN will work together ensuring patients have seamless access to care and transfer back to their local hospital when medically fit.

**Emergency Care and Surgery:**

- 24/7 Consultant (trauma team leader) available on the MTC site to receive the trauma patient on arrival (patient to be seen within 5 minutes of arrival)
- The trauma team should be appropriately trained and competent to deliver their role
- Trauma team present 24 hours a day for immediate reception of the patient
- Ability to undertake surgical and resuscitative thoracotomy in the emergency department (ED)
- A protocol to manage massive haemorrhage in place for patients with severe blood loss which includes the administration of tranexamic acid within 3 hours of injury, and transfusion specialist advice should be available 24 hours a day
- 24/7 Immediate availability of fully staffed and equipped operating theatres
- All emergency operative interventions performed within the first 24 hours should have consultant involvement, and consultant presence in the operating room for life- or limb-threatening injuries. A consultant will be involved in surgical decision making; Emergency trauma surgery will be undertaken or directly supervised by consultants. There will be a network protocol in place and operational at the MTC for assessing the whole spine in Major Trauma patients.
- Consultants available on site within 30 minutes when required and senior trainees (ST5s and above or equivalent) on site 24/7 for:
  - Neurosurgery;
  - Spinal and spinal cord surgery;
  - Vascular surgery;
  - General surgery (adult or child);
  - Trauma and Orthopaedic surgery;
  - Cardiothoracic surgery;
  - Maxillofacial surgery;
  - Anaesthetics;
  - Interventional radiology;
  - Intensive care
  - Plastic surgery
Diagnostics and Radiology
- Immediate (within 30 minutes) access to computerised tomography (CT) scanning, initial reporting within 15 minutes and detailed reporting within 60 minutes of scan;
- Availability of interventional radiology within 60 minutes of referral
- MRI scanning should be available 24/7
- Tele-radiology facilities in place between all sites within the network

On-going Care and Reconstruction
- Immediate access to critical care or high dependency care (adult or paediatric) when required
- A defined team to manage on-going patient care, including a key worker (also referred to as trauma and rehabilitation co-ordinator) to support patients through the pathway and into rehabilitation.
- Specialist nursing and allied health professional trauma roles
- Access to cross speciality supporting services which will include pain management, rehabilitation medicine (which usually includes management of disturbed behaviour), neuropsychology and neuropsychiatry and psychosocial and mental health care
- A defined ward for major trauma patients
- A ward environment suitable for people with disability to practice and maintain their activities
- A nursing team in the ward, who are able to facilitate practice of and independence in functional activities by the patient, and undertake activities with the patient as advised, by the rehabilitation team

Early/Hyper Acute Phase Rehabilitation
- A defined service for early/hyper acute trauma rehabilitation service which meets the needs of patients with ISS >8
- Rehabilitation should start as soon as is appropriate after admission, typically in the critical care setting (and certainly within 72 hours), and continue at the intensity required, and for as long as is necessary, to enable patients to achieve their functional potential. A rehabilitation prescription should be provided to all trauma patients with identified needs. This prescription should be reviewed and amended in response to changes in condition.
- The prescription for rehabilitation reflects the assessment of the physical, functional, vocational, educational, cognitive, psychological and social rehabilitation needs of a patient
- An initial assessment by the relevant members of a specialist rehabilitation team (including nurses and therapists) to add to the medical review.
- All patients to have an initial rehabilitation prescription within 2-4 calendar days of presentation. The prescription may identify no further need for rehabilitation, may recommend monitoring or may require full active engagement of the wider rehabilitation team.
- All patients to receive early phase rehabilitation and all other actions identified in the rehabilitation prescription; if action or input cannot be delivered, the reason should be recorded and intervening action to be undertaken.
- All patients needing rehabilitation input or monitoring to be under the care of a consultant-delivered team that includes rehabilitation nurses, allied health professionals and a consultant in rehabilitation medicine or alternative consultant with skills and competencies in rehabilitation.
- This team will meet weekly to discuss all patients within the scope of this specification in the MTC (Including those in Intensive Care Units
Rehabilitation phase (ongoing specialised and local rehabilitation)

- Trauma patients should receive routine screening of rehabilitation needs and appropriate levels of care and rehabilitation at all points along their care pathway
- Network to provide rehabilitation services appropriate the needs of complex trauma patients
- Provider therapy teams should provide access to rehabilitation assessment seven days a week.
- A discharge summary describing the patient’s injuries, care received and ongoing needs and plans should be provided at the time of discharge or transfer from a Major Trauma Centre or Trauma Unit. This should include the rehabilitation prescription
- There should be rehabilitation and care coordinator posts throughout the network. Each patient should have an identified key worker to be a point of contact for them, their carers or family doctor and to ensure delivery of their personal prescription for rehabilitation
- Vocational rehabilitation should be a key component of the rehabilitation service
- There should be an adequately skilled and resourced multi-disciplinary rehabilitation team in all of the network’s services. Multi-disciplinary teams should include: physiotherapists, occupational therapists, orthotics, prosthetics, speech & language therapists, psychology and dieticians who are specialised in the care of poly trauma patients
- Policies for nutritional management should be in place in Major Trauma Centre/s and Trauma Units
- Use should be made of VC/telehealth technology to support the rehabilitation phase enhancing shared care arrangements between generic providers of rehabilitation and the specialist trauma rehabilitation teams
- The needs of families and carers in all phases of major trauma rehabilitation should be considered, including the distances that may be incurred in travelling

Network Delivery

The Major Trauma Network will be led by a Network Director and will take responsibility for the care of all patients referred with major trauma in the area covered by the network, as defined by local protocols and capabilities of other hospitals receiving acute trauma admissions and transfer arrangements to a MTC for under triage and secondary transfer protocols. There should also be the identification of a Network Clinical Lead for Rehabilitation Services to coordinate the development and delivery of rehabilitation services and long-term support in the community, and the delivery of comprehensive and effective rehabilitation to meet the needs of traumatically injured patients, irrespective of their age.

The MTC will:
- Be responsible for all stages of care, including the rehabilitation and transfer aspects of the patient’s pathway
- Provide clinical advice to other providers within the network. This will include pre-hospital treatment, patients awaiting transfer to the MTC for definitive treatment, and following acute care when the patient is discharged to on-going specialised and local rehabilitation services
- Accept the secondary transfer of major trauma patients in accordance with the clinical condition of the patient
- Be actively engaged and contribute to the operational requirements, training, governance and audit within and across the MTN
Appendix 3 – Service Model

- Deliver care and access to treatment in line with locally agreed network protocols and guidelines

**Discharge planning, continuing care and rehabilitation**

**Patient transfer**
- There should be cross network agreements and adequate resources to ensure that once specialist trauma care has been completed, patients can be transferred to the care of a service which is able to meet their ongoing care and/or rehabilitation needs.
- There should be a formal handover back to the local therapy team (including ALAS) via an identified therapy lead at the provider unit. The responsibility should be on the local team to ‘pull’ patients back to local services. This must be achieved in a timely manner with adequate notice to plan and support transition. The local therapy team should visit the patient at the provider unit as part of transfer planning. The transfer should be followed up with a visit from the provider therapy team following transfer.
- A discharge summary must be provided to support the patient’s transfer to an alternative healthcare setting or the community.
- Ongoing access to advice from provider therapy teams as required.

**Communication**
- There will be effective communication between all those responsible for the patient’s care, the patient and where appropriate their family and other carers.
- Patients will be provided with a full range of condition-specific information in appropriate formats.
- A directory of services and resources should be developed relating to rehabilitation and ongoing care to facilitate referral and access to these services. Links with the local authorities and third sector are integral to the rehabilitation model.

**Audit, data management, governance and quality improvement**
- Full data submission to TARN within 25 calendar days following a patient’s discharge.
- The Major Trauma Network will be responsible for drawing down its report from TARN and ensuring the ISS is confirmed.
- The Major Trauma Network will be responsible for clinical governance and collaborate with other hospitals in the network in reviewing and learning from TARN data.
- There should be a review of the applicability of the UK National Dataset for Specialist Rehabilitation Services to all Major Trauma patients.

Representatives from hospitals within the networks will meet regularly to examine performance through formal governance processes. Performance improvement will be undertaken through regular mortality and morbidity meetings which will generate action plans for improvement.

**3.6 Key risks**

There are a number of risks associated with the development of the Major Trauma Network and Major Trauma Centre/s:
- Failure to identify and plan co/inter-dependencies
- Inconsistency of data across hospital sites to inform service modelling
Appendix 3 – Service Model

- Lack of regional clinical consensus on service model
- Lack of stakeholder commitment to process
- Uncertainty regarding service changes
- Failure to fully capture capital and revenue implications, lack of affordability and failure to get agreement on funding flows
- Failure to fully capture staffing implications
- Failure to agree and implement network arrangement may adversely affect clinical recruitment and retention
- Clarity on commissioning arrangements
- Inadequate communications
- Failure to deliver informatics solutions at implementation

4. Workforce

The proposed service model is based on the following workforce-related principles:

- Services to meet national clinical and workforce standards
- Providing robust staffing arrangements that comply with employment legislation (e.g., Working Time Directive) and meet the requirements of the Deanery/General Medical Council for clinical training and supervision where appropriate
- Access to senior medical advice and treatment 24/7 for major trauma patients
- Service models underpinned by realistic and deliverable workforce models
- Stable medical teams that deliver high-quality patient care in an effective environment in which to train and educate the next generation of doctors
- Integration of care and effective relationships with other health professions
- An appropriate balance of specialist care and care coordinated expertly and holistically around patients’ needs
- Supporting staff to ensure that they have the appropriate skills, experience and commitment to provide effective assessment, advice and/or treatment
- Developing clinical roles to provide future workforce flexibility

The service model and standards describe some specific workforce requirements:

- The Major Trauma Network will be led by a Network Director
- There should be identification of a Network Clinical Lead for Rehabilitation Services
- Enhanced care teams should be available 24/7 to provide care to the major trauma patient
- 24/7 consultant (trauma team leader) available on the MTC site to receive the trauma patient on arrival
- Trauma team present 24 hours a day for immediate reception of the patient
Appendix 3 – Service Model

- All emergency operative interventions performed within the first 24 hours should have consultant involvement, and consultant presence in the operating room for life- or limb-threatening injuries. A consultant will be involved in surgical decision making; emergency trauma surgery will be undertaken or directly supervised by consultants.
- Consultants available on site within 30 minutes when required and senior trainees (ST5s and above or equivalent) on site 24/7 for specified specialities
- A defined team to manage on-going patient care, including a key worker (also referred to as trauma and rehabilitation co-ordinator) to support patients through the pathway and into rehabilitation.
- Specialist nursing and allied health professional trauma roles
- A nursing team in the ward, able to facilitate practice of and independence in functional activities by the patient, and undertake activities with the patient as advised, by the rehabilitation team
- An initial assessment by the relevant members of a specialist rehabilitation team (including nurses and therapists) to add to the medical review.
- All patients needing rehabilitation input or monitoring to be under the care of a consultant-delivered team that includes rehabilitation nurses, allied health professionals and a consultant in rehabilitation medicine or alternative consultant with skills and competencies in rehabilitation. A speciality trainee registrar at St4 or above in rehabilitation may deputise for a consultant on occasion
- There should be rehabilitation and care coordinator posts throughout the network
- There should be an adequately skilled and resourced multi-disciplinary rehabilitation team in all of the network’s services. Multi-disciplinary teams should include: physiotherapists, occupational therapists, orthotics, prosthetics, speech & language therapists, psychology and dieticians who are specialised in the care of poly trauma patients

5. Specialised Tertiary & Networked Services

- Paediatric intensive care (PICU) will remain at Children’s Hospital for Wales
- Paediatric burns services will be delivered by Bristol
- Paediatric rehabilitation model will need to be considered by WHSSC
- Need to consider capacity requirements on WAST for secondary transfers

6. Key Performance Indicators

(To be completed in implementation phase)

7. References

- Regional Networks for Major Trauma: NHS Clinical Advisory Groups Report (September 2010)
- Centre for Workforce Intelligence: Report on Regional Trauma Networks (March 2011)
SERVICE MODEL - REHABILITATION

1. Introduction

This paper describes the proposed rehabilitation service model for a major trauma network to serve South Wales, South Powys and West Wales.

The rehabilitation service model is being developed by the Major Trauma Network Rehabilitation Workstream, which reports to the Major Trauma Network Project Board. It has been developed via a series of three workshops with participants in the workshops nominated through members of the Major Trauma Project Board and included representatives from a broad spectrum of professionals within each Health Board – Abertawe Bro Morgannwg, Aneurin Bevan, Cardiff & Vale, Cwm Taf, Hywel Dda and Powys, Welsh Ambulance Service Trust – Third Sector partners and Local Authorities. Invitations were also extended to Community Health Councils, Welsh Health Specialised Services Committee and patient representative groups.

The trauma service model has been developed by the Major Trauma Network Clinical Reference Group which is described in a separate document entitled, Clinical Model, May 2015, Final.

Throughout the work to develop the model, rehabilitation has consistently been highlighted as a key part of the patient pathway, commencing at admission, continuing through the inpatient phase to discharge from the major trauma centre or unit out into the community and is a true enabler to achieving the best outcomes for the patient.
2 Scope

The rehabilitation model will align with the major trauma network for South Wales, South Powys and West Wales and will serve the populations of Aneurin Bevan UHB, Abertawe Bro Morgannwg UHB, Cardiff & Vale UHB, Cwm Taf UHB, Hywel Dda UHB and Powys thHB.

The service model will provide a holistic patient-focused treatment package. The service will comply with accepted best clinical practice and standards, provide improved patient outcomes and have robust governance arrangements. Consideration will be given as to how this service interfaces with other relevant developments and impacts on other clinical and support services.

Vision

To ensure patients have appropriate, timely access to reliable, safe, high quality and sustainable trauma rehabilitation services at all points along their care pathway from the point of injury to rehabilitation, in line with best practice standard requirements.

Planning Principles

Key underpinning principles are the:

- British Society of Rehabilitation Medicine, Specialist Rehabilitation in the Trauma pathway: core standards (version 1.4 – October 2013);
- Regional Networks for Major Trauma: NHS Clinical Advisory Group Report (September 2010) recommendations for Early/Hyper Acute Phase Rehabilitation and the Rehabilitation phase (ongoing specialised and local);
- The Initial Management of Adults with Spinal Cord Injuries, Advice for Major Trauma Networks and SCI Centres on the Development of Joint Protocols: National Spinal Cord Injury Strategy Board (May 2012);
- National Spinal Cord Injury Database; and
- NICE Guidelines on Major Trauma - no: 37, 38, 39, 40 and 41 (February 2016).
<table>
<thead>
<tr>
<th><strong>Service Aims &amp; Objectives</strong></th>
<th><strong>To improve the quality of rehabilitation for patients by:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Providing a comprehensive system of specialist and local rehabilitation for people who have suffered serious injury (major trauma) through the delivery of a regional trauma rehabilitation network;</td>
</tr>
<tr>
<td></td>
<td>• Improving the functionality, health and psychological well-being in those patients who survive their traumatic injuries, increasing their quality of life;</td>
</tr>
<tr>
<td></td>
<td>• Ensuring that services meet agreed national clinical and workforce standards;</td>
</tr>
<tr>
<td></td>
<td>• Always meeting fundamental standards of care/treatment;</td>
</tr>
<tr>
<td></td>
<td>• Valuing patient experience as much as clinical effectiveness;</td>
</tr>
<tr>
<td></td>
<td>• Ensuring responsibility for each patient’s care is clear and communicated;</td>
</tr>
<tr>
<td></td>
<td>• Providing effective and timely access to rehabilitation at all levels;</td>
</tr>
<tr>
<td></td>
<td>• Ensuring robust arrangements for transferring treatment are in place;</td>
</tr>
<tr>
<td></td>
<td>• Tailoring services to meet the needs of individual patients, including vulnerable patients;</td>
</tr>
<tr>
<td></td>
<td>• Supporting staff to ensure that they have the appropriate skills, experience and commitment to provide effective assessment, advice and/or treatment; and</td>
</tr>
<tr>
<td></td>
<td>• Ensuring the quality of the system is monitored and subject to a process of continuous quality improvement.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>To improve the sustainability of services to patients by:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Providing robust staffing arrangements that comply with employment legislation (e.g., Working Time Directive) and meet the requirements of the Deanery/General Medical Council for clinical training and supervision where appropriate;</td>
</tr>
<tr>
<td>• Developing clinical roles to provide future workforce flexibility;</td>
</tr>
<tr>
<td>• Ensuring the population has access to major trauma services within a reasonable timeframe;</td>
</tr>
<tr>
<td>• Planning capacity to meet demand and providing appropriate resources across the network; and</td>
</tr>
<tr>
<td>• Ensuring the network is kept under continuous review and responds to changes in relevant strategies, standards and policies.</td>
</tr>
</tbody>
</table>
To improve access for patients by:

- Delivering a rehabilitation system based on a pathway of care from acute care, ongoing care and rehabilitation and a return to socio-economic functioning; and
- Improving information and support to patients and families to encourage them to be active participants in their rehabilitation.

3 Service Model

Network Delivery

There will be a Network Clinical Lead for Rehabilitation Services to coordinate the development and delivery of rehabilitation services and long-term support in the community, and the delivery of comprehensive and effective rehabilitation to meet the needs of traumatically injured patients, irrespective of their age.

Discharge planning, continuing care and rehabilitation

Patient transfer

- There should be cross network agreements and adequate resources to ensure that once specialist trauma care has been completed, patients can be transferred to the care of a service which is able to meet their ongoing care and/or rehabilitation needs.

- There should be a formal handover back to the local therapy team (including ALAS) via an identified therapy lead at the provider unit. The responsibility should be on the local team to ‘pull’ patients back to local services. This must be achieved in a timely manner with adequate notice to plan and support transition. The local therapy team should visit the patient at the provider unit as part of transfer planning. The transfer should be followed up with a visit from the provider therapy team following transfer.

- A discharge summary must be provided to support the patient’s transfer to an alternative healthcare setting or the community.

- Ongoing access to advice from provider therapy teams as required.
Communication

• There will be effective communication between all those responsible for the patient’s care, the patient and where appropriate their family and other carers.

• Patients will be provided with a full range of condition-specific information in appropriate formats.

• A directory of services and resources should be developed relating to rehabilitation and ongoing care to facilitate referral and access to these services. Links with the local authorities and third sector are integral to the rehabilitation model.

Audit, data management, governance and quality improvement

• Representatives from services within the rehabilitation network will meet regularly to examine performance through formal governance processes.

• A central database is required to monitor and measure rehabilitation outcomes.

• Use of the Network rehabilitation prescription will be mandated.

Workforce

• A defined team to manage on-going patient care, including a key worker (also referred to as trauma and rehabilitation coordinator) to support patients through the pathway and into rehabilitation.

• Specialist nursing and allied health professional trauma roles.

• Able to facilitate practice of and independence in functional activities by the patient, and undertake activities with the patient as advised, by the rehabilitation team.

• An initial assessment by the relevant members of a specialist rehabilitation team (including nurses and therapists) to add to the medical review.
Appendix 4–Rehabilitation Service Model

- All patients needing rehabilitation input or monitoring to be under the care of a consultant-delivered team that includes rehabilitation nurses, allied health professionals and a consultant in rehabilitation medicine or alternative consultant with skills and competencies in rehabilitation. A specialty trainee registrar at St4 or above in rehabilitation may deputise for a consultant on occasion.

- There should be rehabilitation and care coordinator posts throughout the network.

- There should be an adequately skilled and resourced multi-disciplinary rehabilitation team in all of the network’s services. Multi-disciplinary teams should include: physiotherapists, occupational therapists, orthotics, prosthetics, speech & language therapists, psychology and dieticians who are specialised in the care of poly trauma patients.

Rehabilitation is a process of assessment, treatment and management with ongoing evaluation by which the individual (and their family/carers) are supported to achieve their maximum potential for physical, cognitive, social and psychological function, participation in society and quality of living.

Specialist rehabilitation is the total active care of patients with complex disabilities by a multi-professional team who have undergone recognised specialist training in rehabilitation led/supported by a consultant trained and accredited in rehabilitation medicine (Ref BSRM standards).

The aim of the rehabilitation service is to provide rehabilitation appropriate to the level of injury in the right setting. It will start in the Major Trauma Centre and continue through specialist or local rehabilitation services. To provide a holistic pathway of care, service requirements are as follows:

**Early/Hyper Acute Phase Rehabilitation**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A defined service for early/hyper acute trauma rehabilitation service which meets the needs of patients with ISS &gt;8.</td>
<td></td>
</tr>
<tr>
<td>All patients have an initial rehabilitation prescription within 2-4 calendar days of presentation. The prescription may identify no further need for rehabilitation, may recommend monitoring or may require full active engagement of the wider rehabilitation team.</td>
<td></td>
</tr>
<tr>
<td>Rehabilitation starts as soon as is appropriate after admission, typically in the critical care setting (and certainly within 72 hours), and continue at the intensity required, and for as long as is necessary, to enable patients to achieve their functional potential.</td>
<td></td>
</tr>
</tbody>
</table>
- The prescription for rehabilitation reflects the assessment of the physical, functional, vocational, educational, cognitive, psychological and social rehabilitation needs of a patient.

- An initial assessment by the relevant members of a specialist rehabilitation team (including nurses and therapists) to add to the medical review.

- All patients receive early phase rehabilitation and all other actions identified in the rehabilitation prescription; if action or input cannot be delivered, the reason is recorded and intervening action is undertaken.

- All patients needing rehabilitation input or monitoring are under the care of a consultant-delivered team that includes rehabilitation nurses, allied health professionals and a consultant in rehabilitation medicine or alternative consultant with skills and competencies in rehabilitation.

- This team meets weekly to discuss all patients within its scope. A consultant attends over 80% of meetings and continues to provide supervision and support to trainees and the team.

Rehabilitation phase (ongoing specialised and local rehabilitation)

- Trauma patients receive routine screening of rehabilitation needs and appropriate levels of care and rehabilitation at all points along their care pathway.

- Provider therapy teams provide access to rehabilitation assessment seven days a week.

- A discharge summary describing the patient’s injuries, care received and ongoing needs and plans are provided at the time of discharge or transfer. This includes the rehabilitation prescription.

- There are rehabilitation and care coordinator posts in place. Each patient has an identified key worker to be a point of contact for them, their carers or family doctor and to ensure delivery of their personal prescription for rehabilitation.

- Vocational rehabilitation is a key component of the rehabilitation service.

- There is an adequately skilled and resourced multi-disciplinary rehabilitation team. Multi-disciplinary team includes: physiotherapists, occupational
therapists, orthotics, prosthetics, speech & language therapists, psychology and dieticians who are specialised in the care of poly trauma patients.

- Policies for nutritional management are in place.

- Use is made of VC/telehealth technology to support the rehabilitation phase, enhancing shared care arrangements between generic providers of rehabilitation and the specialist trauma rehabilitation teams.

- The needs of families and carers in all phases of major trauma rehabilitation are considered, including the distances that may be incurred in travelling.
South Wales, South Powys and West Wales Rehabilitation Service Model

MAJOR TRAUMA CENTRE
Hyper acute rehabilitation unit

Level 1
Specialist Rehabilitation
Rookwood & Neath Port Talbot

Level 2
MAJOR TRAUMA UNITS
Locations to be determined

Central to progress along the pathway is the Consultant in Rehabilitation Medicine and Rehabilitation Coordinator to ensure communication between levels and pull from one level to the next.

Level 3
COMMUNITY
Home
Nursing Home
Community Hospital
Description of Rehabilitation Levels

Hyper Acute rehabilitation

Rehabilitation should start as soon as is appropriate after admission, ideally in the critical care setting and in line with NICE Guidance: Rehabilitation after Critical Illness in Adults; (Reviewed February 2014). The hyper-acute service enables early rehabilitation input to patients who have intensive rehabilitation needs. Patients with poly-trauma, head injuries, spinal injuries or multiple fractures maybe co-located within a designated ward/unit area within the Major Trauma Centre site allowing enhanced co-ordination from the multi-disciplinary team involved in their care.

Level 1 – Specialist Rehabilitation

A small number of very complex trauma patients will require the skills and facilities of a level 1 specialist rehabilitation facility. These patients will typically present with complex disabilities and a range of medical, physical, sensory, cognitive and behavioural problems. The patients will require input from a wide range of rehabilitation disciplines, including trained nurses, physiotherapy, occupational therapy, dietetics, psychology and ALAS (list not exhaustive).

Specialist rehabilitation input will be initiated early during the patient’s journey. This may commence when the patient is in the intensive therapy unit (‘ITU’) and will continue beyond this phase of treatment. Rehabilitation input will commence with the initiation of a rehabilitation prescription within 72 hours. The prescription will be a standard form template in an electronic format to enable ongoing edit and revision. The prescription should be completed by a specialist in rehabilitation, including an allied health professional or therapist (band 7). Access to specialist rehabilitation will be provided by a rehabilitation consultant, through a specialist rehabilitation prescription.

The designated Major Trauma Centre will incorporate hyper acute rehabilitation provision in order to provide rehabilitation to patients who also require ongoing acute medical treatment. This will enable patients to access relevant medical specialties. The facility will accommodate patients with tracheostomies and naso-gastric tubes. This could be provided on a medical ward or a dedicated major trauma ward and the Team will follow the patient.
When the patient is ready to move from a hyper acute rehabilitation facility, they may be transferred to a level 1 facility according to their needs. The patient may not necessarily need to move through a pathway transferring to a lower level acute facility and then into the community. Where onward transfer to another facility is required, communication with the receiving unit will be proactive and clear. GPs will also receive information on the rehabilitation that the patient has received or been prescribed. Support from neuro-psychiatry will be provided as clinically required.

Continuity of care will be prioritised throughout the patient’s journey. The patient will be allocated a key worker and will have access to a single point of contact (either a nurse or therapist) to enable them to raise queries at any point. Where patients are treated on a medical ward, the trauma team will be expected to work with the medical specialties to ensure that the provision of rehabilitation alongside medical treatment is seamless.

The patient and their family will be informed of relevant information throughout their time in rehabilitation. This will include the provision of an information booklet and an option to keep a patient or family diary. Support to families will also be prioritised and consideration should be given to providing facilities such as on-site accommodation where families travel long distances. Open visiting has also been identified as a priority, factoring in patient feedback. Early links with appropriate third sector agencies should be established.

**Level 2 – acute ongoing rehabilitation – Major Trauma Units**

For the majority of patients whose needs will be less complex and at a lower level, acute and ongoing rehabilitation will be provided within a Major Trauma Unit which will be more localised to their area of residence. They may be directly admitted to the Major Trauma Unit or via the Major Trauma Centre. The patients will require input from a wide range of rehabilitation disciplines, including trained nurses, physiotherapy, occupational therapy, dietetics, psychology and ALAS (list not exhaustive).

Rehabilitation input will commence with the initiation of a rehabilitation prescription within 72 hours and will be overseen by a Consultant in Rehabilitation Medicine. The prescription will be a standard form template in an electronic format to enable ongoing edit and revision. The prescription should be completed by a specialist in rehabilitation, including an allied health professional or therapist (band 7).

The Major Trauma Unit will enable patients to access relevant medical specialties and could be provided on a medical ward or a dedicated trauma ward.
The patient may not necessarily need to move through a pathway transferring to a lower level acute facility and then into the community. Where onward transfer to another facility is required, communication with the receiving unit/community will be proactive and clear. GPs will also receive information on the rehabilitation that the patient has received or been prescribed. The Major Trauma Unit Rehabilitation team will have the capacity and skill set to advise the community teams and local rehabilitation hospitals to outreach to local hospitals or units for patients with ongoing rehabilitation needs.

Continuity of care will be prioritised throughout the patient’s journey. The patient will be allocated a key worker and will have access to a single point of contact (either a nurse or therapist) to enable them to raise queries at any point. Where patients are treated on a medical ward, the trauma team will be expected to work with the medical specialties to ensure that the provision of rehabilitation alongside medical treatment is seamless.

The patient and their family will be informed of relevant information throughout their time in rehabilitation. This will include the provision of an information booklet and an option to keep a patient or family diary. Support to families will also be prioritised and consideration should be given to providing facilities where families travel long distances. Open visiting has also been identified as a priority, factoring in patient feedback. Early links with appropriate third sector agencies should be established.

Level 3—ongoing rehabilitation—Community

As patients improve and no longer require care within an acute setting they will be transferred into a community setting to continue their rehabilitation. The model of which will be determined by the local model of care which may be different across the network area depending on rural or urban localities and will contain vocational/social participation and third sector support as necessary. The Consultant in Rehabilitation Medicine will maintain an overview and patients will be reviewed and managed within the community. There will be links with GPs, the wider Primary Care Team and third sector organisations. Specialist Community Teams such as those working in Acquired Brain Injury and Spinal Injury will support primary care teams with a seamless approach between community and Level 2/specialised care.

To enable a seamless approach, Community areas (to be determined) require:

a) A Community rehabilitation co-ordinator equivalent to MTU Co-ordinator.
b) Early notification of patient injury (via coordinator?), to enable the appropriate people to be involved in planning care journey/ involve families where appropriate.

c) Regular meetings and updates on patient progress to enable informed decisions to be made early in the care journey e.g. modifications/adaptations of property requires intervention as early as possible due to long lead in.

d) Pathways should be in place such that the same standard of treatment and care is provided pan Wales.

e) Sharing of data across HBs, Social Care and Agencies.

f) Knowledge of services available within the community (Directory – Dewis Cymru website with resource directory/database).

g) Clarity around “maintenance” of patients i.e. where one service ends / starts for lifelong support.

Paediatric Rehabilitation

The paediatric rehabilitation model requires further discussion with WHSCC in light of the acute paediatric rehabilitation services model and fixed points such as the Paediatric Intensive Care Unit remaining within the Children’s Hospital for Wales and Paediatric Burns Centre services provided by Bristol. It is recommended that a pan Health Board Task & Finish Group is established to develop and/or confirm pathways based on the acute paediatric rehabilitation model outlined and agreed by WHSCC.
PURPOSE
The purpose of this paper is to describe the process for undertaking the non financial option appraisal for the future delivery of a major trauma centre as part of the major trauma network to serve South and West Wales and South Powys.

INTRODUCTION
The service model for the major trauma network has been developed through the Major Trauma Network Clinical Reference Group (CRG) and Project Board.

The option appraisal will be to:

➢ Consider the number and siting of a major trauma centre to serve the population of South and West Wales and South Powys.

It is assumed that consultant-led emergency departments will act as the ‘trauma units’ within the major trauma network structure. Standards for a major trauma centre and trauma units have been defined through the work of the CRG, substantially informed by the NHS Clinical Advisory Group ‘Regional Networks for Major Trauma’ report (2010) and with reference to the NHS England: NHS Standard Contract for Major Trauma Services (all ages) (2013).

The workshop will need to consider:

➢ The infrastructure requirements for the number and siting of a major trauma centre, based on the agreed service model and the proposed activity that will be centralised in a major trauma centre;

➢ The co-located and interdependent services that will be needed in a major trauma centre; and

➢ Scoring of each option against each of the six benefit criteria.
SERVICE MODELS – THE INITIAL LIST OF OPTIONS

The aim of the service is to provide care to major trauma patients, characterised by an Injury Severity Score (ISS) >15 and most patients with moderately severe trauma (ISS>8), from the point of injury to rehabilitation. Calculation of the ISS requires a full diagnostic work-up and so the service is designed around the triage of patients at the point of wounding, to identify “candidate major trauma patients” on the basis of mechanism of injury and assessment of their symptoms and physical signs. A trauma triage tool will be used to identify patients with major trauma. Patients will be triaged to the major trauma centre directly or through a secondary transfer protocol. The major trauma centre will have a policy of automatic acceptance for patients requiring major trauma centre care from within the network. Hospitals within the major trauma network will work together ensuring patients have seamless access to care and transfer back to their local hospital when medically fit.

An initial “long list” of potential service models for the future delivery of a major trauma centre as part of the major trauma network to serve South and West Wales and South Powys is:

Option 1 – Do nothing
This option describes the current situation and clinical pathway delivery and is used as the baseline comparator. There is currently no major trauma network serving South and West Wales and South Powys and no hospitals have been designated as ‘major trauma centres’ or ‘trauma units’.

Option 2 – Single site – University Hospital of Wales
This option would propose the development of a single-site Major Trauma Centre at the University Hospital of Wales Cardiff. This would mean the designation of the University Hospital of Wales as the major trauma centre serving South and West Wales and South Powys with all other consultant-led emergency departments acting as the ‘trauma units’ within the major trauma network structure, some of which may provide specialist services.

Option 3 – Single site – Morriston Hospital
This option would propose the development of a single-site Major Trauma Centre at the Morriston Hospital, Swansea. This would mean the designation of Morriston Hospital as the major trauma centre serving South and West Wales and South Powys with all other consultant-led emergency departments acting as the ‘trauma units’ within the major trauma network structure, some of which may provide specialist services.

Option 4 – Dual site
This option would propose the development of a Major Trauma Centre that would be delivered across two sites: University Hospital of Wales and Morriston Hospital. This does not mean that the full requirements for a major trauma centre would be provided on each site. This would mean the requirements for a major trauma centre serving South and West Wales and South Powys would be provided across the University Hospital of Wales and Morriston Hospital, one of which would need to be the designated lead for the major trauma network. Some specialist services would need to be provided from Morriston to UHW (e.g. burns and plastics) and from UHW to Morriston (e.g. neurosurgery) through emergency outreach clinical teams. The remaining consultant-led emergency departments would act as the ‘trauma units’ within the major trauma network structure.
Appendix 5–Process for Non-financial Option Appraisal

Option 5 – Outsourced service- no Major Trauma Centre in South Wales
This option would propose that a Major Trauma Centre is not established within South Wales but that this service would be commissioned from a provider partner outside Wales. This would mean the designation of a major trauma centre in England serving South and West Wales and South Powys with the consultant-led emergency departments in South and West Wales acting as the ‘trauma units’ within the major trauma network structure, some of which may provide specialist services.

AGREED SERVICE MODEL

The service model for the major trauma network has been developed through the Clinical Reference Group (CRG) and has been informed by a thorough review of the recommendations of the Clinical Advisory Group Report (2010) and with reference to the NHS England: NHS Standard Contract for Major Trauma Services (all ages) (2013).

BENEFIT CRITERIA – NON FINANCIAL OPTION APPRAISAL

The financial and non financial criteria for this option appraisal have been informed by that previously agreed and used in the South Wales Programme (SWP) and other developing South Wales or all Wales business cases.

In order to assess each of the potential options for the number and siting of a major trauma centre, the benefit criteria, coverage of issues to be considered within each criterion, and the weighting, have been agreed by the CRG and the Project Board. The method of determining the weighting has been to give each criterion a value which, when all added together, equals 100. The agreed benefit criteria, coverage and weighting are:

<table>
<thead>
<tr>
<th>Benefit Criteria</th>
<th>Definition / coverage</th>
<th>Weighting (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality &amp; Safety</td>
<td>Meets agreed clinical, quality and safety standards; Compliance with legislation, regulations and accreditation standards / performance; Supports rapid adoption of best practice; Clinical effectiveness, including:- - Delivers improved outcomes for patients; - Supports R&amp;D; - Improves consistency in clinical practice.</td>
<td>35</td>
</tr>
<tr>
<td>Equity</td>
<td>Service meets potential differential impact on protected groups; Timeliness of access to specialist care for all patient groups / improvements in standards for specific patient groups</td>
<td>10</td>
</tr>
<tr>
<td>Strategic fit</td>
<td>Services delivered within network of integrated care; In line with outcomes of the SWP and other emerging service models. Does not destabilise other clinical services / developments;</td>
<td>15</td>
</tr>
<tr>
<td>Sustainability /Future proof</td>
<td>Availability of appropriately trained and skilled workforce; Service provided by a workforce which is “fit for purpose”, re EWTD and clinical training standards;</td>
<td>25</td>
</tr>
</tbody>
</table>
Appendix 5–Process for Non-financial Option Appraisal

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attracts and retains an excellent workforce across all staff groups; Delivers the critical mass required to achieve full benefit from resources and investment; Does not destabilise other clinical services / developments; Provides business continuity and service contingency in the event of a major incident, etc.</td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>Access to services is optimised Service capacity will meet demand in a timely way Service will be delivered in an appropriate environment Suitable and timely transport for transfers between the major trauma centre and trauma units; Avoidable transfers minimised.</td>
<td>15</td>
</tr>
</tbody>
</table>

**PROCESS**

The non financial option appraisal will be undertaken through a stakeholder workshop.

The workshop will be independently chaired and will be facilitated by the South Wales Health Collaborative. Workshop participants, clinical and managerial, will be invited from each of the six health boards (Aneurin Bevan, Abertawe Bro Morgannwg, Cardiff & Vale, Cwm Taf, Hywel Dda and Powys) and the Welsh Ambulance Services NHS Trust. Each health board and WAST will be allocated a maximum number of attendees (for health boards calculated as 2 representatives per 100,000 population and with 5 representatives from WAST) and will be expected to manage their representation across a range of specialities/disciplines directly involved in or supporting a major trauma centre service. Patient representatives will be invited through third sector support groups and fair geographical coverage will be sought. The CHCs will be invited to attend the workshop in an observer capacity.

Given the expected number of participants at the workshop, attendees will be allocated to one of six groups on arrival. This will be to ensure as much of a balance as possible on each of the groups between organisations, specialities and disciplines. Each group will then subsequently consider in detail a selected number of the above benefit criteria.

Before undertaking the detailed non financial option appraisal scoring, the workshop will:

- Receive a presentation to:
  - Describe the process to develop the service model, highlighting the infrastructure requirements and co-interdependencies
  - Explain the benefit criteria and weighting
  - Set out the options for the configuration of the major trauma network
  - Confirm the process for scoring
  - Describe how the results will then be collated and how the sensitivity analysis will be undertaken, as a post-workshop activity.
Appendix 5--Process for Non-financial Option Appraisal

Scoring

The workshop will then need to undertake the detailed non financial option appraisal, through a scoring exercise. This will be as follows:

Each of the options being appraised will need to be allocated scores relating to how well or not it fulfils or delivers against each of the agreed criteria. To do this, each of the main, key benefit criteria above will be considered in detail through a range of “sub criteria”, with each option being appraised then scored either 0, 1 or 2 for each of these sub criteria: 0 will indicate that the option does not deliver the relevant sub benefit at all, 1 partially delivers it and a score of 2 delivers this fully. These scores will then be averaged for each of the main key benefits, resulting in each being scored out of a total of 2, to give an unweighted total out of 10, for each option. Where possible, this will be informed by hard data and be evidence based and objective, although it is inevitably also going to include a degree of professional judgement. Appendix 1 provides an example of the detailed and, consolidated scoring sheet following this exercise.

Each of the six groups will focus on a selected number of the main benefit criteria and will only score each of the options, for each of the sub benefits as above for each option, for these. This will be as follows, grouped to ensure that the weighted criteria are as equally spread across all of the participants as possible:

- Groups 1 & 2 – Quality and Safety;
- Groups 3 & 4 – Equity and Sustainability/future proofing
- Groups 5 & 6 – Strategic Fit and Access

The scoring for each of the options and categories being considered by each of the groups, for each of the relevant benefit criterion being considered, will need to be provided by each group, based on a consensus view. To assist in this, scoring sheets will be provided and each group will include an independent member to assist in facilitating this scoring.

POST WORKSHOP

When averaged and then consolidated, each of the above scoring for each benefit for each option being appraised will then have the above agreed weighting applied (by multiplying the average scores for each benefit by the weighting) to enable both a weighted and un-weighted outcome to be determined. This will then confirm a preferred option from a non financial appraisal point of view, and also how all of the evaluated options rank and how close any of them are between each other, in meeting the benefit criteria. All this will be vital information to use in conjunction with the subsequent financial appraisal in determining the overall preferred option. This will then be consolidated and completed to feed back to the Project Board, at which it is also expected that a consistency check of the outcomes of the scoring exercise will be undertaken. This will also then be shared with all participants of the workshop, as soon as possible.
Following the completion of this stage of the process, the outcomes will also be tested further through a sensitivity analysis, designed to assess how sensitive the outcome is to changes in some of the input criteria and data. As a minimum, this will review the outcome by:

- Reverse weighting: this will test how sensitive the outcome is to the weighting that has been applied to the benefit criteria. It does so by completely reversing the weighting, so that the highest weighted criteria becomes the lowest, the second highest the second lowest and so on.

- Equal weighting: similar to the above in terms of testing the sensitivity of the weighting applied, this will assume an equal weighting for each of the criteria, and what the resulting scores and ranking of options would therefore be.

- Reviewing the 2nd ranked option: this tests the sensitivity of the preferred option, through potentially two additional analyses. Firstly, it adds a marginal increase in score (typically 5-10%) to each and every criteria for the 2nd ranked option, to see if this would affect the preferred option outcome. If it does not, it then also goes on to test what increase in such scoring would be required to affect this.

All of this will also be undertaken in preparation for the Project Board meeting, to feed into this discussion and also inform the subsequent required financial appraisal. Subject to a final non financial option appraisal outcome at this stage, the detailed financial appraisal will then be undertaken, following any further sub option appraisal focussing on the whole major trauma network and pathway, to determine the overall preferred option.

The results will be fully captured in the resulting business case.
# Appendix 1

## South Wales Health Collaborative

### Major Trauma Network Project

**Draft proposed scoring mechanism for non financial option appraisal**

**Proposed scoring for each sub / detailed benefit:**

- **0** Option does not deliver benefit
- **1** Option partially delivers benefit
- **2** Option fully delivers benefit

## Proposed Draft Scoring Mechanism

<table>
<thead>
<tr>
<th>Main benefit criteria</th>
<th>Detailed benefit being appraised / scored within each</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
<th>Option 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Do nothing</td>
<td>Single site - UHW</td>
<td>Single site - Morriston</td>
<td>Dual site – networked service</td>
<td>Outsourced</td>
</tr>
<tr>
<td><strong>Quality &amp; Safety (35)</strong></td>
<td>Meets agreed clinical, quality and safety standards</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Compliance with legislation, regulations and accreditation standards / performance</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Supports rapid adoption of best practice</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Clinical effectiveness including</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Improves coordination and effective clinical practice</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total Quality &amp; Safety gross score</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Number of sub benefits</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Average Quality &amp; Safety score for weighting (out of a maximum of 2)</strong></td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td><strong>Equity (10)</strong></td>
<td>Service meets potential differential impact on protected groups</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Timeliness of access for specialist care for all patient groups</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Improvements in standards for specific patient groups</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total Equity gross score</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Number of sub benefits</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Average Equity score for weighting (out of a maximum of 2)</strong></td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td><strong>Strategic Fit (15)</strong></td>
<td>Services delivered within network of integrated care</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>In line with outcomes of the SWP and other emerging service models</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Does not destabilise other clinical services / developments</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total Strategic Fit gross score</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Number of sub benefits</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Average Strategic Fit score for weighting (out of a maximum of 2)</strong></td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td><strong>Sustainability / Future proof (25)</strong></td>
<td>Availability of appropriately trained and skilled workforce</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Service provided by a workforce who are “fit for purpose” - e.g. KdR and clinical training standards</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Adequate and maintains an aged workforce across all staff groups</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Delivers the critical mass required to achieve full benefit from investment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Does not destabilise other clinical services / developments</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Provides business continuity and service contingency in the event of a major incident, etc</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total Sustainability / Future proof gross score</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Number of sub benefits</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Average Sustainability / Future proof score for weighting (out of a maximum of 2)</strong></td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td><strong>Access (15)</strong></td>
<td>Access to services is optimised</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Service capacity, will meet demand in a timely way</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Service will be delivered to patients in adequate environments</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Suitable and timely transport for transfers between major trauma centre/s and trauma units</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Avoidable transfers minimised</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total Access gross score</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Number of sub benefits</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Average Access score for weighting (out of a maximum of 2)</strong></td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
</tr>
</tbody>
</table>

**Total gross unweighted scores**

<table>
<thead>
<tr>
<th>Option</th>
<th>Do nothing</th>
<th>Single site - UHW</th>
<th>Single site - Morriston</th>
<th>Dual site – networked service</th>
<th>Outsourced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality &amp; Safety</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Equity</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Strategic Fit</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sustainability / Future proof</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Access</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total average unweighted scores (out of a total of 5)**

<table>
<thead>
<tr>
<th>Option</th>
<th>Do nothing</th>
<th>Single site - UHW</th>
<th>Single site - Morriston</th>
<th>Dual site – networked service</th>
<th>Outsourced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality &amp; Safety</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Equity</td>
<td>2.00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Strategic Fit</td>
<td>3.00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sustainability / Future proof</td>
<td>5.00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Access</td>
<td>3.00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Appendix 1 (cont’d)

South Wales Health Collaborative

Major Trauma Network Project

Draft proposed scoring mechanism for non financial option appraisal

Summary

<table>
<thead>
<tr>
<th>Benefit criteria</th>
<th>Option 1 – Do nothing</th>
<th>Option 2 – Single site - UHW</th>
<th>Option 3 – Single site - Morriston</th>
<th>Option 4 – Dual site - networked service</th>
<th>Option 5 – Outsourced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Score</td>
<td>Weighting</td>
<td>Weighted score</td>
<td>Average Score</td>
<td>Weighting</td>
</tr>
<tr>
<td>Quality &amp; Safety</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>Equity</td>
<td>#DIV/0!</td>
<td>10</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>10</td>
</tr>
<tr>
<td>Strategic Fit</td>
<td>#DIV/0!</td>
<td>15</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>15</td>
</tr>
<tr>
<td>Sustainability / Future proof</td>
<td>#DIV/0!</td>
<td>25</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>25</td>
</tr>
<tr>
<td>Access</td>
<td>#DIV/0!</td>
<td>15</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>15</td>
</tr>
<tr>
<td>Total (out of 10 / 200)</td>
<td>#DIV/0!</td>
<td>100</td>
<td>#DIV/0!</td>
<td>100</td>
<td>#DIV/0!</td>
</tr>
</tbody>
</table>
Purpose

This briefing paper provides members of the Independent Panel with high level draft financial information.

Introduction

In order to support the NHS Wales Health Collaborative (NHSWC) to develop an option appraisal for the location of the South Wales Major Trauma Centre (MTC) both potential sites have undertaken an initial assessment of the revenue and capital consequences of providing the MTC.

It should be noted that finance and clinical colleagues, from both potential MTC sites and the NHSWC have worked closely and collaboratively to prepare these financial assessments.

Summary of Draft Financial Assessments

Both potential MTC sites have assessed their additional investment requirements for both capital and revenue.

Capital – assessed costs

At this stage it is possible to predict the capital impact of accommodating the MTC only in indicative terms. The indicative capital costs of both sites are summarised in the table below:

<table>
<thead>
<tr>
<th>Indicative Capital costs £m</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHW Cardiff</td>
</tr>
<tr>
<td>Morriston Swansea</td>
</tr>
</tbody>
</table>
Appendix 7–Financial Review of Proposed MTC

Revenue – assessed costs

Using the assessed additional capacity requirements both potential MTC sites have estimated their additional investment requirements:

a) To fully meet the standards of a Major Trauma Centre; &

b) As an essential investment against each of the standards to accommodate the additional activity (until such time as funding is available to fund full standard compliance).

<table>
<thead>
<tr>
<th>Indicative Revenue costs</th>
<th>Essential Minimum</th>
<th>Meets standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assessed cost of</td>
<td>Assessed cost</td>
</tr>
<tr>
<td></td>
<td>Change £m</td>
<td>of Change £m</td>
</tr>
<tr>
<td>UHW Cardiff</td>
<td>7.6</td>
<td>10.7</td>
</tr>
<tr>
<td>Morriston Swansea</td>
<td>9.1</td>
<td>11.8</td>
</tr>
</tbody>
</table>

Patient Activity Levels

The MTC Project Board has agreed that the baseline activity for each of the current centres should be based on 2014 Trauma Audit & Research Network (TARN) data. This is outlined below. Data for the remaining hospitals in the system was not available at this time.

<table>
<thead>
<tr>
<th>Baseline</th>
<th>UHW</th>
<th>Morriston</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Trauma</td>
<td>251</td>
<td>175</td>
<td>426</td>
</tr>
<tr>
<td>Candidate Trauma</td>
<td>221</td>
<td>280</td>
<td>501</td>
</tr>
<tr>
<td>Total</td>
<td>472</td>
<td>455</td>
<td>927</td>
</tr>
</tbody>
</table>

The activity to be accommodated by the single centre has been modelled by NHS Wales Informatics Service (NWIS) on the basis of predicted incidence, Lower Super Output Areas (LSOA) population and travel time. The model assumes that a proportion of patient activity will be treated, and generates different MTC volumes for the Cardiff and Morriston options:
The additional activity that would be treated under each option would therefore be:

<table>
<thead>
<tr>
<th>Modelled Activity</th>
<th>UHW</th>
<th>Morriston</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Trauma</td>
<td>404</td>
<td>387</td>
</tr>
<tr>
<td>Candidate Trauma</td>
<td>455</td>
<td>427</td>
</tr>
<tr>
<td>Total</td>
<td>859</td>
<td>814</td>
</tr>
</tbody>
</table>

Capacity Requirement Assumptions

The NWIS model included length of stay assumptions for general ward and ITU stays and bed occupancy, based on current practice. These assumptions have been applied to the additional activity flowing to each of the sites in order to estimate the additional capacity requirements.

Financial Assessment – Revenue costs

Using the additional capacity requirements (outlined above) both potential MTC sites have assessed their additional investment requirements:

- a) To fully meet the standards of a Major Trauma Centre; &
- b) As an essential investment against each of the standards to accommodate the additional activity (until such time as funding is available to fund full standard compliance)
These additional requirements have been costed, and the key resource impacts are summarised in the table below:

<table>
<thead>
<tr>
<th>Assessed</th>
<th>Morriston Swansea Meets Standards £000's</th>
<th>Morriston Swansea Essential £000's</th>
<th>UHW Cardiff Meets standards £000's</th>
<th>UHW Cardiff Essential £000's</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 hr Consultant Cover</td>
<td>919</td>
<td>390</td>
<td>919</td>
<td>393</td>
</tr>
<tr>
<td>Trauma Training</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>24/7 Trauma Team</td>
<td>428</td>
<td>428</td>
<td>256</td>
<td>256</td>
</tr>
<tr>
<td>24/7 Theatre</td>
<td>1,593</td>
<td>774</td>
<td>1,664</td>
<td>808</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>1,125</td>
<td>885</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spinal</td>
<td>172</td>
<td>172</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vascular</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>General Surgery</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T&amp;O</td>
<td>240</td>
<td>240</td>
<td>288</td>
<td>242</td>
</tr>
<tr>
<td>Cardiothoracic</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OMF</td>
<td>52</td>
<td>52</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anaesthetics</td>
<td>1,352</td>
<td>510</td>
<td>1,352</td>
<td>608</td>
</tr>
<tr>
<td>Interventional radiology</td>
<td>206</td>
<td>206</td>
<td>540</td>
<td>270</td>
</tr>
<tr>
<td>Plastics</td>
<td>120</td>
<td>120</td>
<td>640</td>
<td>192</td>
</tr>
<tr>
<td>ITU</td>
<td>1,558</td>
<td>1,558</td>
<td>1,138</td>
<td>1,138</td>
</tr>
<tr>
<td>Admin Support</td>
<td>179</td>
<td>118</td>
<td>168</td>
<td>168</td>
</tr>
<tr>
<td>Trauma Ward</td>
<td>2,172</td>
<td>2,172</td>
<td>2,859</td>
<td>2,684</td>
</tr>
<tr>
<td>Trauma Ward Therapies</td>
<td>796</td>
<td>621</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Psychology</td>
<td>91</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TARN</td>
<td>59</td>
<td>59</td>
<td>69</td>
<td>69</td>
</tr>
<tr>
<td>Non Pay</td>
<td>735</td>
<td>735</td>
<td>759</td>
<td>759</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11,807</strong></td>
<td><strong>9,050</strong></td>
<td><strong>10,662</strong></td>
<td><strong>7,597</strong></td>
</tr>
</tbody>
</table>

**Financial Assessment – Capital costs**

At this stage it is possible to predict the capital impact of accommodating the MTC only in indicative terms.
For Morriston, Swansea a range of scenarios have been worked up to provide the additional capacity modelled from the activity flows and assumed Length of Stays and the assessed costs of these options are included in the table below:

**Morriston Swansea – indicative capital cost options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Additional Capacity £000</th>
<th>CT Option £000</th>
<th>Total £000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>12,837</td>
<td>3,087</td>
<td>15,924</td>
</tr>
<tr>
<td>Option 2</td>
<td>14,307</td>
<td>3,087</td>
<td>17,394</td>
</tr>
<tr>
<td>Option 3</td>
<td>9,880</td>
<td>3,087</td>
<td>12,967</td>
</tr>
</tbody>
</table>

For UHW, Cardiff the estimate is that circa £23m capital resources could be required. This estimate is specific to the site at UHW and attempts to be realistic given the context of other changes and capital works, which are underway at the current time or being planned. If UHW was designated as an MTC then the solution and resultant costs could be quite different.
Report from the Major Trauma Project Team in relation to the confirmation of Baseline Major Trauma activity figures in Wales

Introduction

At its meeting dated 11th May 2016, the MTC Project Team received a verbal report and discussed the options in relation to the assessment of the baseline patient activity levels, noting the discussion at the Project Board on 25th April. Discussions were also held at the Joint Workstream meeting on 11th May and the Clinical Reference Group on 19th May.

Initial Baseline Assessments

As part of the options appraisal process carried out in June 2015, the following figures were presented as the baseline estimates of average annual Major Trauma activity by TARN Injury Severity Score (ISS) at the University Hospital of Wales (UHW) and Morriston Hospital respectively.

<table>
<thead>
<tr>
<th>Site</th>
<th>ISS 9-15</th>
<th>ISS &gt;15</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHW</td>
<td>160</td>
<td>189</td>
</tr>
<tr>
<td>Morriston</td>
<td>220</td>
<td>127</td>
</tr>
</tbody>
</table>

These figures were based on official TARN returns for the period January 2012 to June 2014.

Proposed Revised information as at 25th April 2016

Subsequent to the initial options appraisal process, Cardiff & Vale UHB and Abertawe Bro Morgannwg UHB (ABMU) were asked to produce detailed impact assessments around the establishment of a Major Trauma Centre at UHW and Morriston respectively. This process involved estimating the requirements in terms of staff, beds and infrastructure to meet the standards and expected uplift in demand at those sites from their current baseline if they were to become a Major Trauma Centre. This led to some closer scrutiny of the initial baseline estimates, especially those in relation to UHW, where the view from Cardiff & Vale UHB was that these represented a significant understatement of current major trauma activity levels.

To this end, Cardiff & Vale UHB subsequently proposed a revised set of baseline estimates, based on more up to date TARN information (Calendar Year 2014), with additional grossing factors applied, taking into account the following:

1) the % of admissions which had not been clinically coded, and thus not possible to be categorised as trauma or not, and
2) the % of admissions with a trauma clinical code that were unable to be located in order to be reviewed by the TARN co-ordinator, and thus unable to be sent to TARN

In order to ensure comparability between UHW and Morriston, ABMU Health Board were requested to produce their own set of revised estimates using the 2014 date period and the same grossing methodology employed by Cardiff & Vale UHB.

Preliminary figures were then discussed at the Major Trauma Project Board meeting on the 25th April 2016. However, these figures were presented in the form of very detailed spreadsheets, with no
accompanying explanatory guide to the figures, and without a clear summary of the results. As a consequence, some specific and important issues relating to this data were not discussed.

A decision was taken by the Project Board to use the original data and uplift by 12%/13% across the bands of complexity with a need to describe the assumptions and the broad levels of risk associated with this calculation.

Summary and Context

A summary of the various baseline estimate options are shown:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UHW</td>
<td>160</td>
<td>189</td>
<td>209</td>
<td>213</td>
<td>10</td>
<td>26</td>
<td>219</td>
<td>239</td>
<td>221</td>
<td>251</td>
<td>225</td>
<td>243</td>
</tr>
<tr>
<td>Morriston</td>
<td>220</td>
<td>127</td>
<td>288</td>
<td>142</td>
<td>0</td>
<td>32</td>
<td>288</td>
<td>174</td>
<td>280</td>
<td>175</td>
<td>292</td>
<td>144</td>
</tr>
<tr>
<td>UHW + Morriston</td>
<td>380</td>
<td>316</td>
<td>497</td>
<td>355</td>
<td>10</td>
<td>58</td>
<td>507</td>
<td>413</td>
<td>501</td>
<td>426</td>
<td>517</td>
<td>387</td>
</tr>
<tr>
<td>UHW incr</td>
<td>31%</td>
<td>13%</td>
<td>38%</td>
<td>33%</td>
<td>47%</td>
<td>42%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morriston incr</td>
<td>31%</td>
<td>12%</td>
<td>27%</td>
<td>38%</td>
<td>33%</td>
<td>39%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UHW + Morriston incr</td>
<td>31%</td>
<td>12%</td>
<td>32%</td>
<td>35%</td>
<td>39%</td>
<td>41%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key to table

The figures in amber show the baseline estimates that would be arrived at using the methodology proposed by Cardiff & Vale UHB (based on 2014), which include a grossing-up of the admission-based TARN figures. The figures in red are those which were agreed following discussions at the 25th April 2016 Project Board meeting. However, in reaching this decision, it should be noted that most of those discussions were focussed on whether or not to gross up the admissions-based TARN figures in the way suggested by Cardiff & Vale UHB, meaning that certain other matters were rather overlooked.

Having reviewed the figures, the project board agreed that baseline estimates should be revised such that they were based on the calendar year 2014 rather than the Jan 12 – Jun 14 period. As the unadjusted admissions-based TARN figures for 2014 were 12-13% higher than the original baseline estimates for ISS>15 and 31% higher for ISS 9-15, the project board decided that this represented a sufficient increase and that no additional grossing-up factors were required. However, what was rather overlooked was the fact that official TARN figures also include a significant element of non admissions-based activity, for example where a patient is attended to in an Emergency Department, but is not admitted to that hospital (due to death in ED or a transfer to another hospital), and through their recommendations, the project board, possibly unknowingly, were excluding this activity from the baseline figures. This represented a significant change to the methodology from what was used to compile the original baseline estimates.

The figures in green are the official 2014 TARN figures. These use a methodology which is consistent with that used for the original baseline estimates methodology. This would result in a revised baseline estimate shown in green in the table above, and shows increases of 33% and 38% for UHW and 38% and 27% for Morriston for ISS>15 and ISS 9-15 respectively.
It should be noted that there has been a suggestion that 2015 data is applied. Whilst 2015 data is available, it is incomplete and, as a consequence, it is felt to be unreliable at this point.

**Conclusion**

After reviewing the options, the Project team concluded that the use of the official green 2014 TARN figures is:

- Consistent with the methodology that was originally agreed and used for the initial options appraisal process;
- Clear and easy to understand and would provide a consistent methodology for future data analysis and reporting

**Recommendation**

The Project Team recommends that the official 2014 TARN figures (green) are used as the baseline activity.

Project Board is asked consider this recommendation and confirm its position in respect of the baseline activity.

MTC Project Team -May 2016
Appendix 9a–Isochrones Maps
Major Trauma Scenarios – UHW as MTC

Choose Major Trauma Centre(s)
University Hospital Of Wales

Choose Trauma Unit(s)
Multiple Values

Forecasted Activity for Scenario

<table>
<thead>
<tr>
<th></th>
<th>Betsdu General Hospital</th>
<th>Glan Clwyd General Hospital</th>
<th>Morriston Hospital</th>
<th>Prince Charles Hospital</th>
<th>Princess Of Wales Hospital</th>
<th>Royal Gwent Hospital</th>
<th>University Hospital Of Wales</th>
<th>Wrexham Maelor Hospital</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Trauma</td>
<td>10</td>
<td>13</td>
<td>23</td>
<td>14</td>
<td>24</td>
<td>430</td>
<td>12</td>
<td>536</td>
<td></td>
</tr>
<tr>
<td>Candidate Major Trauma</td>
<td>11</td>
<td>15</td>
<td>28</td>
<td>28</td>
<td>16</td>
<td>15</td>
<td>28</td>
<td>477</td>
<td>14</td>
</tr>
<tr>
<td>Major &amp; Candidate Major Trauma</td>
<td>21</td>
<td>29</td>
<td>51</td>
<td>10</td>
<td>36</td>
<td>52</td>
<td>207</td>
<td>27</td>
<td>1,139</td>
</tr>
<tr>
<td>Head</td>
<td>9</td>
<td>12</td>
<td>21</td>
<td>12</td>
<td>10</td>
<td>22</td>
<td>28</td>
<td>390</td>
<td>11</td>
</tr>
<tr>
<td>Non Head</td>
<td>12</td>
<td>17</td>
<td>29</td>
<td>17</td>
<td>14</td>
<td>30</td>
<td>517</td>
<td>15</td>
<td>652</td>
</tr>
<tr>
<td>Secondary Transfers In</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>123</td>
<td>0</td>
<td>123</td>
</tr>
<tr>
<td>Secondary Transfers Out</td>
<td>11</td>
<td>15</td>
<td>27</td>
<td>16</td>
<td>13</td>
<td>27</td>
<td>0</td>
<td>14</td>
<td>123</td>
</tr>
<tr>
<td>Beds</td>
<td>0.8</td>
<td>0.9</td>
<td>1.4</td>
<td>0.8</td>
<td>0.7</td>
<td>1.5</td>
<td>0.8</td>
<td>0.8</td>
<td>49.4</td>
</tr>
<tr>
<td>ICU Beds</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td>0.5</td>
<td>0.1</td>
<td>6.5</td>
</tr>
</tbody>
</table>

TU Catchment

MTC 60 minute isochrone

Population

Within: 1,360,043
% Population: 50.69%
Outside: 468,929
% Population: 18.91%

MTC Catchment

University Hospital Of Wales

Withygrove General Hospital

Royal Gwent Hospital

Prince Charles Hospital

Wrexham Maelor Hospital

Glan Clwyd General Hospital

Morriston Hospital

Betsdu General Hospital

University Hospital Of Wales
Appendix 9b—Isochrones Maps

Major Trauma Scenarios – Morriston as MTC
MAJOR TRAUMA INDEPENDENT PANEL
TERMS OF REFERENCE - FINAL

1. PURPOSE
An independent panel has been commissioned by the NHS Wales Health Collaborative to provide a view on the development of a major trauma network across south Wales, south Powys and west Wales and to make a recommendation on a preferred model for the region. The recommendation will be advisory and will be used by the NHS Wales Health Collaborative to make a formal recommendation on the preferred site of the major trauma centre in the region.

2. OBJECTIVES
The major trauma independent panel will be required to undertake the following:

- Review the service model and specification for major trauma services for adults and paediatrics, across the region.
- Consider supporting evidence from Abertawe Bro Morgannwg UHB (ABM) and Cardiff and Vale UHB (CAV) and for the provision of a major trauma centre at Morriston Hospital, Swansea or the University Hospital of Wales (UHW), Cardiff as part of the major trauma network in south Wales.
- Provide an independent view on the two options for the location of the major trauma centre.
- Provide a view on the phasing of any implementation requirements and priorities for investment within a major trauma centre.
- Advise on the impact on remaining services at Morriston Hospital and UHW Hospital in the event they are not identified as the major trauma centre.
- Advise on the preferred location of a major trauma centre for the region.

In addressing the above, the panel will take into consideration DH guidelines for the establishment of regional networks for major trauma and NICE guidance for major trauma; these guidelines are based on the evidence of best practice and include a number of recommendations which are central to establishing a major trauma centre.

3. ASSUMPTIONS

- A non financial option appraisal has identified that only one trauma centre is viable to support a population of 2.2million (the population in south Wales, south Powys and west Wales).
- The major trauma centre for the region should be located in South Wales.
- Morriston Hospital Swansea and UHW Cardiff are the only options for provision of a major trauma centre in Wales, due to the potential ability to meeting major trauma standards.
• Key stakeholders from across the region will be invited to attend the Independent Panel in order to facilitate openness and transparency. A list of the stakeholders invited is attached.

4. RESPONSIBILITIES

The remit of the independent panel is as follows:

• Review data sets available to support major trauma centre in south Wales, south Powys and west Wales, to include:
  a. Contextual information
  b. Transport times
  c. Activity models
  d. Equality Impact Assessment
  e. Standards for major trauma
  f. Non financial option appraisal
  g. Service models for rehabilitation and acute service
  h. UK Standards for the management of open fractures
• Receive and consider the self assessments against peer review standards and TARN data from ABMU and CAV representatives.
• Hear and consider presentation from ABM and CAV in response to the following questions:
  a. How will the MTC provide all the service required?
  b. How will the Health Board as the MTC address the following service requirements:

  • Neurosurgery
  • Plastics
  • Interventional radiology
  • Paediatrics
  • Cardithoracics
  • Maxilla-facial
  • Critical care capacity
  • rehabilitation
    a. How will the MT service be developed and what are the staffing issues that will need to be considered?
    b. How will trauma ward provision be addressed?
    c. What will the service look like on day 1?
    d. How will you address the infrastructure requirements in medium and long term?
    e. How will relatives and carers be managed in the MTC?
• Provide challenge to Health Boards when considering the presentation/information provided
• Receive and consider the views of EMRTS/WAST, in relation to a major trauma network in Wales
• Advise on the ability of Morriston Hospital and UHW to meet the primary requirements of a major trauma centre as recommended by the NHS Clinical Advisory Group (CAG) ‘Regional Networks for Major Trauma’ report.
• Advise on gaps in service at Morriston Hospital and UHW Hospital in the event they are identified as the major trauma centre
Appendix 10 – Independent Panel Terms of Reference

- Make recommendations to the NHS Wales Health Collaborative for the preferred location of the MTC
- Produce a report for the NHS Collaborative advising on the major issues which need to be considered to determine the most appropriate site for a MTC in Wales

5. MEMBERSHIP

The Independent panel comprises representatives from across major trauma services in the UK.

Panel members were invited on the basis of their national and international reputations as experts in trauma care and the development of trauma systems. All have been involved in the development of regional major trauma systems. The panel includes experts in key specialties that are essential for managing patients with severe multiple injuries.

The Independent panel will be chaired by Professor Chris Moran, the National Clinical Director for Trauma to the NHS in England and Professor of Orthopaedic Trauma Surgery at Nottingham University Hospital. He has led the development of major trauma networks in England, which have increased the probability of surviving major injuries by 25%.

The membership of the panel is as follows:

<table>
<thead>
<tr>
<th>Professor Chris Moran</th>
<th>National Clinical Director for Trauma to the NHS in England and Professor of Orthopaedic Trauma Surgery</th>
<th>Nottingham University Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fionna Moore</td>
<td>Chief Executive</td>
<td>London Ambulance Trust</td>
</tr>
<tr>
<td>Tim Chesser</td>
<td>Consultant Trauma &amp; Orthopaedics</td>
<td>North Bristol, NHS Trust</td>
</tr>
<tr>
<td>Mark Wilson</td>
<td>Consultant Neurosurgeon and pre hospital care specialist</td>
<td>Imperial college, London</td>
</tr>
<tr>
<td>David Lockey</td>
<td>Clinical Director for Severn Major Trauma Network, Consultant Anaesthetist and critical care Medicine</td>
<td>North Bristol NHS Trust</td>
</tr>
<tr>
<td>Shehan Hettiaratchy</td>
<td>Consultant and Honorary Lecturer</td>
<td>Imperial College, London</td>
</tr>
<tr>
<td>Rachel Botell</td>
<td>Consultant Rehabilitation Medicine.</td>
<td>Plymouth Hospitals NHS Trust</td>
</tr>
<tr>
<td>Sue O’Keeffe</td>
<td>Critical Care and Trauma Network Manager, North Wales</td>
<td>North Wales Major Trauma Network</td>
</tr>
</tbody>
</table>
It should be noted that Sue O’Keeffe will provide support in relation to the Welsh context only. She will not have a vote on the panel.

6. **TIMESCALES**

The Major Trauma Independent Panel will take place 21st February 2017.

The report outlining findings from the Independent panel will be submitted to the NHS Wales Health Collaborative within four weeks following the Independent Panel.

7. **ACCOUNTABILITY AND REPORTING ARRANGEMENTS**

The major trauma Independent Panel will:

- Report their initial finding and advice at conclusion of the day to all attendees.
- Provide a report outlining their findings to Bob Hudson, Director NHS Wales Health Collaborative, on behalf of the NHS Wales Health Collaborative Board.

**Drafted:** December 2016  
**Agreed:** January 2017  
**Date:** 12.01.17

Attachment 1.

Representation from ABM and CAV:

- Chief Executive Officer  
- Medical Director  
- Lead Clinician for Trauma Care  
- Lead for acute rehabilitation  
- Planning lead

Other invited key stakeholders

- Chief Executive Officer Public health Wales  
- Ministerial representative  
- Community Health Councils  
- Patient representative from ABM and CAV  
- Lead clinician from Hywel Dda, Cwm Taf, Aneurin Bevan, Powys  
- Director NHS Wales Health Collaborative
Expert review South Wales Major Trauma System
February 2017

Summary

At the request of the Welsh Health Boards, a panel of independent, clinical experts in major trauma met on February 21st, 2017 to consider the structure of a major trauma network in South and West Wales and the potential site of the Major Trauma Centre within this network. The expert panel reviewed information in advance of the meeting and on the day received presentations from Public Health Wales, the Welsh Ambulance Service plus University Hospital of Wales, Cardiff and Morriston Hospital, Swansea.

The expert panel was impressed at the high standard of presentation, the enthusiasm from both clinical teams and the clear support demonstrated by the chief executives, medical directors and senior management teams at both centres.

The expert panel unanimously recommends that the Welsh Health Boards consider the following:

1. The rapid development of a major trauma network for South and West Wales with a clinical governance infrastructure.
2. The adult and children’s Major Trauma Centres should be co-located on the same site
3. The Major Trauma Centre should be located at University Hospital of Wales, Cardiff
4. Morriston Hospital should become a large Trauma Unit and should lead the major trauma network
5. A clear and realistic timetable for the activation of the Trauma Network should be set.
Introduction

Major trauma is defined as a life-threatening or potentially life-changing injury. Injuries can occur to a single part of the body or at multiple sites and the best treatment requires a coordinated response from the accident site to hospital care and then rehabilitation. International experience has shown that this is best provided by a coordinated network of hospitals that work together to allow the patient to receive treatment in the most appropriate facility in a safe and timely fashion. The system should be designed to save life and prevent avoidable disability, returning patients to their families, work and education.

Trauma and injuries are common but only 1 in a 1,000 patients who arrive at an A&E department will have major trauma. It is impossible for every hospital to provide comprehensive care for all major injuries and so the network should identify these patients and ensure their rapid and safe transfer to a designated Major Trauma Centre (MTC) that has the facilities to provide comprehensive and definitive care for the patient. In general, each network will have one MTC together with a network of hospitals that have the facility to receive and provide early care for these patients, rapidly identify those that require the additional facilities at a MTC and then provide safe, onward transfer.

Patients in Mid and North Wales who suffer major trauma are currently transferred to designated MTCs in England. South and West Wales has a population of 2.2 million and the Welsh Health Boards are planning to develop a network to cover this area, which has a mixed urban and rural geography and some remote rural populations.

South and West Wales has two large teaching hospitals with the potential to develop into a Major Trauma Centre within the trauma network.

**The aim of this review was for a group of independent clinical experts in major trauma to assess the available evidence and provide advice to the Welsh Health Boards on the best facility to site the Major Trauma Centre for South and West Wales.**
## Members

**Professor Chris Moran**
Professor of Orthopaedic Trauma Surgery,  
East Midlands Major Trauma Centre  
Nottingham University Hospital  
National Clinical Director for Trauma  
NHS-England

**Dr. Fionna Moore**
Chief Executive, London Ambulance Service

**Mr. Tim Chesser**
Consultant Trauma and Orthopaedic Surgeon  
Severn Major Trauma Centre  
North Bristol NHS Trust

**Professor Mark Wilson**
Consultant Neurosurgeon and Pre-hospital Specialist  
North West London Major Trauma Centre  
Imperial College, London

**Professor David Lockey**
Clinical Director for Severn Major Trauma Network  
Consultant in Anaesthetics and Intensive Care  
North Bristol NHS Trust

**Mr. Shehan Hettiaratchy**
Clinical Director  
North West London Major Trauma Centre  
Consultant Plastic and Reconstructive Surgeon  
Imperial College, London

**Dr. Rachel Botell**
Consultant in Rehabilitation Medicine  
Peninsula Major Trauma Centre  
Plymouth

**Mrs. Sue O’Keeffe***
Critical Care and Major Trauma Network Manager  
North Wales

* Mrs. O’Keeffe provided the panel with expert advice on network management and the Welsh Health Care System but did not have voting rights on the panel.
Evidence reviewed

The expert panel was provided with a bundle of evidence that included:

- Briefing
- Terms of Reference for independent panel
- Acute service model
- Rehabilitation service model
- Service Specification
- Equality impact assessment
- Major Trauma non-financial options appraisal
- Major Trauma flow – adults
- Major Trauma flow – children
- List of services currently provided at UHW
- ABMU major trauma indicators
- South Wales major trauma project

The presentations received followed the published programme for the day (Appendix-1).
_issues considered

institutional commitment
both trusts gave excellent and well-researched presentations and there was evidence that both planned investment in the concept of hosting a MTC. there was good clinical engagement and support from most specialties in both centres and strong support from the chief executives, medical directors and senior management teams at both hospitals. Some of the proposals were aspirational and they should be strongly encouraged to deliver on their aspirations.

geography
Public Health Wales and the Welsh Ambulance Service gave excellent and helpful presentations describing the geography of South and Mid Wales together with the population distribution and the estimated road transfer times to each of the proposed MTCs. In addition, the Welsh Emergency Medical Retrieval and Transfer Service (EMERTS) described their role in pre-hospital management and the facility to provide on-scene medical care, accurate triage and rapid air transfer to either of the proposed MTCs.

Morriston Hospital is geographically more central and has better coverage of the West Wales population but some western and eastern areas would be outside of the proposed 60 minute direct transfer time (by land ambulance) and require secondary transfer. University Hospital of Wales is more central to the urban population and a slightly greater percentage of the population would be within 60 minutes direct transport time. It would provide good coverage for the eastern area but a larger number of patients in West Wales would require initial treatment in a designated local hospital before secondary transfer to Cardiff.

Both hospital sites have excellent road access with motorways close by. Both have acceptable air-ambulance landing facilities.

Overall, the panel concluded that both sites give good access to the population and that geographical factors should not be a major issue in designating the site of the MTC.

facilities

reception and resuscitation
Both hospitals have large accident and emergency departments with the facility to receive and resuscitate patients with major trauma. However, neither hospital has a big enough cohort of Emergency Physicians to support their existing workload. Neither hospital supports ambulance offloads as well as they should. University Hospital Wales has both ore ED Consultants and marginally better off-load times. Both Trusts accept that this is an area for investment, and both Trusts will need to plan how they provide 24/7 availability of a Consultant led trauma team.
University Hospital Wales has CT scanning within the emergency department and immediately adjacent to the Resuscitation Room. At the present time, Morriston Hospital requires a short transfer to the CT scanner: plans were presented to locate a new CT scanner within the emergency department.

**Definitive Care**

**Neurosurgery**

Neurosurgery and neuro-intensive care are key specialties in the management of major trauma as 60% of patients have a head injury and traumatic brain injury is an important cause of death and long-term disability. At the present time, both adult and children’s neurosurgery is based at University Hospital of Wales and there is no neurosurgery at Morriston Hospital.

Morriston Hospital described its plan to develop an adult neurotrauma unit based upon the recruitment of six neurosurgical consultants with expertise in neurotrauma and spinal surgery and it was proposed that this would work in collaboration with the main neurosurgical unit in Cardiff. This service model has been used at two MTCs in England (Sheffield and St. Mary’s, London) but in both cases the distance between the two units is less than 5 miles. There was no plan to move all of neurosurgery to a single site at Morriston Hospital. The WHSSC representative at the expert review clearly expressed the view that the development of a two-site service for neurosurgery in South Wales was against the strategic plan for the region.

The concerns of the expert panel are:

- Recruiting (good) neurosurgery consultants to a post that is half spinal and half trauma with no other components will be extremely difficult.

- Recruiting an adequate number of juniors who are craniotomy competent (8 for a rota) will be even more difficult, if not impossible.

- A stand-alone neurotrauma unit some distance from the main neurosurgical centre (with no plan to move all of neurosurgery there in a set time frame) may not be sustainable in the long term.

- A stand-alone neurotrauma unit is not a model that has professional support for the Society of British Neurosurgeons (SBNS).

- Interventional neuroradiology is now an integral part of trauma management and it is highly unlikely that South Wales could provide a comprehensive service of two sites.
Plastic surgery
There is an excellent plastic surgery department at Morriston Hospital with a Burns Centre that covers Wales and the South West of England and a high quality orthoplastic service. There is no provision for plastic surgery at University Hospital Wales. However, this specialty on its own would not justify placing the MTC at Moriston.

The most significant risk of Cardiff as the MTC is the lack of plastic surgery and orthoplastics. This is an immediate risk that needs to be resolved before day-1. There are numerous examples in England of offsite plastic surgery and Cardiff would be strongly encouraged to learn from these centres and also work closely with Swansea so that the network (and population of South Wales) gets access to the expertise that has been developed in Swansea.

Interventional Radiology
This is now a key specialty in the management of patients with severe bleeding that would have required life-saving surgery in the past. University Hospital Wales has a comprehensive service that would reach the specification for a MTC. Morriston Hospital has a service, which with some investment, could be expanded to meet this specification. Recruitment into interventional radiology is challenging because of low workforce numbers.

Paediatric Intensive Care
The regional paediatric intensive care unit (PICU) is at University Hospital Wales and there are no plans to develop a second PICU at Morriston Hospital. Thus, locating the Adult MTC in Morriston Hospital requires the development of a separate Children’s MTC at University Hospital Wales. The catchment population would be similar to the smallest Children’s MTC in England (based at Sheffield Children’s Hospital) and so would be viable.

The expert panel does not support the concept of a single Adult and Children MTC at Morriston Hospital with a separate pathway for the most severely injured children that require PICU.

Health Care of the Elderly
Changes in the demographic of the population means that major trauma is becoming more frequent in those over 65 years and this age group now represents 35% of major trauma cases. University Hospital Wales presented plans to increase the number of physicians caring for elderly patients by expanding their current orthogeriatric service and including major trauma.
Rehabilitation

Access to this vital part of the patient pathway was much better thought through and available at University Hospital Wales, with facilities at Rookwood Hospital already in place.

Cardiff seems to have an advanced rehab system and exciting plans for the future. Providing the full pathway of trauma care is vital and it appeared that Cardiff had grasped that concept more completely with plans for coordinated rehabilitation within the acute hospital setting. The consultants in Rehabilitation Medicine already in-reach to the acute wards and ‘pull’ or signpost patients to the most appropriate rehabilitation service.

The Cardiff team described the new Rehabilitation Centre that would be able to accept all patients, not limited to those with neurological or spinal cord injuries and would include coordinated psychiatry and psychology input, which is key for many of the major trauma patients.

The expert panel was impressed with the dynamic Rehabilitation Lead in Cardiff who will be key in delivering this comprehensive rehabilitation service. They recognized the key role of the rehabilitation network to allow patients coordinated rehabilitation near to home.
Areas of concern

Although Cardiff gave good presentations some of their proposals were aspirational and the Health Boards should strongly encourage them to deliver on their aspirations.

The panel did not support using the air ambulance for repatriation from the MTC. We would encourage the development of a retrieval service with the provision of lit helipads at Trauma Units.

Concerns were raised about the desire and commitment from the orthopaedic department in University Hospital Wales and the impact of major trauma on the daily fracture service (for the local population) has been underestimated. There is a clear need to appoint a number of orthopaedic surgeons with a job-plan focused on trauma: a review of the provision of fracture surgery is essential.

The impact of being a MTC may have underestimated by both parties, particularly on the Emergency Departments and Critical Care Units. Contingency plans need to be in place for escalating critical care when they become full to allow continued reception of major trauma. These need to be formal network escalation plans.

Morriston Hospital presented an excellent vision for the Network. It is essential that the MTC understands its place within the network and we would recommend that the chair of the major trauma network board and the network clinical lead are not based within the MTC.

The Welsh Health Boards should ensure that the network has the power to make sure the promises are delivered if the service is commissioned. This should include accurate and achievable time lines with a requirement for the Rehabilitation Team, Trauma Team Leaders and Multidisciplinary Trauma Service to be in place from day-1.

It is essential that network agreements, protocols and guidelines are in place before the networks become operational and this should include agreement between hospitals, at Chief Executive level, on automatic transfer and automatic repatriation.
Options Considered

1. Combined Adult and Children’s Major Trauma Centre at University Hospital Wales.
2. Adult Major Trauma Centre at Morriston Hospital plus Children’s Major Trauma Centre at University Hospital Wales.
3. Combined Adult and Children’s Major Trauma Centre at Morriston Hospital with an out-reach PICU trauma service at University Hospital Wales for the most severely injured children.

Recommendations

It is the unanimous view of the clinical expert panel that the Welsh Health Boards consider the following:

1. The rapid development of a major trauma network for South and West Wales with a clinical governance infrastructure.
2. The Adult and Children’s Major Trauma Centres should be co-located on the same site.
3. The Major Trauma Centre should be located at University Hospital of Wales, Cardiff.
4. Morriston Hospital should become a large Trauma Unit and should lead the major trauma network.
5. A clear and realistic timetable for the activation of the Trauma Network should be set.

The main surgical specialty that will need development at University Hospital Wales is Plastic Surgery, with the formation of an orthoplastic unit. Ideally, this could be achieved by transferring the entire service to Cardiff. However, the panel recognise that this may produce major operational problems in the provision of the burns service for Wales and South West England. If this is not feasible, the panel recommends a collaborative approach between both hospitals. It will take time for this service to develop but it should be possible to put a safe clinical pathway in place so that the activation of the network is not delayed by this development. Joint consultant appointments between the two hospitals could achieve this with the establishment of routine orthoplastic operating lists at the MTC (minimum of two per week) with the appropriate equipment and facilities. Mr. Hettiaratchy is available to provide advice on this as a similar model has been developed in London.

Chris Moran
20th March 2017
Introduction

This document presents the evidence collected to date in support of the equality impact assessment (EIA) process for the development of a major trauma network to serve South Wales, South Powys and West Wales.

The Equality Act 2010 places a positive duty on public authorities to promote equality for the nine protected characteristics and requires Welsh public bodies to demonstrate how they pay ‘due regard’ when carrying out their functions and activities. Equality is about making sure people are treated fairly. It is not about treating ‘everyone the same’, but recognising that everyone’s needs are met in different ways. In the context of this work we are required to assess the impact of policies and services on equality. The purpose of this is to ensure that, as far as is practicably possible, the opportunities for promoting equality and human rights for people with protected characteristics are maximised and any actual or potential negative impact is eliminated or minimised.

The Human Rights Act 1998 also places a positive duty to promote and protect rights. We clearly recognise the importance of putting human rights at the heart of the way our services are designed and delivered. We believe this makes better services for everyone, with patient and staff experiences reflecting the core values of fairness, respect, equality, dignity and autonomy.

In addition we recognise that Wales is a country with two official languages: Welsh and English. We have a responsibility to comply with the new Welsh Language (Wales) Measure (2011). This will create standards regarding Welsh which will result in rights being established that will ensure Welsh speakers can receive services in Welsh. The importance of bilingual healthcare for all patients in Wales is fundamental and is particularly important for four key groups - people with mental health problems; those with learning disabilities; older people and young children. Research has shown these groups cannot be treated safely

1 Race; Sex; Gender Reassignment; Disability; Religion; belief/non belief; Sexual orientation; Age; Pregnancy and Maternity; and Marriage and Civil Partnerships: Equality Act 2010
Appendix 12 – Equality Impact Assessment

and effectively except in their first language (Welsh Language Services in Health, Social Services and Social Care, 2012)². Our consideration of equality takes account of this.

EIA requires us to consider how the development of a major trauma service, leading to recommendations for the location of a major trauma centre, supporting trauma units and a comprehensive rehabilitation pathway, operating within a major trauma network structure for south Wales, south Powys and west Wales, may affect a range of people in different ways. The EIA will help us answer the following questions:

- Do different groups have different needs, experiences, issues and priorities in relation to the proposed service changes?
- Is there potential, or evidence that the proposed changes will promote equality?
- Is there potential for, or evidence that the proposed changes will affect different groups differently? Is there evidence of negative impact on any groups of people?
- If there is evidence of negative impact, what alternatives are available? What changes are possible?
- How will we monitor impact in the future?

This document is not intended to be a definitive statement on the potential impact of the major trauma development on protected characteristic groups. The document’s purpose is to describe our understanding at this point in the EIA process of the likely impact.

**Background**

The NHS Wales Health Collaborative, on behalf of Aneurin Bevan, Abertawe Bro Morgannwg, Cardiff & Vale, Cwm Taf, Hywel Dda and Powys health boards, and the Welsh Ambulance Service NHS Trust (WAST), has been coordinating the development of proposals for a major trauma service for south Wales, south Powys and west Wales. The project is being led through the South Wales Major Trauma Network Project Board, which is overseeing the work, and is supported by a clinical reference group and a number of workstreams. The work will lead to recommendations for the location of a major trauma centre, supporting major trauma units and a comprehensive rehabilitation pathway, operating within a major trauma network structure for the region.

Through the project board, clinical reference group and rehabilitation workstream, clinicians and stakeholders have been working together to examine national standards and guidance and to develop service models to improve care, treatment, rehabilitation and outcomes for

² More than just words: Strategic Framework for Welsh Language Services in Health, Social Services and Social care (2012)
the most seriously injured patients, who need to be seen at a specialist major trauma centre operating within an integrated major trauma network.

**Rationale**

The report ‘Regional Networks for Major Trauma’ (National Clinical Advisory Group, 2010)³ compiles key recommendations from national reports and international guidance including from the American College of Surgeons to deliver standards for the care of major trauma patients. The evidence is consistent that the best outcomes are achieved within inclusive trauma systems with major trauma centres and trauma units.

The NCAG report comments that major trauma is a serious public health problem; it is the leading cause of death in all groups under 45 years of age and a significant cause of short- and long-term morbidity.

Internationally, the establishment of trauma systems has been founded on trauma centres. These hospitals specialise in, and are designated for, the treatment of the severely injured. They see such patients with sufficient frequency to gain expertise in their management. Over several decades the evidence that this model improves trauma outcomes has become substantial. Their effect has been assessed using several methodologies and a consistent picture has emerged. Severely injured patients are 15-20% less likely to die if admitted to a major trauma centre than if admitted to other hospitals. A trauma system should have regard to the needs of all injured persons in its area.

Benefits to the whole injured population will derive from an inclusive trauma system that provides for the needs of all injured patients in its region by moving patients to the hospital best able to provide suitable care, freeing resources at other units. The benefits of trauma systems may take 3 years or more to be realised and depend upon an iterative process of needs analysis, service organisation and quality improvement.

At present, there is no major trauma network or designated major trauma centre operating across or within south Wales, south Powys and west Wales. Evidence demonstrates that the introduction of a major trauma centre supported by trauma units and a comprehensive rehabilitation pathway, working in an integrated and mutually supportive way, is expected to raise the quality of services, reduce deaths, and reduce regional limitations and variations in services.

**Expected outcome**

The vision for the major trauma service is to ensure patients have appropriate, timely access to reliable, safe, high quality and sustainable major trauma services at all points along their care pathway from the point of injury to rehabilitation, in line with best practice standard requirements, and evidenced through key performance indicators.

---

The proposal is to establish a major trauma centre operating within an integrated major trauma network for south Wales, south Powys and west Wales. This will provide direct access for patients with very serious and often multiple injuries to the right level of service 24 hours a day, 365 days a year. The major trauma centre will be supported by a network of trauma units, delivered through designated consultant-led accident and emergency (A&E) departments, and rehabilitation provided through specialist and local rehabilitation services.

Rehabilitation is a process of assessment, treatment and management with ongoing evaluation by which the individual, and their family and carers, are supported to achieve their maximum potential. It is a key part of the patient pathway, commencing at admission, continuing through the inpatient phase to discharge from the major trauma centre or trauma unit into the community and is a true enabler to achieving the best outcomes for individuals.

**How it will be delivered**

Emergency departments across the region see and treat many thousands of patients, approximately 750,000 over a year. Approximately 1500 patients will have, or be suspected to have had, a major trauma which is a very small proportion of the total number of patients (0.2%). When patients with a serious and complex injury need to come to hospital we want to have senior clinicians available to see them as soon as they arrive, whatever time of day or night. This means they will get the right diagnosis, start the right treatment quicker and get better faster. We need to offer everyone the sorts of medical advances which mean people involved in serious accidents have the best chance of survival. This kind of medicine should be delivered by teams of doctors, nurses and therapists who have specialist skills, which they use day in and day out so they remain experts in what they do. It can’t be provided in every hospital because they wouldn’t be able to keep up their skills because they wouldn’t be seeing enough patients.

The NCAG report provides advice on delivering treatment for everyone which is based around the needs of individuals irrespective of where they suffer their injuries; transports the patient as rapidly and safely as possible to the hospital that can manage the definitive care for their injuries either directly or by expedited transfer to the major trauma centre; and moves the responsibility for definitive patient care from the receiving clinical team to the trauma network, when appropriate. The NCAG structures the patient pathway from pre-hospital care though to acute care to ongoing care and reconstruction to rehabilitation.

The NCAG report, together with the NHS England Standard Contract for Major Trauma (2013)⁴, have been the main reference points for the development of the service model for south Wales, south Powys and west Wales. The British Society for Rehabilitation Medicine standards have been an additional key reference point in the development of the rehabilitation model.

---

People with a severe injury would be assessed by ambulance staff or assessed and treated by the Emergency Medical Retrieval and Transfer Service/EMRTS Cymru at the scene of the incident. They would then be taken by road or air ambulance directly to the major trauma centre if it was safe to do so, accessible within 60 minutes (NICE guideline, 2016) and the patient did not need stabilising. At the major trauma centre patients would be cared for by an on-site consultant-led team. If the patient needed to be stabilised first, he or she would be taken to the nearest trauma unit, and once stabilised, transferred to the major trauma centre. Once the patient’s specialist trauma care has been completed, patients will be transferred to the care of a service which is able to meet their ongoing care and/or rehabilitation needs. This may be a local hospital or for specialist rehabilitation.

Rehabilitation services will be provided in the most appropriate setting for the level of injury and phase within the recovery process and is modelled on three levels. The model proposes improved communication for patients, across the system, with the implementation of a rehabilitation prescription which will identify the patient’s needs, and ensure these are delivered throughout the pathway. Rehabilitation, delivered more locally will have positive impacts for patients, especially if there is equity of provision across the whole region, and the rehabilitation model aims to ensure that patients receive the highest quality, appropriate rehabilitation, irrespective of their location.

Who is affected?

Patients with major trauma are those with serious, often multiple injuries who require 24/7 emergency access to a wide range of clinical services and expertise. The term ‘major trauma’ is used to describe the most severe single injuries or multiple injuries. It can include major head injury, limb amputation, severe knife and gunshot wounds, multiple injuries or spinal injury and is often defined as an Injury Severity Score (ISS) greater than 15. The definition of ‘trauma services’ generally includes less severe injuries such as fractured hip or ankle or minor head injury.

Major trauma patients require complex diagnostic, integrated and intensive early treatment from a wide range of specialities. Often multiple specialist resources are required with no or little delay, and access to the right service at the right time may be critical to survival.

The estimated incidence for major trauma cases is 185 per million and the estimated incidence of moderate trauma (ISS 9-15) is estimated at 220 per million per year. Modelling undertaken to assess the potential number of patients within the region who would need to be seen and treated within the major trauma network structure has estimated the number of cases as approximately 1500 per year, which would include secondary transfers between

---

5 Major trauma: assessment and initial management: NICE guideline (February 2016)
6 Those who are injured may have one or many injuries and the Injury Severity Score (ISS) is an anatomical score that measures the overall severity of injured patients. A major trauma is defined as the ISS being greater than 15. Moderate trauma is an ISS between 9 and 15: Trauma Audit and Research Network (TARN)
hospitals. This is a very small percentage of A&E workload, (0.2%), but these patients often have complex needs.

Where are we now?

Equality impact assessment is an ongoing process that runs throughout the course of the decision making process, and through implementation and review.

This paper defines the proposal for change and the rationale, sets out the expected outcomes and who will be affected by the proposal, and considers potential impacts on different groups and any possible actions for reducing or eliminating disadvantage.

Stakeholder engagement is an important part of the development of the proposals. Stakeholders have been involved in reviewing the EIA and further opportunities will be taken to assess the impacts as the work progresses.

What the evidence tells us on the need for change

The case for change is founded on firm clinical evidence and guided by national and international good practice. Numerous studies have documented the benefit of organised, regional major trauma care. The findings of an independent audit published in 2013 showed that 20 per cent more patients were surviving severe trauma since the introduction of Major Trauma Networks in 2010 in England (Trauma Audit and Research Network, n.d.)\(^7\).

In 2012, Professor Marcus Longley conducted a review (Longley, 2012)\(^8\) of the evidence about the best configuration of acute hospital services in Wales. Prof Longley’s report provided an objective analysis of the key issues facing the future of the NHS in Wales.

In respect of safety and quality, and on the basis of the available evidence, Prof Longley suggested there are several specialties for which we can be reasonably sure that we know how services should be configured included within which were major trauma services:

- Major trauma Services: There is evidence of significant outcome benefits for patients with major trauma when treated in a dedicated major trauma centre. In a typical year around 1,000 patients in Wales have major trauma:
  - Regionalisation of care to specialist trauma centres reduces mortality by 25% and length of stay by four days
  - High volume trauma centres reduce death from major injury by up to 50%
  - Time from injury to definitive surgery is the primary determinant of outcome in major trauma (not time to arrival in the nearest emergency department)

---

\(^7\) Trauma Audit and Research Network (TARN)

\(^8\) The best configuration of hospital services for Wales: a review of the evidence: Professor Marcus Longley, Welsh Institute for Health and Social Care (2012)
• Major trauma patients managed initially in local hospitals are 1.5 to five times more likely to die than patients transported directly to trauma centres

• One centre might typically serve a population of three to four million people.

The King’s Fund published a report in November 2014\(^9\) which set out the evidence for the reconfiguration of clinical services. This paper aims to help those planning and implementing major clinical service reconfigurations ensure that change is as evidence-based as possible. It investigates the five key drivers – quality, workforce, cost, access and technology – across 13 clinical service areas, summarising the research evidence and professional guidance available in each. Reconfiguration of trauma services was one of the clinical service areas reviewed.

The King’s Fund summarised the evidence that should be taken into account when reconfiguring trauma services as:

• Formalised systems of trauma care, in which care for the most complex patients is centralised into a small number of trauma centres, improves patient outcomes

• Trauma centres need 24/7 access to fully staffed theatres and diagnostics, including CT, MRI and pathology. They also need comprehensive critical care and neurosurgical support

As referenced under the Rationale above, the report ‘Regional Networks for Major Trauma’ (National Clinical Advisory Group, 2010) compiles key recommendations from national reports and international guidance including from the American College of Surgeons to deliver standards for the care of major trauma patients. The evidence is consistent that the best outcomes are achieved within inclusive trauma systems with major trauma centres and trauma units.

In terms of access to healthcare, there is an increasing evidence base that, when given the facts, patients and carers will prioritise excellence and quality over convenience when it comes to their healthcare treatment, particularly for major treatment interventions and life-threatening conditions. A Welsh Confederation survey (YouGov, 2011) sought to establish the level of awareness about the management of the NHS in Wales, perceptions of quality and views on areas of policy including the future for hospital services. The survey found people in Wales say they don’t mind travelling for specialist services if it means the care will be of higher quality, although there is no definition of what a specialist service is and, overall attitudes to concentrating services in fewer, larger hospitals are negative with most people opposing this and believing their local hospital should provide every type of service.

\(^9\) The reconfiguration of clinical services: What is the evidence?: King’s Fund 2014
What are the potential impacts on protected characteristic groups?

EIAs require analysing impacts on the basis of protected characteristics: sex; disability; race; religion or belief/non belief; age (younger people and older people); sexual orientation (lesbian; gay and bi-sexual people); gender reassignment; pregnancy and maternity; and marriage and civil partnerships. We have been gathering evidence to inform our assessment of the potential impact of the proposed establishment of a major trauma network and major trauma centre on patients, families and carers, staff, and other stakeholders.

Looking at a range of national research evidence has helped us to consider the potential impact. In particular, we are aware that many people who share certain protected characteristics such as disability, older age, younger people and some minority ethnic groups also face social and or economic disadvantage. Looking at socio-economic disadvantage goes some way to showing due regard to equality considerations. There will also be other distinct areas that are not driven by socio-economic factors but which relate directly to people with different protected characteristics. The proposals under consideration for the establishment of a major trauma network will result in the centralisation of life-saving treatment for a relatively very small number of patients but with the most serious and complex injuries. Trauma units and a comprehensive rehabilitation service will ensure that as a patient’s condition improves responsibility for ongoing care will transfer to healthcare facilities closer to home. The key issue for the protected characteristic groups would seem to be one of access as evidence tells us that some traditionally underrepresented groups’ access to health facilities is disproportionately low when compared to the general population. The same can be said with regard to good health outcomes.

Below, from review of national evidence and research, discussion concentrates on the ‘at risk groups’ (those most likely to experience major trauma events) and the sections of the population which are likely to be most affected by the major trauma proposals (those groups that are expected to experience impacts which are disproportionate to those experienced by the general population). There is also reference to health care needs in general.

The first observation to make is that major trauma tends not to be closely associated with particular equality groups; events are not simple to predict on the basis of socio-economic characteristics. Of the protected characteristics, none are particularly susceptible to experiencing major trauma. However, a few groups are certainly key to consider in this assessment.

A literature review was carried out as a first stage of gathering evidence to inform the EIA. The results are provided below against each of the protected characteristics. There has also been engagement with stakeholders through work to develop the rehabilitation pathway.
**Gender**

Women are not a high risk group in terms of major trauma. Men are at far higher risk of experiencing major trauma. The NCEPOD report\(^{10}\) showed that 75% of major trauma was in men. This is borne out by local data: in 2013, data for University Hospital of Wales, Cardiff, and Morriston Hospital, Swansea, shows that 70% of major trauma was in men.

Young men are at greater risk of being involved in major trauma accidents, typically arising from moving vehicles, tools or work. Death from trauma is higher in men than it is in women, believed to be because males are much more willing to engage in risk-taking activities.

**Age**

Age is a risk factor for suffering major trauma. It is the leading cause of death for people under 45 years and a significant cause of short and long-term morbidity (National Clinical Advisory Group, 2010)\(^ {11}\). Children under the age of 15 only account for a very small percentage of major trauma and deaths as a result of major trauma. Teenagers and young adults are more likely to need hospitalisation from injuries than other age groups.

Whilst the elderly are infrequent victims of major trauma, their clinical outcomes including survival rates may not be as good as in the young. There is evidence, however, of a rising number of falls in the elderly that should be managed within a major trauma pathway and supported with a frail elderly rehabilitation pathway. The conclusion to a study published in 2015 (Emergency Medical Journal, 2015)\(^ {12}\) suggested that the major trauma population in the UK is becoming more elderly and the predominant mechanism that precipitates major trauma is a fall from lower than 2 metres.

Engagement with stakeholders on the rehabilitation element of the patient pathway identified that the involvement of carers and family in rehabilitation is more difficult the further away rehabilitation is from local support mechanisms. It should be recognised that patients are not always able to return ‘home’, or to the setting they came from. Older patients will have different co-morbidities such as dementia or medical requirements, and it will be necessary to ensure that staff in the major trauma network has all the skills required to care for these patients.

There is a need to consider further the transitional needs of young adults aged between 16 and 18 to ensure that they receive appropriate care and rehabilitation. Young people may

---

\(^{10}\) Trauma: who cares? A report of the national confidential enquiry into patients outcomes and deaths (NCEPOD) (2007)

\(^{11}\) NHS Clinical Advisory Groups Report: Regional Networks for Major Trauma (2010)

\(^{12}\) The changing face of major trauma in the UK *Emerg Med J* 2015;32:911-915
also have different needs, and may require facilities to have relatives closer to them, for example in family rooms for patients from further away or more rural areas.

**Race**

Major trauma is more than twice as common in urban areas due to concentration of traffic and people. Additionally, it has been identified that black people and ethnic minorities are at a higher risk of incidence and mortality from major trauma, at least in part due to a correlation with concentration in urban areas and the relationship of minorities, deprivation and major trauma incidents\(^{13}\).

Engagement with stakeholders on the rehabilitation element of the patient pathway identified that there is a need to consider requirements of those patients who may require translation or interpretation services, and access to volunteers or staff who can converse in a chosen language.

**Disability**

Major trauma is the national leading cause of disability for those under 40 years of age. The improved number of survivals in young adults and the reduced disability will also improve the rate of return to work and socio-economic functioning. Evidence shows that there is a five to fifteen-fold return on the investment made in treatment. As most major trauma patients tend to be of working age, this is an important indicator that given the right care, it is possible for people suffering the most serious injuries to recover sufficiently to go on and have an active working life (NHS East Midlands, 2010)\(^ {14}\).

Engagement with stakeholders on the rehabilitation element of the patient pathway identified that:

Rehabilitation services should give choice to patients with pre-existing mobility issues, for example patient with multiple sclerosis should receive the same options for treatment. Specific patient needs, such as bariatric needs should be considered to ensure the ability to provide equipment across boundaries and within social care sector.

As well as physical disability, there is a need to consider learning disabilities and mental health. It is recognised that the involvement of carers/family in any programme is more difficult the further away rehabilitation is from local support mechanisms, and patients are not always able to return to the ‘home/setting’ they

\(^{13}\) Integrated impact assessment for region-wide service redesign: NHS East Midlands (2010)


\(^{15}\) All Wales Standards for Communication and Information for People with Sensory Loss 2013)
came from. Communication needs in these client groups may be more challenging and care should be adapted accordingly.

There are specific standards under the All Wales Standards for Communication and Information for People with Sensory Loss15 that apply directly to emergency and unscheduled care and these outline the staff training requirements, communication systems and patient needs information which should be provided by health boards.

Improved service will reduce the rates of disability and increase socio-economic functioning.

**Marriage and civil partnership**

No impacts upon this protected characteristic are anticipated.

**Pregnancy and maternity**

No impacts upon this protected characteristic are anticipated.

**Religion or belief (including lack of belief)**

It will be important to note that staff consider and recognise that patients’ personal beliefs may lead them to ask for a procedure for mainly religious, cultural or social reasons or refuse treatment that you judge to be of overall benefit to them16. There are also many issues in relation to prayer, diet, death and dying rituals that would have to be considered.

**Sexual orientation**

Despite an appreciation that awareness of sexual orientation and gender identity issues in the health and social care sector has improved, Lesbian, Gay, Bisexual and Trans (LGBT) patients in Wales report significant barriers to health and social care services17. Feedback provided at a Stonewall event indicated that service providers often use inappropriate language when dealing with LGBT patients, and make assumptions about patients’ sexual orientation or gender identity. This makes LGBT people feel anxious about accessing health or social care and creates barriers to honest discussions about their health needs. Moreover, it can lead to serious health risks. There is a need to ensure that patient’s needs and personal circumstances are taken into consideration when providing care along the patient pathway, including any implications for rehabilitation services.

Stonewall have commended work by healthcare employers around setting up LGBT staff networks, putting zero tolerance policies in place towards discrimination, and taking a more active approach to LGBT community engagement as having improved the experiences of

17 [http://www.stonewallcymru.org.uk/our-work/research/have-your-say](http://www.stonewallcymru.org.uk/our-work/research/have-your-say)
staff and their patients. Health boards should continue to seek to make progress in this area.

**Transgender**

Trans* is an umbrella term used to describe the whole range of people whose gender identity/or gender expression differs from the gender assumptions made at birth. In ‘It’s just Good Care: A guide for health staff caring for people who are Trans’ 2015 Trans* people must be accommodated in line with their full-time gender expression. This applies to toilet facilities, wards, outpatient departments, accident and emergency or other health and social care facilities, including where these are single sex environments. Different genital or chest appearance is not a bar to this. Privacy is essential to meet the needs of the trans* person and other service users. If there are no cubicles, privacy can usually be achieved with curtaining or screens. For people who are still in transition, any compromise must be temporary. The wishes of the trans* person must be taken into account rather than the convenience of nursing staff. An unconscious patient should be treated according to their gender presentation. Absolute dignity must be maintained at all times. It also states that breaching privacy about a person’s GRC or gender history without their consent could amount to a criminal offence. A medical emergency where consent is not possible may provide an exception to the privacy requirements. All these issues, as well as others, could be mitigated through training.

**Welsh Language**

Public services have a responsibility to comply with the Welsh Language (Wales) Measure. This has created standards which establish the right for Welsh language speakers to receive services in Welsh. There is a risk that the location of the major trauma centre within the major trauma network may impact negatively on Welsh language users. Service users who prefer to communicate in the medium of Welsh may be required to access services at sites which do not have sufficient Welsh speaking staff. This could affect the service user’s ability to communicate with service providers in their preferred language. Meeting the information and communication needs of victims who speak Welsh will need to be taken into account. ‘Language is the core of establishing and expressing identity. Responding sensitively to language, whilst focusing on the individual is an essential principle of maintaining dignity and respect in care within a bi-lingual setting (Welsh Language Services in Health, Social Services and Social Care, 2012)’.

---

18 More than just words: Strategic Framework for welsh language services in Health, Social Services and Social Care (2012)
**Socio-economic status**

While socio-economic status is not a protected characteristic under the Equality Act 2010, it is particularly relevant in relation to the protected characteristics. There is a strong correlation between the protected characteristics and low socio-economic status, demonstrated by the findings of numerous research studies.

The report Transport and Social Exclusion: Making the Connections (Social Exclusion Unit, 2003) highlighted the current challenges faced by socially excluded groups in accessing health and other services. They found people who are socially excluded are more likely to experience a number of factors that in themselves have a negative impact on gaining access to health services. These may include low income, disability and age, coupled with poor transport provision or services sited in inaccessible locations. It also found that the location of health services and the provision of transport to health services can reinforce social exclusion and disproportionately affect already excluded groups.

As a group, and with regard to risk of major trauma, it would be expected that individuals living in deprived areas would be over-represented as pedestrians and under-represented as car occupants in road traffic accidents.

There is a strong relationship, particularly with children, between social deprivation and the incidence of injury and some evidence that the disadvantaged are less likely to survive (The Trauma Audit & Research Network: an overview).

**What are the potential impacts on NHS staff?**

Proposals to establish a major trauma network may affect NHS staff as the final configuration may require staff to have to travel to new workplaces and work more flexibly across health board boundaries.

There is anecdotal evidence that the establishment of a major trauma network and centre within South Wales would improve recruitment and retention for those clinicians who wish to practise in such a structure. It would also ensure the arrangements for the delivery of major trauma services in south Wales, south Powys and west Wales are on a par with the structures in the rest of the UK.

Staff will be engaged and consulted on the proposals and any staff affected by the final outcome will be supported by the NHS Wales Organisational Change Policy (2009). A partnership approach with trade union colleagues will be ensured to achieve an effective transition to any new arrangements.

**What are the human rights implications of the major trauma development?**

The EIA needs to be cognisant of the European Convention on Human Rights incorporated into domestic law through the Human Rights Act 1998 as well as international treaties.
Everyone has the right to participate in decisions which affect their human rights. The convention on the rights of people with disabilities contains protection of the right to participate in decisions and access to support for participation and access to information.

The assessment so far has indicated Article two: the right to life, and Article eight: the right to respect for private and family life, home and correspondence, are of particular relevance and potential impact to the development of proposals for a major trauma network.

Right to life (taking reasonable steps to protect life): It is anticipated that having a regionalised service for major trauma, with the most complex care provided from a major trauma centre, will improve clinical outcomes which will have a positive impact on individuals’ right to have their life protected.

Right to respect for private and family life, home and correspondence: the improved quality of care possible through a major trauma network structure should result in patients spending less time in hospital. However, increased travel distances could have a negative impact on the right to maintain family life. This would apply to the patient and individual members of the family.

This is not an absolute right and any interference should be justified, lawful, necessary and proportionate.

United Nations Convention on the Rights of the Child

Children under the age of 18 are protected by the United Nations Convention on the Rights of the Child (UNRNC). Healthcare providers have a duty to protect, promote and fulfil the rights of the child. The UNRNC should be considered in conjunction with the Human Rights Act and the duty to promote fairness, respect, equality, dignity and autonomy. Due regard must be given to the specific needs of a person of his/her age, and in particular the right to maintain contact with family members. This could apply to a child as a patient or a child/sibling of a patient. The convention recognises that children themselves, not adults, are entitled to be involved in decisions that affect them.

Initial summary conclusion

The introduction of a major trauma network, including rehabilitation and the designation of a major trauma centre and major trauma units, is intended to improve patient care and outcomes for major trauma:

- Time to access: time from injury to definitive trauma care is the primary determinant of outcome in major trauma
- Quality of outcome: regionalised trauma systems show a continuous improvement in results over time with reductions in morbidity and mortality
- Equality: standardisation of regional services, including rehabilitation with protocols should improve equality of access and reduce inequalities
The service redesign intends to standardise transfer for life-saving treatment to a specialised major trauma centre within a major trauma network which will reduce inequalities in outcome. Providing rehabilitation on a network model standardises the approach across the three levels of care and improves local access.

The proposed service redesign does not introduce any additional obstacles; improving standardisation for access and specialist treatment should improve outcomes across all social groups. At this stage, this assessment indicates that there are relatively few cases of major trauma and among them the equality groups are mostly under-represented, since, from national evidence and research, the majority occur in working age men although there are growing numbers of older people needing major trauma care. Assuming, in the majority of cases, major trauma leads to a 999 call, there should not be any particular equality-group impact in terms of access to the new services.

In certain geographic areas, there may be groups that will experience travel times longer than the target 60 minutes travel time for definitive care at a specialist major trauma centre. Consistent with major trauma structures across the UK, and in accordance with NICE guidance, major trauma units are an integral part of the network structure and provide for stabilisation of a patient’s condition before onward transfer to the major trauma centre.

For those visiting major trauma victims whilst being cared for at a major trauma centre, longer and more complex journeys are likely to be necessary for some. Being required to travel to an unfamiliar hospital and longer distances could be particularly difficult and disorientating for people from equality groups, especially older people and disabled people. It is these groups who are more likely to experience problems with communication and understanding. Journey times will be considerably increased for users of public transport, which is highly relevant in terms of equality groups. Car ownership amongst most equality groups and, particularly, socially deprived communities tends to be lower than average, requiring a high reliance on public modes. Early transfer of the patient back to a ‘local’ hospital would help to mitigate long periods in unfamiliar surroundings.

**What happens next?**

The work of the South Wales Major Trauma Network Project Board, Clinical Reference Group and a number of workstreams, is continuing to plan for a major trauma service, leading to recommendations for the location of a major trauma centre, supporting major trauma units and a comprehensive rehabilitation pathway, operating within a trauma network structure for south Wales, south Powys and west Wales. The EIA will continue to be reviewed to further develop and refine this assessment and to ensure consideration is given to mitigate any identified negative impacts. Feedback from a planned awareness raising and engagement process will be incorporated into the next draft.
Works Cited


GMC Guide, Working With Doctors Working For Patients 2013


King's Fund, 2014. The reconfiguration of clinical services: what is the evidence?, s.l.: s.n.


National Audit Office, 2010. Major Trauma Care in England, s.l.: s.n.

National Clinical Advisory Group, 2010. Regional Networks for Major Trauma, s.l.: s.n.


NHS Centre for Equality and Human Rights (CEHR) 2015 It’s just Good Care: A Guide for Health Staff Caring for People Who are Trans*


NHS Wales, 2009. Organisational Change Policy, s.l.: s.n.

NICE guideline, 2016. Major Trauma: Assessment and Initial Management, s.l.: s.n.

Social Exclusion Unit, 2003. Transport and Social Exclusion: Making the Connections, s.l.: s.n.

Stonewall, 2015 Unhealthy Attitudes: The treatment of LGBT people within health and social care services
Appendix 12 – Equality Impact Assessment

Stonewall Cymru, Have Your Say 2015


Trauma Audit and Research Network, n.d. s.l.: s.n.


Welsh Government, The All Wales Standards for Communication and Information For People with Sensory Loss, 2013

Welsh Institute for Health and Social Care, 2012. s.l.:s.n.


Welsh Language Wales Measure, 2011. s.l.:s.n.

<table>
<thead>
<tr>
<th>Date</th>
<th>Domain/Episod</th>
<th>Impact/Impacted</th>
<th>Level</th>
<th>Risk</th>
<th>Cause</th>
<th>Effect</th>
<th>Controls</th>
<th>Owner</th>
<th>Risk Rating</th>
<th>Risk Rating</th>
<th>Status</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
<tr>
<td>26.5.17</td>
<td>Business</td>
<td>Delay in progressing the MTC network model</td>
<td>L</td>
<td>Effect</td>
<td>Cause</td>
<td>Effect</td>
<td>Controls</td>
<td>Owner</td>
<td>Risk Rating</td>
<td>Risk Rating</td>
<td>Status</td>
<td>Comments</td>
</tr>
</tbody>
</table>

**Risk Register:**

- **Risk:** Delay in progressing the MTC network model
- **Cause:** Business
- **Effect:** Delay in progressing the MTC network model
- **Controls:** Delay in progressing the MTC network model
- **Owner:** Delay in progressing the MTC network model
- **Risk Rating:** Delay in progressing the MTC network model
- **Status:** Delay in progressing the MTC network model
- **Comments:** Delay in progressing the MTC network model

---

**Notes:**

- Delay in progressing the MTC network model may be due to insufficient training of staff and may lead to difficulties providing a service safe and effective service.
- Some patients have a worse outcome than the rest of the UK, which may lead to difficulties providing a service safe and effective service.
- A balanced story is given and recommendations are made.
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?
- The work is to be closed?