1. **Background**

Major trauma is the fourth leading cause of death in western countries. In England there are at least 20,000 cases each year, resulting in 5,400 deaths. There are a further 28,000 cases (approximately) a year that do not meet the precise definition of major trauma, but would be cared for in the same way\(^1\).

The incidence of major trauma is particularly high in the young: it is the leading cause of death in those under 45 years of age; an average of 36 life years are lost per trauma death. Trauma is also a major cause of debilitating long-term injuries: for each trauma fatality there are two survivors with serious or permanent disability\(^2\).

Major trauma represents a significant socio-economic burden. Immediate treatment alone is estimated to cost the NHS £0.3 to £0.4 billion a year; this excludes the cost of any subsequent hospital treatments, rehabilitation, home care support or informal care. Annual lost economic output is estimated to be £3.3 to £3.7 billion\(^3\).


\(^3\) NCEPOD 2007, *Ibid*
than one case per fortnight\(^4\). This renders many hospital staff unable to maintain optimal skills in trauma care\(^5\).

Major trauma victims often have multiple injuries that need to be treated by different surgical specialties. Although specialties such as orthopaedic surgery are commonly available in hospitals, this is not the case, for example, for neurosurgery or cardiac surgery. Of 183 hospitals whose EDs currently receive major trauma cases, only 17 (9\%) provide trauma & orthopaedic surgery, general surgery, vascular surgery, cardiothoracic surgery and neurosurgery\(^6\).

Delivering a major trauma system does not involve closing hospitals or EDs, but does involve changing the pathway of care for the most severely injured, by taking them directly to the hospital most able to deal with their injuries, rather than their nearest hospital.

1.2 **Introduction of Major Trauma Networks**

In 2008 the government announced its intention to introduce trauma networks in England. The London trauma system went live in 2010. In the rest of England, planning has been ongoing since 2010/11 for a go-live in April 2012.

The aim of a major trauma system is ‘to deliver the patient rapidly and safely to a hospital that can manage the definitive care of their injuries irrespective of where they suffer those injuries.’\(^7\)

The NHS Clinical Advisory Groups recommend that:

i) ‘patients with injuries suggestive of Major Trauma should be taken to a Major Trauma Centre [a multi-specialty hospital, on a single site, optimised for the provision of trauma care]. Those who are within 45 minutes travelling time from the Major Trauma Centre should be taken there directly, bypassing other units.’\(^8\)

ii) ‘patients [that are] further than 45 minutes travel from a Major Trauma Centre, or trapped, or have an injury pattern or airway compromise that means that enhanced care needs to be provided before they can get to the Major Trauma Centre’ should be taken directly to a closer designated Trauma Unit or have enhanced care at the scene.

2. **NHS Sussex**

The Sussex Trauma Network (STN) was established in January 2010 as a collaboration between NHS provider organisations, commissioners and patient representatives to implement the national major trauma guidance. The STN is

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\(^5\) Relationship between trauma centre volume and outcomes, Ibid

\(^6\) Regional Networks for Major Trauma: the Story So Far, Willett K, Presentation to Commissioning Workshop (September 2010)

\(^7\) Prof. Keith Willett, National Clinical Director for Major Trauma Care (2010)

\(^8\) Regional Networks for Major Trauma, NHS Clinical Advisory Groups (September 2010)
part of the South East Coast (SEC) Trauma System established by SEC Strategic Health Authority (SHA) at the same time. The SEC Trauma System Board is currently co-chaired by the SHA Medical Director and the Chief Executive Officer (CEO) of NHS Sussex. The population of the STN is about 1.6m (excluding visitors).

In addition to the STN in SEC, there is the South West London and Surrey Trauma Network, which revolves around St George’s Major Trauma Centre (MTC) and South East London and Kent and Medway Trauma Network, which revolves around Kings College Hospital in London (another MTC). The nearest MTC in Hampshire is Southampton.

2.1 **Major Trauma Centre**

The Royal Sussex County Hospital (RSCH), Brighton & Sussex University Hospitals NHS Trust (BSUH), has been identified as the prospective MTC for the STN\(^9\). Designation is subject to formal external assessment against the London Trauma Office criteria (these include co-location of neurosurgery and cardiothoracic surgery, and a 24/7 resident ED Consultant) and ratification by the SEC Trauma System Board.

BSUH is working hard to be prepared for the April 2012 go live date as an adult Major Trauma Centre (MTC). An external assurance team was invited to visit in August 2011 who have written a comprehensive report highlighting the critical items that must be in place for go live to happen. Further visits will be undertaken to be assured of progress and state of readiness.

The assurance team have made clear that availability of neurosurgery on site at RSCH is an imperative as is arterial vascular surgery and interventional radiology. Work is underway to recruit the appropriately skilled consultants.

2.2 **Trauma Unit (TU)**

The TU designation process is aligned across SEC and with London. The process is being overseen by the SEC Trauma System Board with leadership from the SEC Trauma System Medical Director and management support from the three SEC Trauma Network Managers, to ensure a consistent approach to reviewing the self-assessments and in managing the peer review visits that will then follow.

SEC Trauma Unit designation criteria were agreed in May 2011. The assessment criteria have been modified from the London Trauma Office criteria with involvement of clinicians from across SEC, including from every acute hospital in Sussex.

Invitations for nominating TU hospital sites were sent to each acute Trust in Sussex and Surrey by the NHS Surrey and NHS Sussex CEOs in June 2011, with a deadline for receipt of self-assessment and costed action plans against the TU designation criteria by 30th September 2011. NHS Kent and Medway determined their preferred three TU sites for their counties.

\(^9\) *Healthier People, Excellent Care*, NHS South East Coast (2008)
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Sussex acute hospital sites have returned their trauma Unit self-assessments for Eastbourne, Hastings, Worthing, Chichester and East Surrey. These have been reviewed, and the initial assessment is that the risks of each site not being viewed fully compliant by a visiting peer review team are not significant. The next stage is therefore a Peer Review of the services to ensure assurance that the individual sites are fully compliant with the designation criteria. This must be completed by April 2012 and go live of the MTC.

3 Strategic benefits of delivering a Sussex-wide model

3.1 Patients in Sussex

A recent retrospective audit suggests that in the STN area, 60 adults per month (1-2 patients per day) and 7 children per month (1-2 patients per week) would be identified by ambulance crews at scene as having injuries suggestive of major trauma.

The experience of the London trauma system is that 29% of such patients have major trauma, 14% have moderate or less severe injuries that require hospital admission, 34% require hospital admission but do not meet the technical definition of major trauma, and 23% are discharged from the ED. This level of ‘over triage’ is to be expected and is considered to be well within international norms.

3.2 Patient Care Outcomes

A series of reports has highlighted current deficiencies in trauma care\(^{10}\). The national trauma dataset\(^{11}\) shows that hospital outcomes range between five ‘unexpected’ survivors to eight ‘unexpected’ deaths per 100 trauma patients. The 2007 National Confidential Enquiry into Patient Outcome and Death (NCEPOD) study\(^{12}\) found that 60% of major trauma patients received a standard of care considered ‘less than good practice’.

The published literature suggests that where trauma systems have been introduced, in-hospital mortality reduces by 15-20%. The National Audit Office estimates that by introducing trauma networks in England, an additional 450 to 600 lives could be saved each year\(^{13}\).

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\(^{10}\) Eg. Better Care for the Severely Injured, Royal College of Surgeons of England and the British Orthopaedic Association (2000) - [http://www.rcseng.ac.uk/publications/docs/severely_injured.html](http://www.rcseng.ac.uk/publications/docs/severely_injured.html)

\(^{11}\) The national Trauma Audit & Research Network (TARN) database uses a model to calculate the likely rates of survival for particular injuries or combinations of injuries, taking into account age, gender and the patient’s physical response to their injuries. It then compares the number of expected survivors against the number of actual survivors to produce a rate of survival for each hospital adjusted by the complexity of the major trauma case.

\(^{12}\) NCEPOD 2007, *Ibid*

\(^{13}\) *Major Trauma Care in England*, National Audit Office (February 2010)
3.3 Patient Flows

In discussion with the South East Coast Ambulance Service (SECAmb) and in line with the national clinical recommendations, the expected changes in patient pathways are as follows:

- Major trauma patients who are currently transferred to hospitals out of county (e.g. to St George’s for pelvic & lower limb reconstruction, or to the Royal London Hospital by Air Ambulance) will instead be treated at the RSCH, which will be closer to home.

- In the event of suspected major trauma, 82% of the STN population catchment is located geographically within 45 minutes of RSCH and would normally be taken there directly, bypassing other hospitals. Patients requiring burn care would be taken to the Queen Victoria Hospital (QVH) in East Grinstead after triage by a TU or, as clinically appropriate, receive their care at RSCH under joint management.

- The remaining 18% of the network population catchment that does not live within 45 minutes of the RSCH would be taken to the nearest designated TU, with a subsequent ‘time critical’ secondary transfer to the RSCH (as MTC) as required, whether by road or air ambulance.

- The care provided to the trauma patient in the first few hours can be absolutely critical in terms of predicting longer-term recovery. It is also, therefore, essential for ‘first responders’ to assess patient needs effectively, then to be clear about where best in the region will meet those needs. At present, there is variability in the pre-hospital care stage of the pathway – and an over-focus on response time alone – which, as a result, means that patients are at risk of receiving sub-optimal care. Evidence from military and other sources demonstrates that in these cases a system for provision of advanced resuscitation skills at or near the scene of the incident is a crucial factor in improving mortality and morbidity as part of a clear Trauma System.

- A major trauma rehabilitation & reablement strategy is in development. This aims to ensure that trauma patients receive a ‘rehabilitation prescription’ in the MTC or TU and are transferred to as local a rehabilitation service as clinically appropriate – rather than ‘repatriated’ to their local hospital without a clear plan for care.

- Paediatric Trauma will require a separate pathway, which will be implemented by April 2012 (subject to the national review of paediatric cardiac services which are co-dependencies of trauma centre status). The MTCs will likely be Southampton and a London Hospital. The designations of these are progressing. Currently all acute hospitals will go through a similar process as to adults for designation with RSCH likely to be a trauma unit and not a centre.
3.4 Interdependencies

**London and South East Region (LASER) burns review** – the SEC Regional Commissioning Board and SEC Trauma System Board have both had considered discussions of the implications of the designation criteria for burns units by LASER. NHS Sussex and the SEC Specialised Commissioning Group have both formally written to LASER to ensure the needs of SEC are considered within the finalised designation criteria which currently require co-location of certain services. QVH already provides a plastics rota to RSCH that is required for Brighton’s MTC compliance.

**Vascular and Interventional Radiology** – implementing the Sussex Vascular Review is an imperative to preparedness for MTC go-live. The inaugural meeting of the Sussex Vascular and Interventional Radiology (SV&IR) Network was held on 9 November. Sussex needs to ensure that there is a 24/7 on-call vascular surgery and vascular interventional radiology rota at RSCH.

NHS Sussex has drafted a statement as to why the Sussex Vascular Review recommendations are the preferred options for a long-term clinically safe and affordable vascular service for the Sussex population.

**Wessex Trauma Network** has invited NHS Sussex membership to its commissioning group to ensure alignment of county boundary pathways.

**South Central** ("Developing Safe and Sustainable acute services in South Central") – an engagement document covering Stroke, Trauma and Vascular, which was shared with West Sussex Health Overview and Scrutiny Committee (HOSC) at its September 2011 meeting. NHS Sussex is working with NHS Southampton City, NHS Hampshire, NHS Isle of Wight and NHS Portsmouth (SHIP) cluster to align engagement and consultation processes where needed with vascular services (see above).

**Rehabilitation** – a SEC trauma rehabilitation review’s recommendations are to be implemented through a local gap analysis/audit. The poly rehabilitation model with specialist rehabilitation where really needed is a model that long-term condition leads have started to work in Sussex. Combining the trauma rehabilitation needs with those of stroke, neuro and acquired brain injury aligns with the previous neuro-rehab review of 2008.

4 Timescales

The TU and MTC designation process has started for both Paediatrics and Adults. The implementation of the SEC Trauma system should be completed by April 2012. There are a number of co-dependencies to the go live of the major trauma system in Sussex. If any of the services do not meet the designation criteria, a mitigation plan will be developed to provide the safest care for patients. A decision will need to be made about when and what contingency plans should be put in place to ensure a major trauma system with clear defined pathways for the residents of Sussex, whether through transferring some patients out of Sussex temporarily or in a phased manner until the services can be designated.
5 Conclusion

Implementation of the national recommendations for trauma networks will necessarily result in some changes in patient pathways to enhance services available for the Sussex population, although the number of major trauma victims in Sussex is small.