

Emergency Preparedness, Resilience and Response (EPRR) to a Mass Casualty Event

FINAL

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Version	Date	Author	
0.1	March 2017	B Rayner	Based on pan London plan plus network emergency planning group discussions
0.2	March 2017	B Rayner	Incorporated comments from PW and MN
0.3	April 2017	B Rayner	Incorporating comments from NL, CL and HG for discussion at 20.4.17 meeting
0.4	April 2017	B Rayner	Incorporating comments from 20.4.17 meeting
0.5	April 2017	B Rayner	Incorporating comments from 20.4.17 and reformatting for further consultation
Final 1.1	May 2017	B Rayner	Incorporating further comments from 05.05.17 meeting
Draft 1.2	April 2018	H Rhodes	Incorporating updates from 26.4.18 meeting
FINAL 1.3	February 2020	E Burns	Verifying updates and changes from 2017 final document to April 2018 revision back to "Draft".
FINAL 1.4	November 2020	E Burns	Updated to reflect links with SE OPEL document – Appendix 9.
FINAL 1.5	December 2020	E Burns / Pete Westhead	Updated to add related documents section so report is read in conjunction with latest Covid 19 guidance

Related Documents

Please note that these documents below must be read in conjunction with this EPRR guidance if we are still dealing with Covid 19. The STN Decision Tree below, crafted at the onset of Covid 19, is currently in place as at December 2020 and supersedes standard triage protocol.

Title	Owner & Version	Location
Clinical Guidelines for use in a Major Incident	NHSE, Version 2, September 2020	B0128-clinical-guidelines-for-use-in-a-major-incident-v2-2020.pdf (england.nhs.uk)
Pan-South Adult Major Trauma ODN Supra Regional Escalation Framework	NHSE/I Specialist Commissioning, EPRR Version 3.2, November 2020	https://www.uhsussex.nhs.uk/pro-resources/pan-south-adult-major-trauma-odn-supra-regional-escalation-framework/
Sussex Trauma Network – Managing Major Trauma During Covid 19 Pandemic Decision Tree	STN, Version 9.3, May 2020 <i>Note: the regular decision tree is suspended and we are operating a 2 stage approach due to covid</i>	No longer available
BSUH Major Incident Plan	BSUH, Version 6, September 2020	https://www.uhsussex.nhs.uk/pro-resources/bsuh-major-incident-plan-version-6-september-2020bsuh-major-incident-plan/

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1. Distribution List

NHS England

National Clinical Director of EPRR

National Clinical Director of Major Trauma

Clinical Reference Group

Major Trauma

EPRR

Adult Critical Care

Sussex and South East Coast ODN Leads – Trauma, Burns, Critical Care

Major Trauma Network Clinical Directors

Wessex Trauma Network

South East London Kent & Medway Trauma Network

Surrey & South West London Trauma Network

Major Trauma Network Managers

Wessex Trauma Network

South East London Kent & Medway Trauma Network

South West London & Surrey Trauma Network

Major Trauma Centre Clinical Leads

Brighton and Sussex University Hospitals NHS Trust

University Hospital Southampton

Kings College Hospital, London

St Georges Hospital, London

Trauma Unit Clinical Leads

East Sussex Healthcare NHS Trust

Western Sussex Hospitals NHS Foundation Trust

Surrey & Sussex Healthcare NHS Foundation Trust

Chief Executives, and emergency planners, of Acute NHS Trusts

East Sussex Healthcare NHS Trust

Western Sussex Hospitals NHS Foundation Trust

Surrey & Sussex Healthcare NHS Foundation Trust

Maidstone & Tunbridge Wells NHS Trust

Portsmouth NHS Trust

William Harvey Hospital, Ashford

South East Coast Ambulance Service

South Central Ambulance Service

Kent, Surrey & Sussex Air Ambulance Trust

London HEMS

Sussex Police

East Sussex Fire and Rescue Service

West Sussex Fire and Rescue Service

2. Glossary / Definitions

Biological - pertaining to infectious agents used in weapons. Examples being Anthrax, Plague, Typhus.

CATS - Child and Adolescent Transport Service

CBRN - a release of Chemical, Biological, Radiological and Nuclear agent with deliberate criminal, malicious or murderous intent¹.

Chemical – pertaining to chemical weapons. These may be lethal or non-lethal agents including nerve, choking, blister, and incapacitating agents.

Children and Young People – this group refers from birth to 16th birthday

Code Red – the identification of a patient requiring blood transfusion

HALO – Hospital Ambulance Liaison Officer

HASU – Hyper acute stroke unit

HEMS – Helicopter Emergency Medical Services aka Air Ambulance

IED – Improvised Explosive Device. An explosive device made from basic components used to deliver either shrapnel or other agents. The ‘home-made’ bomb.

LEH - Local Emergency Hospital, an acute centre that does not meet Trauma Unit criteria.

Major Incident – any occurrence that presents serious threat to the health of the community or causes such numbers or types of casualties, as to require special arrangements to be implemented².

Mass casualty event – An incident (or series of incidents) causing casualties on a scale that is beyond the normal resources of the emergency services. (NHS England (South) Mass Casualty Framework)

Major Trauma Network (MTN) – a group of hospitals in a hub and spoke model with a Major Trauma Centre supporting several Trauma Units or local emergency hospitals

Major Trauma Centre (MTC) – a hospital with all the acute / surgical/ rehabilitative services on site for major trauma

¹ Chemical incidents; preparing for the management of self-presenting patients in healthcare settings, NHS England (2015)

² EPRR Framework, NHS England (2015)

Mass Casualty Incident - an event with casualties in the 100s where the normal major incident response must be augmented with extraordinary measures

MERIT – Mobile Emergency Response Incident Team. Doctors and Nurses with pre-hospital expertise mobilised to the scene.

NACC – National Ambulance Co-ordinating Centre

NCAT – Network Clinical Advise Team – implemented by BSUH

Nuclear – radiation agents made from high quality fissionable materials.

ODN – Operational Delivery Network. A commissioning / clinical led co-operative group drawing together services, often in a 'hub and spoke' model.

P1 - a person who requires immediate resuscitation and stabilisation, and must be put in critical care and/or taken to theatre immediately.

P2 - a person who has serious injuries which do not pose an immediate threat to life, but require urgent interventions.

P3 - a person who has moderate to minor injuries, who often require simple measures to treat injuries which can be reviewed later.

PHE – Public Health England

Radiological - pertaining to weapons. Made from radioactive material that may not be of high or weapons grade. This would be the 'dirty bomb'.

SORT – Southampton and Oxford Retrieval Team

Strategic Coordinating Group –multi-agency coordinating group at the strategic level bringing together the strategic commanders from relevant organisations.

STEMI – ST-Elevation Myocardial Infarction

STRS – South Thames Retrieval Service (paediatrics only)

TARN – Trauma Audit and Research Network. A database for trauma care and research, producing regular quality audits.

Trauma Unit (TU) – typically a District General Hospital with an Emergency Dept (A&E) that has met a set of national criteria and submits data to TARN for audit.

3. Background - Overview of Trauma Networks

In 2012 the Sussex Trauma Network, with the Major Trauma Centre at Royal Sussex County Hospital site, Brighton, was established.

Following on from national work and a drive to improve the care of the severely injured patient, there has been a keen drive to ensure the right patient reaches the right hospital in the right time. This has meant patients being taken to the most appropriate hospital. This may be a Major Trauma Centre or a Trauma Unit. This is a move away from traditional thinking of taking patients to the nearest A&E department, but ensures that the most severely injured patients including children and young people are taken to a centre that can provide access to all of the relevant specialties on one site.

The geography covered by the network can be seen at appendix 1.

The trauma network comprises a Major Trauma Centre supported by Trauma Units. These have governance through the Operational Delivery Networks with regular peer reviews and a network Clinical Lead.

Trauma patients with an Injury Severity Score³ of greater than 15 are ideally taken to a Major Trauma Centre using the South East Coast Ambulance Triage tool by either the South East Coast Ambulance Service NHS Foundation Trust or an air ambulance (HEMS) service.

Trauma networks have an integrated system for ensuring that those patients under-triaged to a Trauma Unit have rapid access/transfer to a Major Trauma Centre.

Within the Major Trauma Centre exist all of the acute services required to care for the severely injured patient. The multidisciplinary teams consist of those required in rehabilitation as well as acute / critical care.

Air ambulances deliver enhanced medical care teams and other resources to the scene and allow for stabilisation and rapid transfer from scene to the appropriate facility.

Trauma Units play a major role in the management of those cases not requiring the services of a Major Trauma Centre as well as in taking their local patients back when they no longer need the Major Trauma Centre. This hub and spoke model allows for forward flow to continue by the flow of patients back to their own geographical areas.

³ <http://www.trauma.org/archive/scores/iss.html>

4. Scope of this document

The purpose of this document is to state the Sussex Trauma Network response to a mass casualty event.

The purpose of this document is not to replace existing statutory plans, but to supplement them.

This document outlines the following aspects of a mass casualty event:

- declaration of a mass casualty event
- support provided to external mass casualty events
- co-ordination of a mass casualty event
- establishment of the network clinical co-ordinating team
- standing down of a mass casualty event.

Network responsibilities

- the network must have a network mass casualty plan
- the network is responsible for the preparing and practice of the implementation of this plan
- the network must support return to business as usual for all network providers

5. Planning Assumptions

This document is based on number of planning assumptions.

5.1 General:

- The reader is familiar with the NHS England South Mass Casualty Framework (2016). A Mass Casualty event should be considered as a specific type of Major Incident. Therefore it should be assumed that Major Incident Plans have been triggered before a mass casualty event is declared.
- In a Major Incident, patients with traumatic injuries should be triaged to the Major Trauma Centre, as per usual Sussex Trauma Network secondary transfer pathways (appendix 2), based on the agreed pre hospital care Major Trauma Decision Tree (appendix 3). In mass casualty events, these usual secondary transfer protocols are switched off.
- A mass casualty event is likely to be either one 'big bang' or several localised events.
- All statutory organisations have a major incident plan based on the current level of threat assessment which is linked to other emergency plans.
- Mass casualty incidents can involve children and their needs must be considered in planning.
- In the event of a mass casualty incident involving children it is anticipated that there will be a significant proportion of P1 injuries. This is related to use of non-age specific triage tools and the desire to remove children from the scene.
- The need for national direction i.e. COBR (Cabinet Office Briefing Room) exists in a mass casualty event from an early stage. This is likely to be no later than 1 hour.
- Be aware the receipt of 8 P1 major trauma patients per hour signifies a large impact on an individual Major Trauma Centre infrastructure. In a TU this number is likely to be considerably lower.
- In a multisite incident or one where terrorist activity is involved, access to some MTCs or TUs may be restricted.
- There is likely to be a prolonged recovery period for the NHS during which all non-urgent elective work will need to be managed as per local area plans. Primary Care and Urgent Care should expect to see higher acuity patients in the recovery period in order to alleviate pressure on the Acute Trusts and the Ambulance Service.
- Military personnel will NOT be available in large numbers in the first 72 hours due to tasking elsewhere, although high-level advice will be available via formal channels.
- All healthcare providers (public, private, independent and voluntary) will have a supporting role in mass casualty situations. They should review local operating policy and infrastructure.

5.2 Acute providers

Individual organisations' Major Incident plans must identify a threshold at which a mass casualty event should be declared.

- Trauma Units will be required to take P1, P2 and P3 casualties.
- All acute providers will have a background level of activity at initiation of the plan
- In a mass casualty event a proportion of significantly injured patients may require transport to hospitals other than an MTC. Plans need to be in place for those receiving hospitals to adopt a “stabilise and treat” process that is different to that of normal business. If patients are deemed to need transfer for specialist intervention this may be delayed, or facilitated by a patient transport provider (PTS).
- Where the number of children overwhelms the MTC capacity children may present at hospitals which are not used to dealing with seriously injured children, therefore hospitals must cater for children and young people in their Major Incident Plan. There are hospitals which do not treat children which are identified in the map in appendix 1

5.3 Pre hospital care providers

- In a mass casualty event children may be transferred to the nearest trauma receiving hospital.
- South East Coast Ambulance Service NHS Foundation Trust will have an oversight of pre hospital demand including trauma activity across Kent, Surrey and Sussex.
- With nearby Major Trauma Centres in London and Southampton patients should be distributed from an early stage, dependent on the geography of the incident. (aka Surge recognition)
- The ambulance service capacity will be committed to the assessment and movement of patients from scene and inter-hospital transfer will not occur within normal timeframes.
- NACC will co-ordinate mutual aid between ambulance services

5.4 Additional useful references

Pan-London Trauma Networks: Response to a mass casualty incident, 2016

<https://www.england.nhs.uk/ourwork/epr/> (latest update February 2020)

NHS England EPRR Framework, November 2015, version 2.0 (see appendix 6 for the command and control process defined within this document).

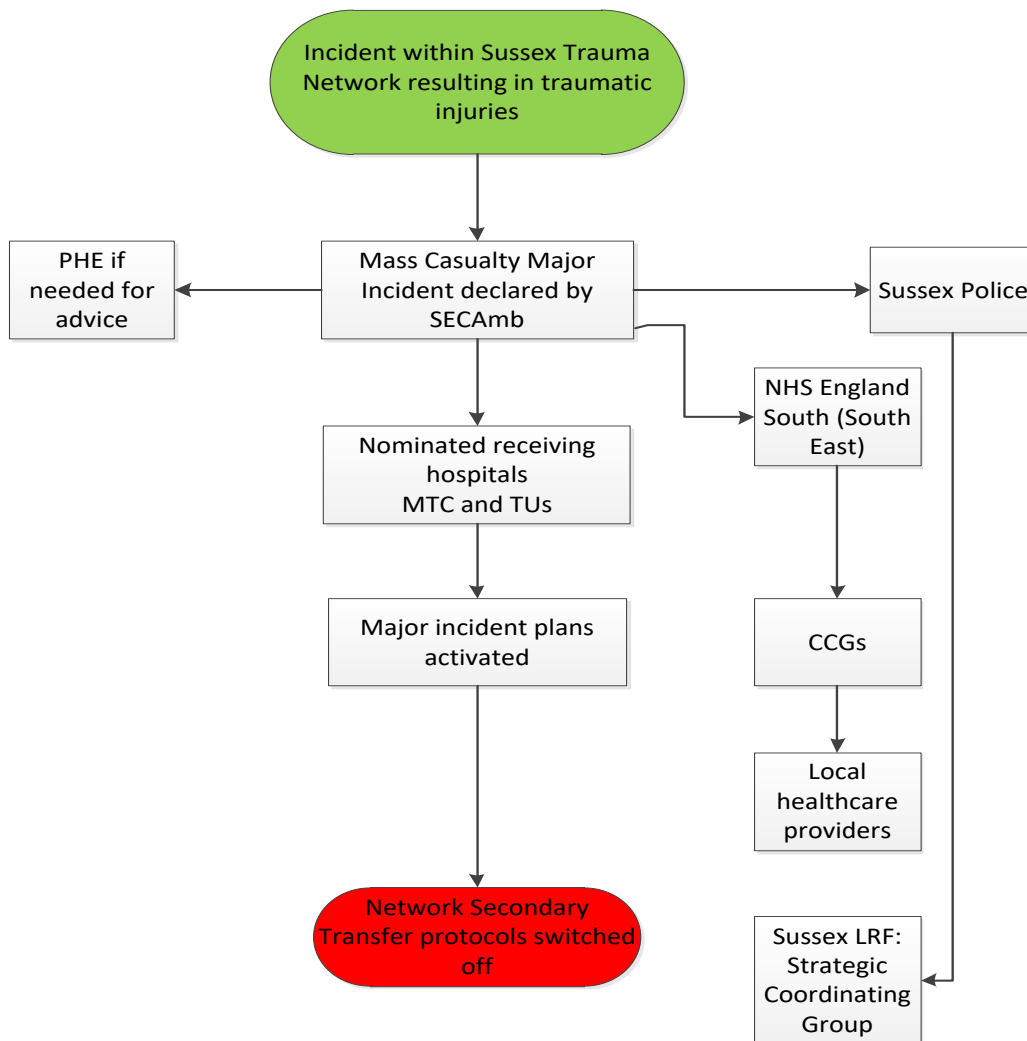
6. Command and Control

6.1 Activation of this Plan

This plan may be activated following a major incident within the Sussex Trauma Network. Activation of the Mass Casualty Plan will occur when the number of casualties exceeds local response capabilities beyond the Major Incident Plan (this may be from one hundred to several thousand).

6.2 Incident within Sussex Trauma Network

- SECamb will declare a Mass Casualty Event
- SECamb will inform the MTC and TUs to expect to receive casualties (P1s, P2s and P3s)
- Major Incident plans to be activated within the receiving hospitals
- SECamb will inform NHS England South (South East)
- SECamb will inform PHE if required
- SECamb will inform Sussex Police
- Sussex Police will establish a Strategic Coordination Group
- NHS England South (South East) will inform the CCGs
- The CCGs will inform other local healthcare providers



6.3 An incident external to the Sussex Trauma Network, once a decision is made to request mutual aid from the Sussex Trauma Network

See Clinical Guidelines for use in a Major Incident in related documents on page 2.

6.4 NHS mutual aid requests and management

See Clinical Guidelines for use in a Major Incident in related documents on page 2.

7. Incident Roles and Responsibilities

7.1 Ambulance Service

- In normal major incident business, the MTC will receive P1, P2 and P3 patients as triaged and transported by the on-scene services.
- In mass casualty events, there may be a requirement for P1s, P2s and P3s to go to TUs, and MTCs. It is not desirable to send P1s or P2s to LEHs, or children to LEHs unless they are triaged as P3.
- The decision to distribute patients across the Trauma Network will be made by the Ambulance Incident Officer (supplemented by Medical Incident Advisor). This decision will be supported by utilisation of the West Midlands capacity planning tool
- The management of mass casualty should ensure all patients, either directly affected by the incident or those with non-incident related urgent and emergency care needs continue to receive safe and high quality standards of care.
- In the event of a Sussex based mass casualty incident the SECamb has responsibility for coordinating all movements and transportation of casualties from scene to hospital.
- SECamb will be establishing an Incident Command Centre to manage the incident. Nominated hospitals will be advised of the incident in the standard format.
- At the MTC Hospital Incident Coordination Centre SECamb will provide a Hospital Ambulance Liaison Officer (HALO).
- Alerting messages from scene/ambulance to hospital for individual patients are likely to be vague or not occur.
- SECamb will continue to monitor capacity at all nominated hospitals and across Kent, Surrey and Sussex, and liaise with NHS England (South East).

7.2 Secondary Transfers

- Patient transfer requests received during and immediately after the incident phase are likely to incur significant waiting times. All hospitals will be expected to provide first line management to patients from the incident. Normal secondary transfer protocols will be suspended. The NCAT (see 5.3.2) will aim to be up and running at 4 hours of the MTC being stood up, and will liaise with SECamb and HALO.

- Movement of non-trauma patients to alternative sites should only be considered as a last resort when all surge capacity is exceeded.
- Networks should consider the use of hospital-based patient transport services. For children this should include CATS, SORT and STRS (paediatric retrieval services). These services will not be able to offer their usual level of response and alternative plans should be formulated i.e. local escort/transfer.

7.3 Ambulance Service Business as Usual

- Where possible SECamb will utilise alternative hospitals other than those designated to receive incident casualties for normal business.
- Consideration will be given to the transportation of STEMI/ACS/HASU patients to standalone speciality units as well as maximising the use of all other appropriate care pathways
- National direction (COBR) may dictate the suspension of business as usual services.

7.4 Helicopter Emergency Medical services (HEMS)

During a mass casualty incident air ambulance aircraft and personnel can fulfil multiple roles. Deployment and tasking will be via SECamb control/HEMS desk.

7.4.1 Tactical scene assessment from the air

On initial approach to the scene the aircraft is ideally placed to perform a detailed reconnaissance of the entire scene. From a tactical point of view (silver command), this early information can be useful for establishing effective command structures. As soon as reasonably practicable an air ambulance aircraft can be used to carry the Ambulance Forward Incident Officer (bronze command) over the scene for an assessment regarding deployment of ground and air resources, rendezvous points, triage areas, HEMS helicopter landing areas etc.;

7.4.2 Deployment of helicopter crew to scene (difficult or remote access)

Initial command from the Ambulance Service (Forward Incident Officer / Bronze Command) can be established in any remote location and effective communication links can also be set up directly from the scene. Rapid situation reports can allow Ambulance Control to send appropriate resources, including external agency resources such as Fire Service, Police, Urban Search and Rescue and Mountain Rescue personnel.

7.4.3 Deployment of medical/surgical/trauma/MERIT teams to scene

Medical teams from the designated receiving hospitals can be flown to the scene. The speed of transfer by air means that teams can be flown directly from hospitals or areas outside the initial catchment area of the incident, leaving the closer hospitals fully staffed for the reception of casualties.

7.4.4 Delivery of medical equipment/supplies to scene

The aircraft can be effectively used to transport medical equipment and supplies to the scene if required.

7.4.5 Rapid transportation of time-critical patients to designated hospitals

Due to the speed of the aircraft, patients can be transferred to appropriate receiving hospitals capable of delivering specialist definitive care. In addition, the flexibility of the aircraft also means that patients do not necessarily have to be transferred to the nearest receiving hospital, but can be flown further afield to ease the pressure on these hospitals.

7.4.6 Response Co-ordination

Due to the nature of mass casualty incidents and recent experience; it is highly probable that multiple air assets from multiple agencies will be required to respond.

Co-ordination of this response will be determined by the level of incident:

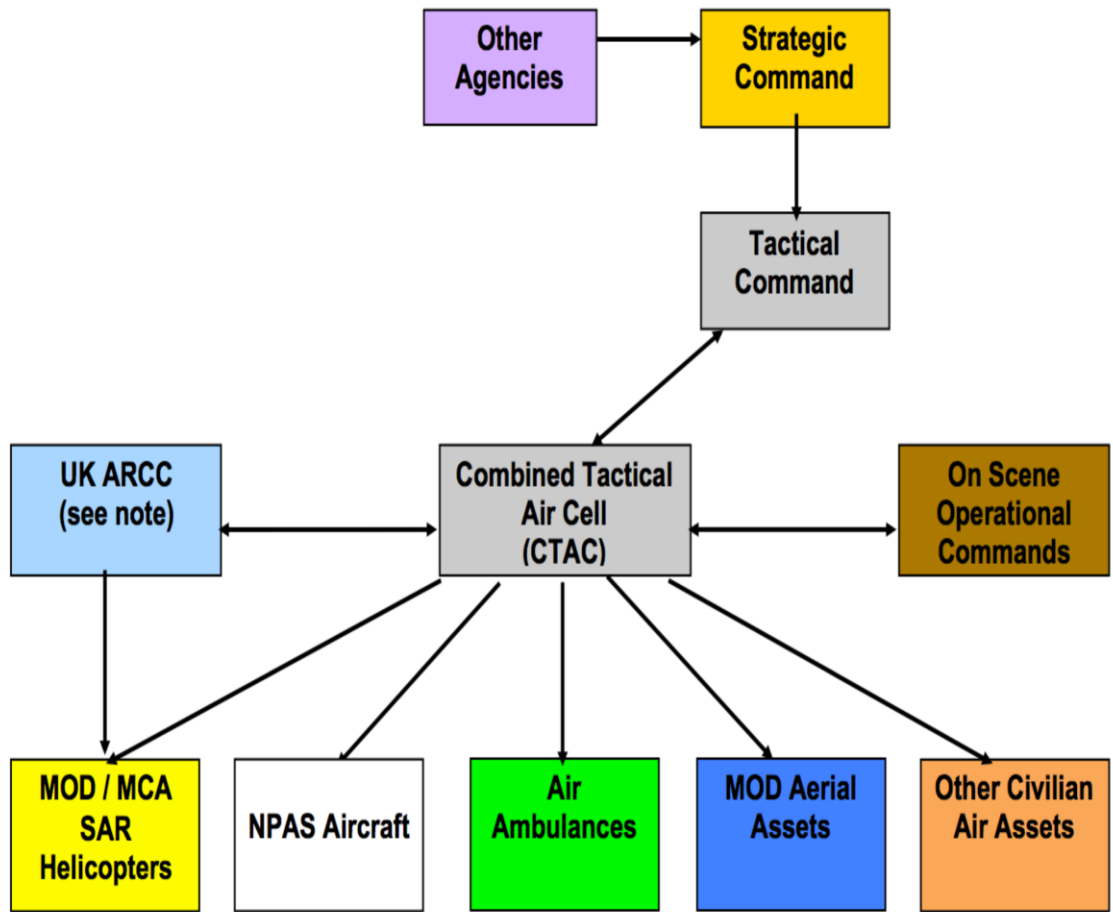
7.4.7 Level 1 Incidents

Involve 2 air assets from two different agencies. Coordination will be conducted between the respective tasking authorities using normal processes.

7.4.8 Level 2 Incidents

Involve 3 or more air assets from two or more agencies attending enduring incidents where tactical command has been established.

In such circumstances a Combined Tactical Air Cell (CTAC) will be formed in accordance with the Integrated Emergency Air Response Operations doctrine to prioritise air tasking in accordance with the Strategic Commander's intent and the Tactical Commander's objectives (below).



NOTE: MCA Maritime Operations Centre from 2016 SAR takeover

7.5 Major Trauma Centre

7.5.1 MTC Major Incident Plan

- Acute Trusts' 'Major Incident Plans' must allow for 'Mass Casualty Supplementation' to activate local major incident and mass casualty arrangements.
- Primary role is to deal with **all** presentations across all triage categories and ensuring appropriate triage and treatment.
- Accept P1, P2 and P3 patients who arrive via pre-hospital care providers and by other means.
- Effective reporting back to SECAmb to advise on capacity and need for support will occur via the NCAT to the HALO.
- There should be the facility for additional Critical Care, Holding and Treatment areas to allow for local increase in capacity, as per the BSUH Major Incident plan.

7.5.2 Network Clinical Co-ordinating Team

By hour 4 of the incident, the MTC will provide a Sussex Trauma Network clinical co-ordinating team with a network-wide remit to advise and support clinical staff in TUs. This could comprise a consultant trauma surgeon, intensive care consultant, neurosurgical consultant and a consultant paediatrician and senior anaesthetist when appropriate. These clinicians should be identified once key clinical roles within the MTC have been filled. This co-ordinating team will work alongside the existing MTC command and control. The co-ordinating team will deal with requests for transfer and provide clinical advice when transfer is not possible or not required. The co-ordinating team will log all requests for transfer and agreed transfers, to ensure a network-wide view of where patients are and clinical needs of those awaiting transfer.

- Daily contact will be made with SECAmb to ascertain the number of patients who will require transfer across the trauma network.
- This team will continue to operate until all incident patients have clear plans for ongoing management or transfer. This may take several days to achieve depending on the nature of the incident and volume of casualties.
- The network clinical co-ordination team will be contacted via:
(bsuh.sussextrauma@nhs.net)
- The network clinical co-ordination team will act as per the action card (see appendix 8).

7.5.3 MTC business as Usual

- All hospitals should be prepared to continue to receive non-incident related patients throughout the duration of the incident phase and during the recovery period
- The recovery period for hospitals will be agreed with NHS England and the flow to them managed accordingly

7.5.4 MTC transition Back to Normal Business

- The MTC will not stand down until all TUs in their network have been stood down. The MTC will work with the TUs to provide, where necessary, staff to accompany patients being repatriated to them for on-going care.
- Work with the TUs and Network to assist in repatriating patients back to their nearest hospital within an acceptable timeframe.
- There may be an ongoing workload for several days to weeks that may impact on normal business.

7.6 Trauma Units

7.6.1 Trauma Units

- Acute Trusts' 'Major Incident Plans' must allow for 'Mass Casualty Supplementation'.
- Activate local major incident and mass casualty arrangements.
- Activate business continuity plans for patient capacity, patient transport as appropriate where normal services are disrupted due to the incident.
- Primary role is to deal with **all** presentations across all triage categories and ensuring appropriate triage, treatment and transfer.
- No Trauma Unit can refuse any patients resulting from the incident or other patients.
- Accept P1, P2 and P3 patients who arrive via pre-hospital care providers and by other means.
- Liaise with the Network Clinical Coordination team with regards to the best care for patients, accepting that patients who would normally be transferred to the MTC may need to stay within the TU for part or all of their care.
- Liaise with the Network Clinical Co-ordinating team to ensure a prompt and efficient flow of major trauma patients across the Network which could include transferring suitable patients out of the MTC, with patient safety remaining paramount.

- Where directed by NHS England, or the Network Clinical Co-ordinating Team liaise with a specified out of area MTC with regards to the best care for patients, which may include agreeing transfer arrangements to that or another MTC.
- Utilise the network damage control information packs to enable staff to deliver damage control interventions in the first few hours.

7.6.2 TU transition back to normal business

- Work with the MTC and other TUs to provide, where necessary, staff to accompany patients being repatriated to them for on-going care.
- Work with the MTC and Network to assist in repatriating patients back to their nearest hospital within an acceptable timeframe.

7.7 Local Emergency Hospitals

7.7.1 Local Emergency Hospital

- During an incident a LEH may be utilised to support appropriate patients as designated by the responsible organisation.
- LEHs should not receive paediatric patients resulting from the incident, unless they are triaged as P3.

7.7.2 LEH transition back to normal business

- Work with the MTC and other TUs to provide, where necessary, staff to accompany patients being repatriated to them for on-going care.
- Work with the MTC and Network to assist in repatriating patients back to their nearest hospital within an acceptable timeframe.

7.8 Critical Care Networks

The Critical Care Network will liaise with the NCAT with respect to critical care requirements created by the incident.

7.8.1 Critical Care Network transition back to normal business

- Many of the critically injured may require long stays in critical care. The impact on the normal running of critical care units may therefore be prolonged. Avoidable demand for critical care (including elective surgery) should be reduced until such a time whereby there are no escalation areas open for the care of patients following the incident.

- Secondary transfer of patients to TU and other more local MTCs (outside of Sussex) may be necessary to relieve pressures or to bring patients closer to family and carers.

7.9 NHS England (South)

- Activate Regional Mass Casualty response plan, and alert health trusts accordingly.
- Support the Emergency Bed Service in managing critical care capacity.
- Escalate to NHS England (National) and begin mutual aid process.
- Commission/support the commissioning by CCGs of appropriate support services (e.g. mental health assistance) for medium and long term patient management if required.
- Support NHS organisations in coordination of rapid discharge of acute patients into community based organisations where it is safe to do so to create bed capacity for patients from the incident.
- Represent NHS Health organisations at the SCG
- Refer to the OPEL document for the south east.

7.10 Clinical Commissioning Groups

- Activate local major incident arrangements.
- Liaise with local organisations to support new ways of working, accelerated discharge and surge management.
- Commissioning of long term support.

7.11 NHS Provider Organisations

7.11.1 Transport Providers

Prepare to support patient movement outside of emergency vehicles at the request of responding emergency services.

7.11.2 Public Health England

Commission appropriate monitoring of patients and survivors health outcomes.

7.11.3 Local Authorities

Assist health organisations in the rapid discharge of patients.

8. Progression & Recovery

8.1 Recovery and Resilience

Each statutory organisation's Major Incident plans outline recovery and resilience principles and should be adhered to.

The NCAT will continue to operate until all incident patients have adequate plans for ongoing care including rehabilitation. The group may meet less frequently as required.

9. Network Roles and Responsibilities

It will be the responsibility of the network to review this plan and disseminate.

9.1 Training

Organisations who are members of Sussex Trauma Network should ensure that their members of staff with roles within this plan are provided with the appropriate training to enable them to undertake their role. This could form part of an organisations normal Emergency Preparedness, Resilience and Response (EPRR) major incident training programme and could also include specific training arranged via or through the Sussex Trauma Network Clinical Advisory Group (CAG).

9.2 Exercising

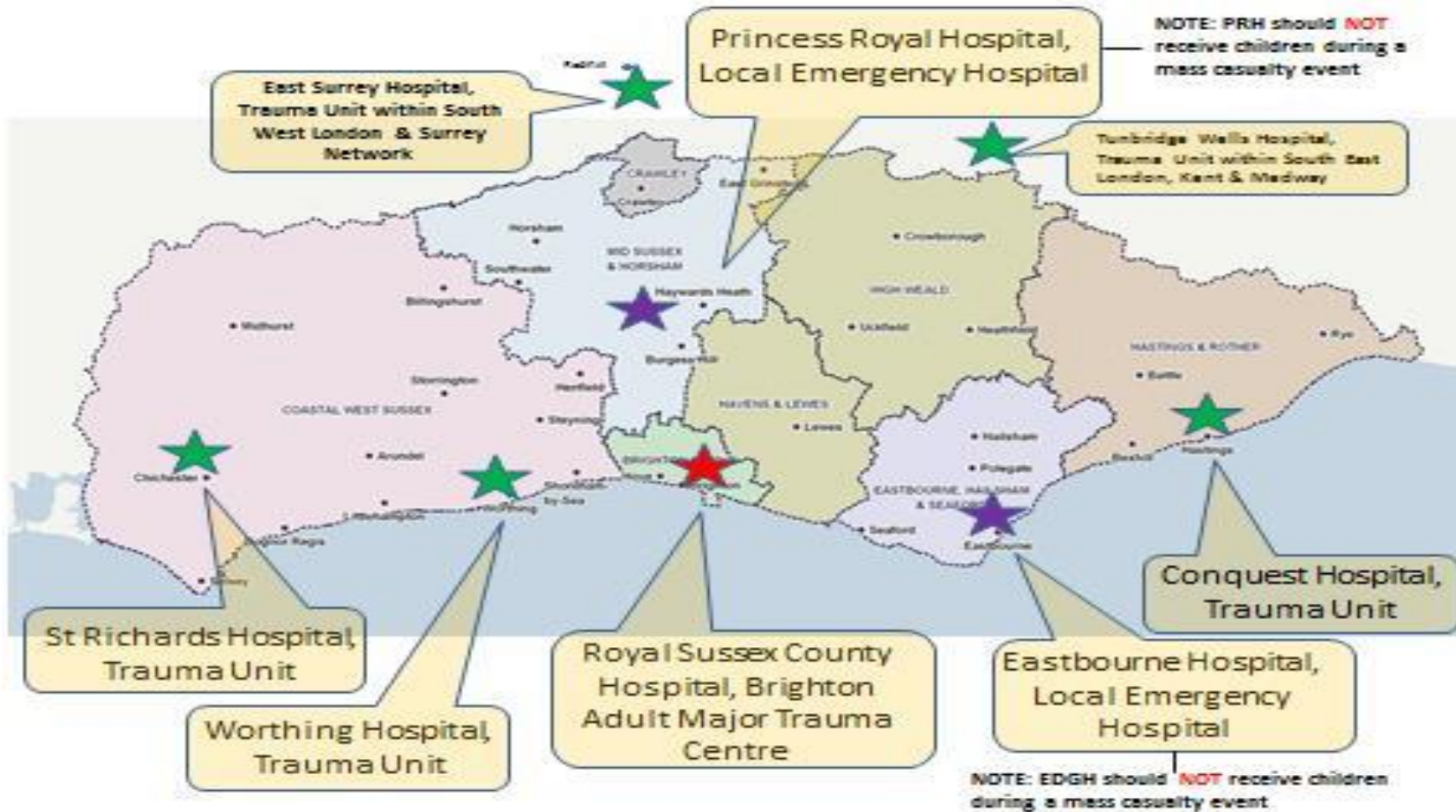
Plans cannot be considered reliable until they are exercised and have proved to be workable. Exercising should involve: validating plans; rehearsing key staff; and testing systems which are relied upon to deliver resilience (e.g. uninterrupted power supply). Exercises must have defined aims and objectives that may include:

- affirmation that everyone understands their role and that there is an overall appreciation of the plan
- checking that the invocation procedures and callout communications work
- ensuring that the accommodation, equipment, systems and services provided are appropriate and operational
- testing the key services can be recovered within the RTO and to the levels required.

The network must be cognisant of capacity at the MTC and TUs to support SECAmb in their role in casualty distribution (through the WMAS tool)

The network should support TUs to develop the role of a senior surgical floor-walker to liaise with internal speciality leads and the MTC specialists. It is anticipated that Sussex Trauma Network will be exercised as part of individual organisations' exercises and as part of Local Resilience Forum exercises as and when appropriate. Sussex Trauma Network may also decide to exercise its plans in its own right.

Appendix 1 – Network Map



Appendix 2 – Network Transfer Protocols – Decision Tree

During Covid 19 we have stood down the usual protocol and have the attached 2 stage decision tree in place:

No longer available



SECONDARY TRANSFER
PROTOCOLS

FOR ADULT MAJOR TRAUMA
PATIENTS (>16 years of age)

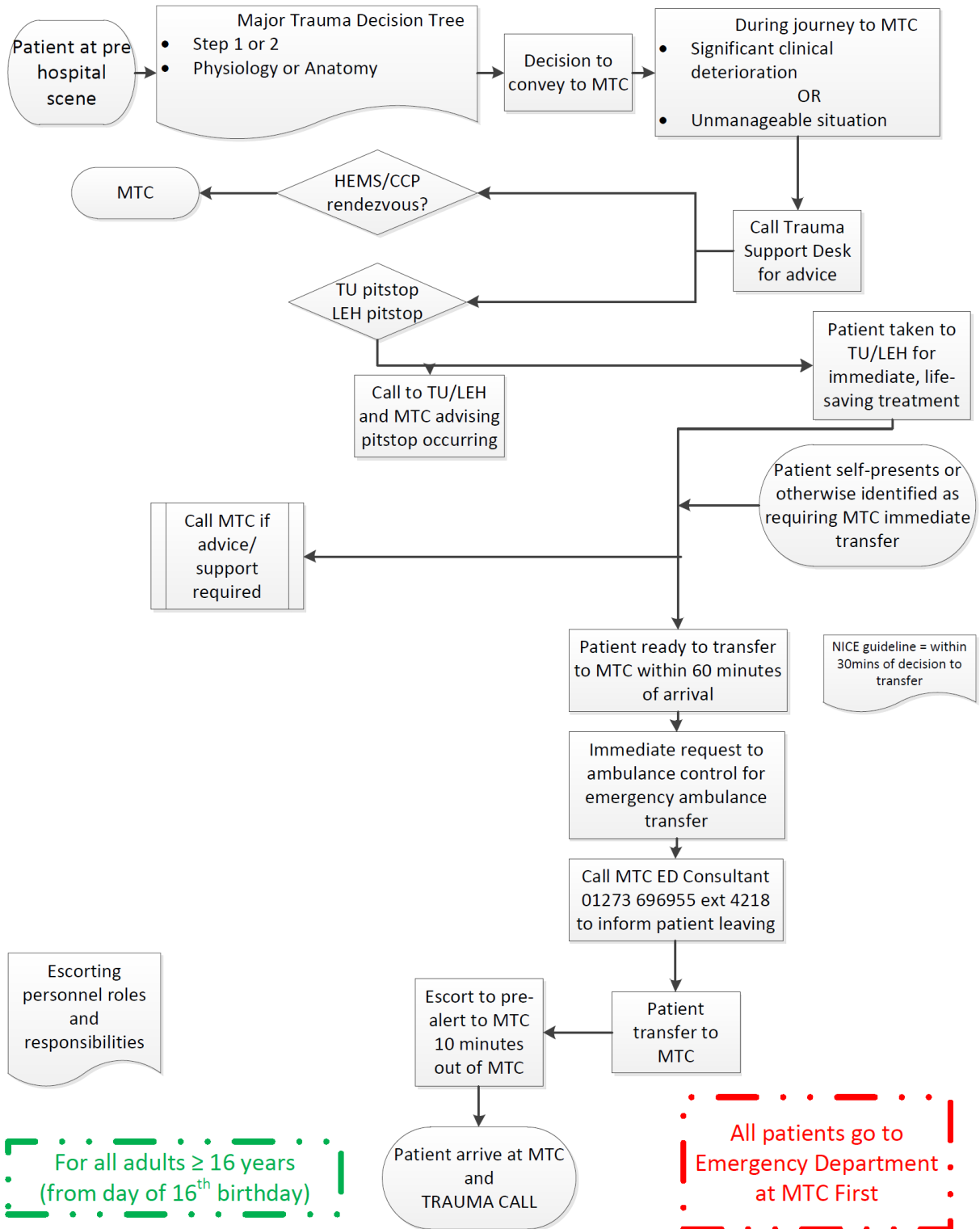
- Immediate transfer (<60 minutes)
- Urgent transfer (<6 hours)
- Specialist transfer (<48 hours)
- Head injury transfers
- Spinal injury transfers

- Helicopter Emergency Medical Service addendum

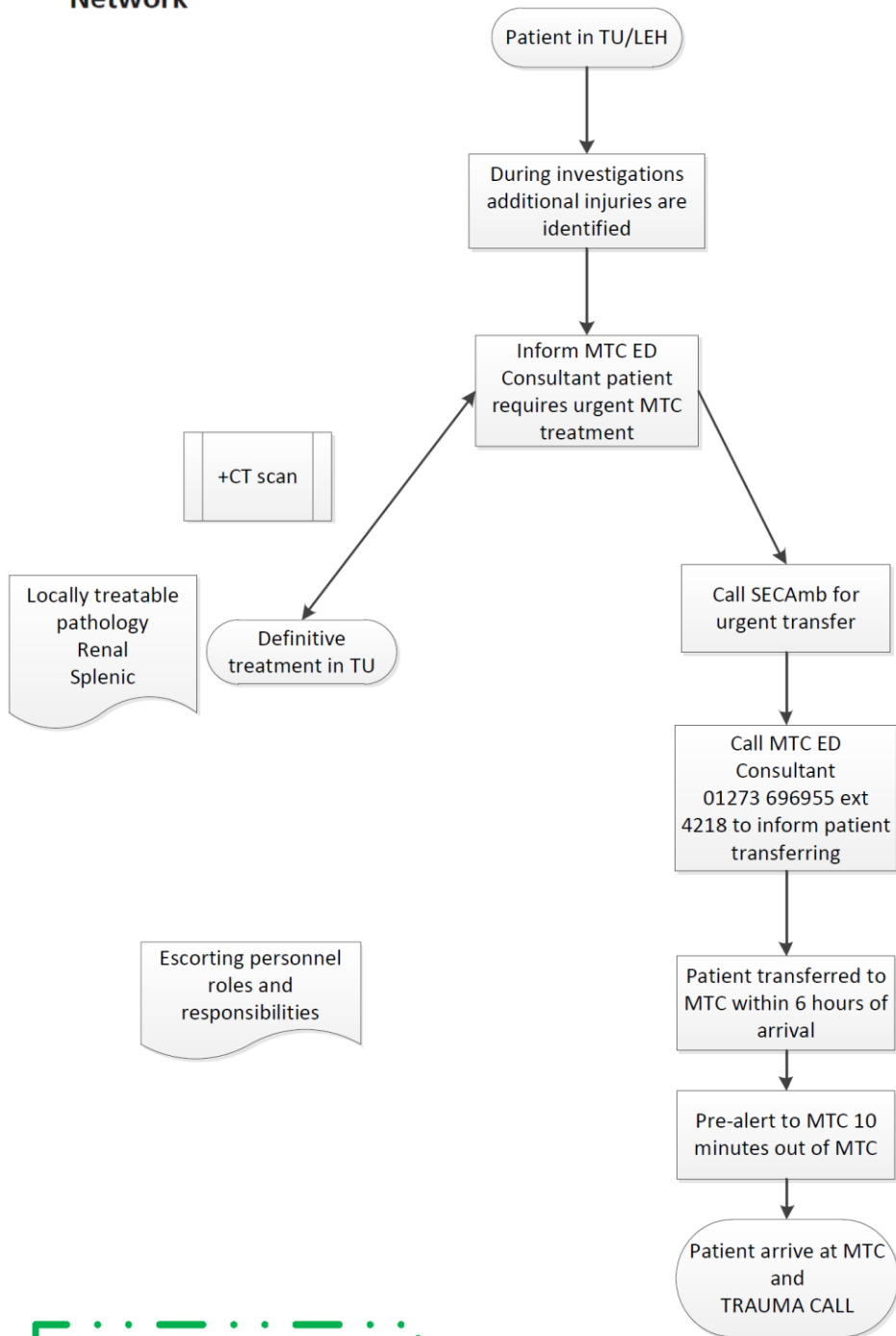


TRAUMA Network

Immediate transfers (<60 minutes)



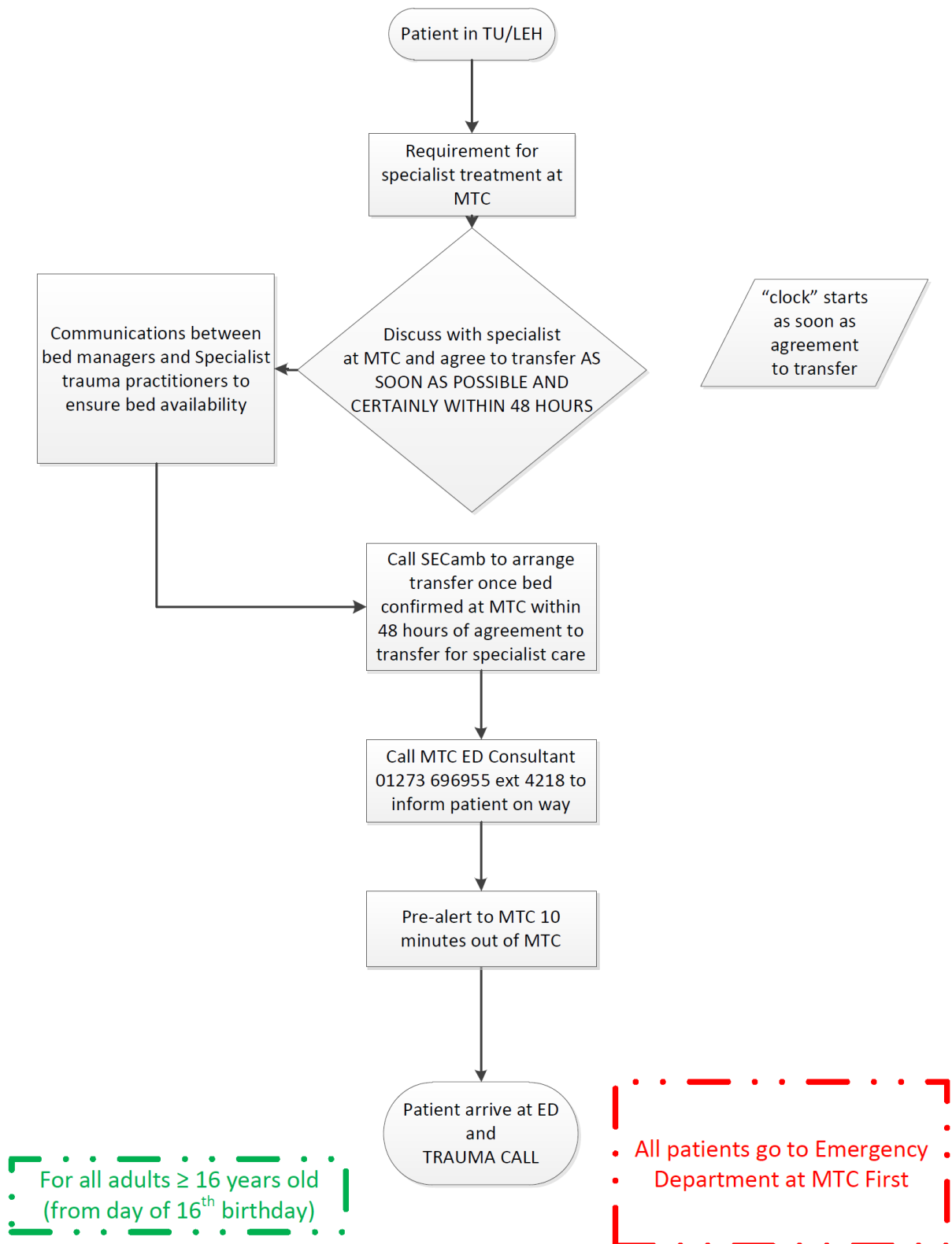
Urgent transfers (<6 hours)



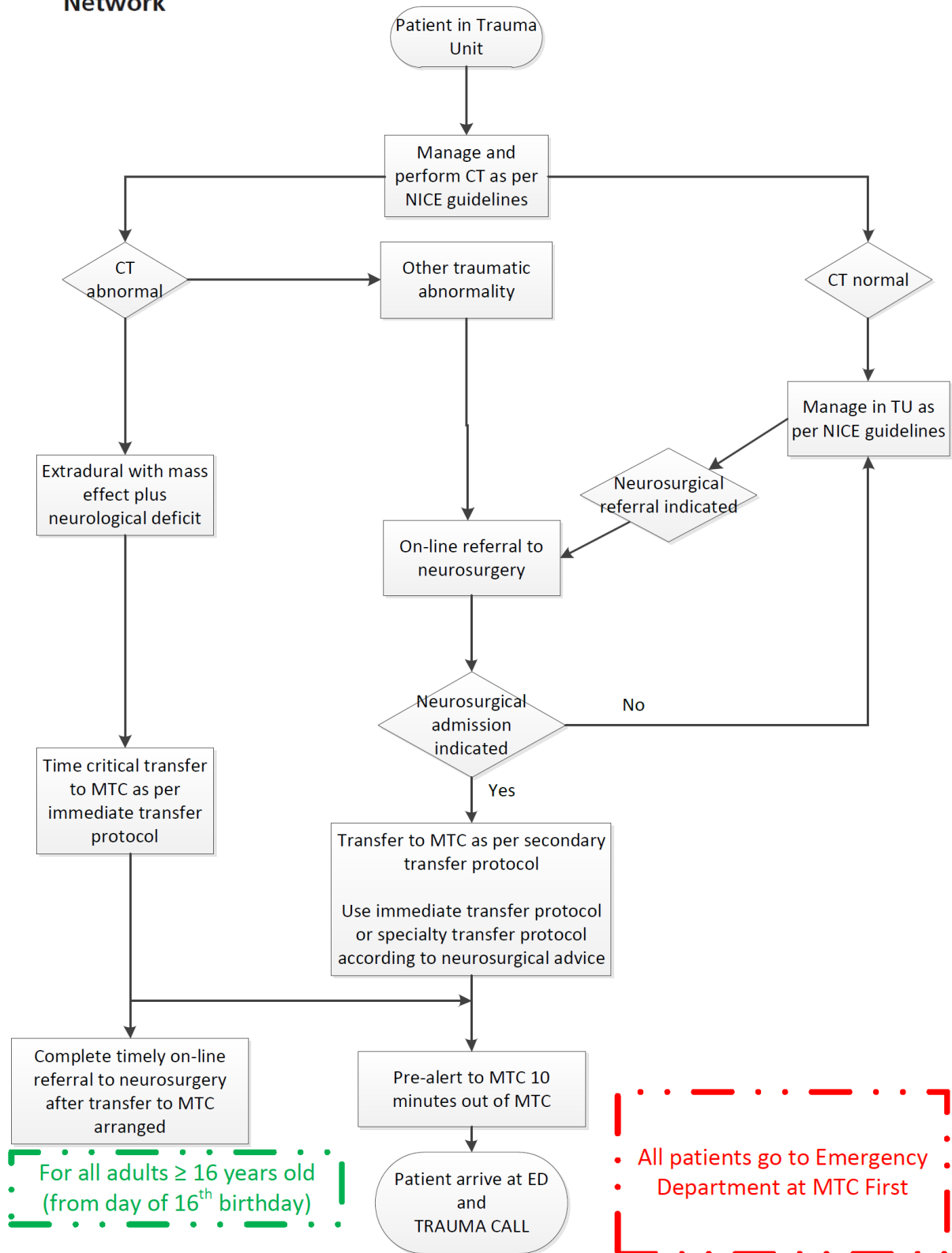
For all adults ≥ 16 years old
(from day of 16th birthday)

All patients go to
Emergency Department
at MTC First

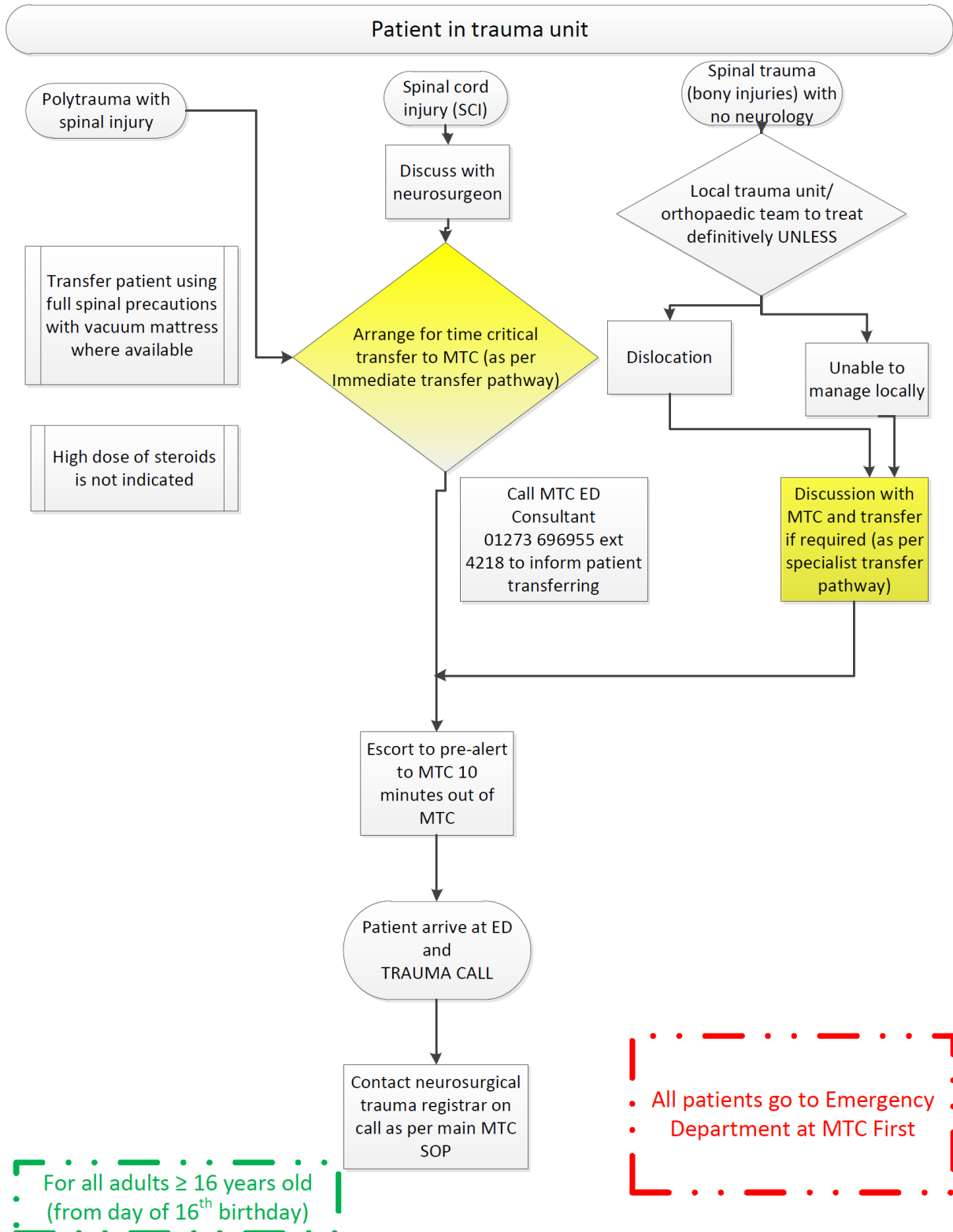
Specialist transfers (<48 hours)



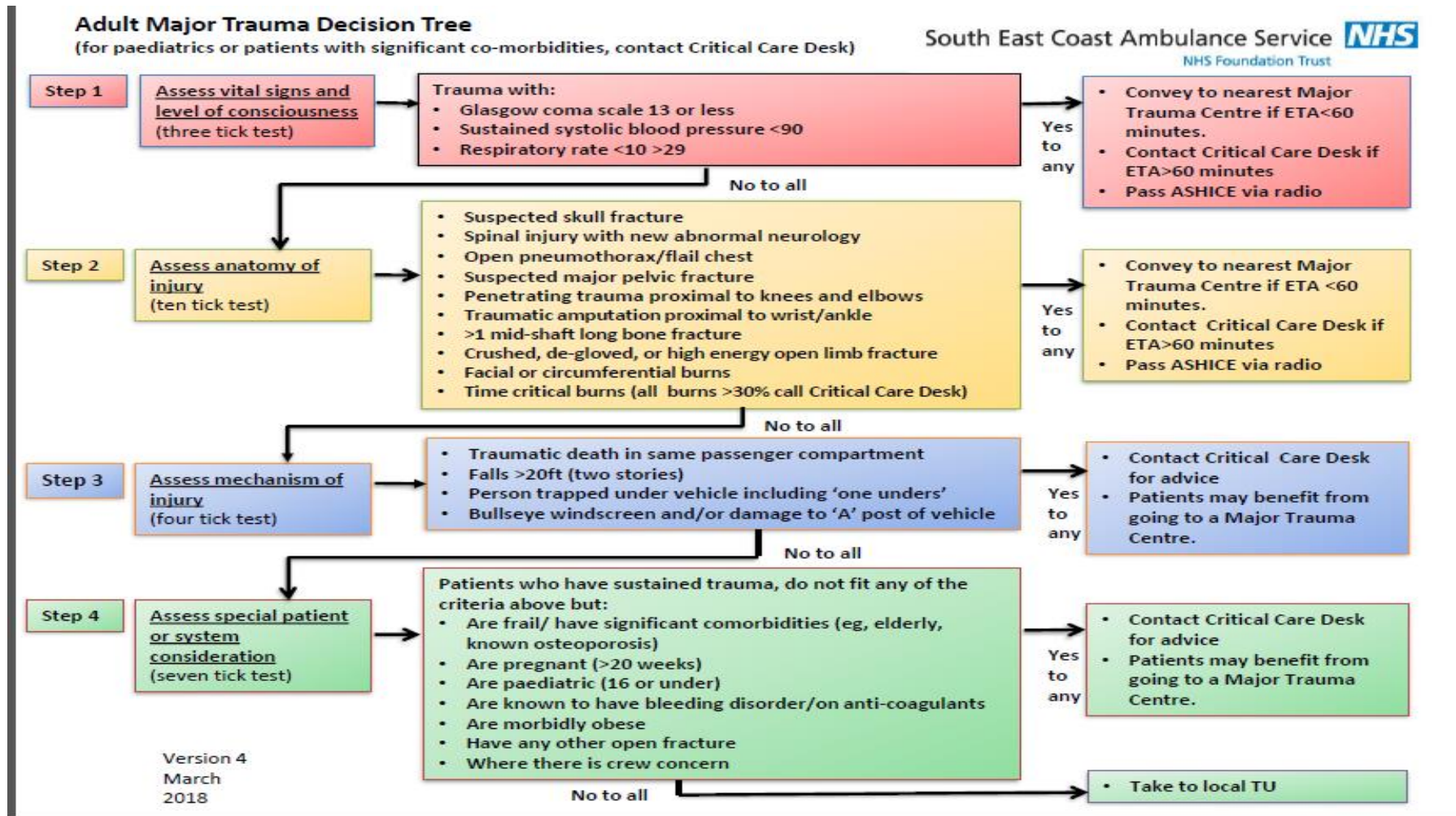
Isolated Head injury pathway



Spinal injury



Appendix 3 – SECAmb Major Trauma Decision Tree



Appendix 4 – Damage Control Resuscitation/Surgery

Please see national guidance: <https://www.england.nhs.uk/wp-content/uploads/2018/12/B0128-clinical-guidelines-for-use-in-a-major-incident-v2-2020.pdf>

All hospital Major Incident plans should allow for the provision of senior surgical/critical care ‘floorwalkers’ who can liaise for specialist advice and provide Triage.

Principles of Damage Control Resuscitation / Surgery

- External Haemorrhage Control – Elastic dressings, Tourniquets, Topical haemostatics eg Celox
- Haemostatic Resuscitation
 - Manage coagulopathy proactively
 - PRBC:FFP in a 1:1 ratio
- Early use of Operating theatre – DCS. See below, reproduced courtesy of East of England.

Tip 1:

Simple basic surgical techniques work (and don't change)

Tip 2:

Team Work

- ED
- Allow EM to lead on individual casualties and help establish priorities amongst multiple casualties
- Work as teams of surgeons
- Gen / Ortho / Plastic mix
- Communication with anaesthetist vital

Tip 3:

Be decisive, show leadership

- Also show followership
- Egos need to be put away

Tip 4:

Don't be afraid to cross boundaries and get outside your comfort zone
Stabilise, get out, an expert can do the definitive procedure later

Tip 5:

Principles of Damage Control Surgery

- 60 mins start to finish
- ITU
- Return to theatre
- Physiology may allow extension but not anatomy

Tip 6:

Let anaesthetist run the fluid resuscitation intra-operatively

- But make sure they and you communicate about it
- Repeat ABGs etc
- "Ooze"

In young fit patients flow is more important than pressure – avoid vasopressors

Tip 7:

Fix a time to take the trauma patient back and stick to it

Tip 8:

Recognise futility

- Especially in a multi-casualty situation

Summary

- Basic surgery works
- Team work
- Communication

Source: Pan London Major Trauma Networks: Response to Mass Casualty Incident

Appendix 5 – Special Circumstance

Please see national guidance: <https://www.england.nhs.uk/wp-content/uploads/2018/12/B0128-clinical-guidelines-for-use-in-a-major-incident-v2-2020.pdf>

Carbon Monoxide Poisoning Suspected

- Affinity of Carbon Monoxide (CO) for Hb is 240x that of oxygen
- COHb causes a functional anaemia and displaces the oxygen dissociation curve to the left, worsening tissue hypoxia.
- Signs and symptoms; essentially those of reduced oxygen delivery to the tissues i.e. shock.
- Pulse oximeter is unreliable in the presence of COHb. Use a co-oximeter.

- Review Airway Management
- CO dissociates from Hb very slowly. Half-life in air > 4 hours. Half-life in 100% oxygen 40 mins. Use 100% oxygen until COHb <5%

Cyanide Poisoning

- Cyanide gas (HCN) is 20 x more toxic than carbon monoxide
- Suspect in all cases of smoke inhalation, but particularly in patients with significant lactic acidosis and raised venous oxygen. Review Airway Management. Consider treatment with hydroxocobalamin

Hypermetabolism

- Burn injuries of more than 20% TBSA result in a hypermetabolic response.
- Cardiac output and heart rate can often increase by 150–200%. The patient will also typically have a hyperglycaemic insulin resistant state and often require insulin supplementation.
- Manage in a thermoneutral environment. Early excision of deep burns where possible.
 - Signs and symptoms; hyperdynamic circulation, increased body temperature, catabolism and inefficient energy substrate cycling.

Infection

- Burns patients are vulnerable to infection in the early stages due to loss of the protective skin layer and immunosuppression secondary to major trauma
- The massive SIRS response in major burns makes diagnosis of sepsis challenging. A high index of suspicion is essential
- Isolation in a single cubicle and an ante-room is the gold standard
- Stringent infection control precautions cannot be over emphasised. All clinical staff should follow hospital standards for hand washing and wear aprons and gloves as a minimum

Hyperpyrexia

- When core temperature greater than 39°C
- Patients with major burns are often hyperthermic.
- A short period of very high temperature can cause significant morbidity
- Temperatures of 41.6 to 42°C can cause irreversible cell damage in as little as 45 minutes
 - Management of core temperature >39°C Septic screen, check U&E, CK
 - Antipyretics
 - Open burn wound dressings (discuss with burn surgeon first if possible)
 - Consider ice packs to axilla and groin
 - Refrigerate NG/NG feed and flush
 -
 - Management of core temperature >40°C for more than 6 consecutive hours As above (>39°C) plus
 - Consider immediate active cooling e.g. CVVHDF, oesophageal cooling, coolguard.
 -
 - Management of core temperature >41°C for more than 2 consecutive hours As above (>40°C) plus
 - Consider additional active cooling methods e.g. CVVHDF, oesophageal cooling, coolguard.

Stop active cooling measures when the core temperature reaches 38.5°C. Core temperature of up to 38.5°C can be considered normal, secondary to the massive SIRS response to thermal injury.

SO/4B Updated: 08/01/2020

CBRN.

This requires special measures and is considered separately in other work. The principle of decontamination is crucial in CBRN incidents.

Burns

There is a National Burns Plan which should be read in conjunction with this document. Below is a guide to burn care for the non-specialist. This is taken from 'Clinical Guidelines for use in Major Incident' c/o East of England.

<p>Airway</p> <ul style="list-style-type: none"> Maintain patent airway with C-spine protection Early intubation if anticipated or actual airway problems <ul style="list-style-type: none"> Airway burn Presence of facial or circumferential neck burn. Burn sustained indoors, Carbonaceous debris in mouth or nose <ul style="list-style-type: none"> Inhalational injury Carbonaceous sputum, burn sustained indoors or increased carboxyhaemoglobin (COHb) <ul style="list-style-type: none"> Reduced or falling level of consciousness Consider cuffed ETT - Leave uncut to accommodate facial & airway swelling 	<p>Breathing</p> <ul style="list-style-type: none"> Ensure adequate oxygenation and ventilation 15 litres O₂ non-rebreathing mask / 100% O₂ if intubated & ventilated Respiratory failure can be due to chest trauma, inhalational injury and restrictive chest wall eschar formation (consider chest escharotomy) 	<p>Circulation</p> <ul style="list-style-type: none"> 2x large bore cannulae or intraosseous access in first 5 mins Baseline bloods: ABG (lactate, O₂Hb, COHb, MetHb), x-match, glucose, baseline electrolytes, renal function and CK Burns resuscitation using Parkland Formula Refractory hypotension, consider other causes e.g. trauma
<p>Disability</p> <ul style="list-style-type: none"> Assess and document GCS and pupil size Decreased level of consciousness can be multifactorial – consider hypoxia May need CT head to exclude head injury 	<p>Exposure</p> <ul style="list-style-type: none"> Secondary survey: Examine head to toe, front and back. Check distal perfusion, <ul style="list-style-type: none"> Temperature & colour Consider escharotomy for circumferential limb burns Use Lund & Browder chart to document percentage and depth of burn (Palm = 1% BSA) Dress longitudinal cling film, avoid circumferential dressings Actively maintain normothermia Early gastric and urinary catheter insertion. Fluid requirement commences from time of burn 	<p>Fluids</p> <ul style="list-style-type: none"> Parkland Formula – Hartmans Solution 4ml/weight kg/% TBSA Burn in first 24 hours <ul style="list-style-type: none"> ½ volume in first 8 hours, ½ volume next 16 hours OR ¼ ml / kg/hr for first 8 hours. Aim for Urine Output 0.5 – 1 ml/kg/hr Urinalysis for myoglobinuria (rhabdomyolysis) <ul style="list-style-type: none"> aim for 2ml/kg/hr UOP. Other trauma & on-going bleeding will require additional resuscitation Paediatric maintenance requirements not included in calculation
<p>See next page for chart</p>	<p>Burn Wound Care</p> <ul style="list-style-type: none"> Analgesia – Burns are Painful Clean De-Roof Blisters – assess underlying wound Dress <ul style="list-style-type: none"> Emergency / Initial Dressing – Clingfilm Definitive – Non Adherent / Consider Silver based dressing Flammazine / Acticoat / Urgotulle SSD / Aquacel Ag 	<p>Contact Details</p> <p>For referral or advice St Andrew's Burns Centre Broomfield Hospital Chelmsford Essex 01245 516038/37</p> <p>THINK-ASK</p>

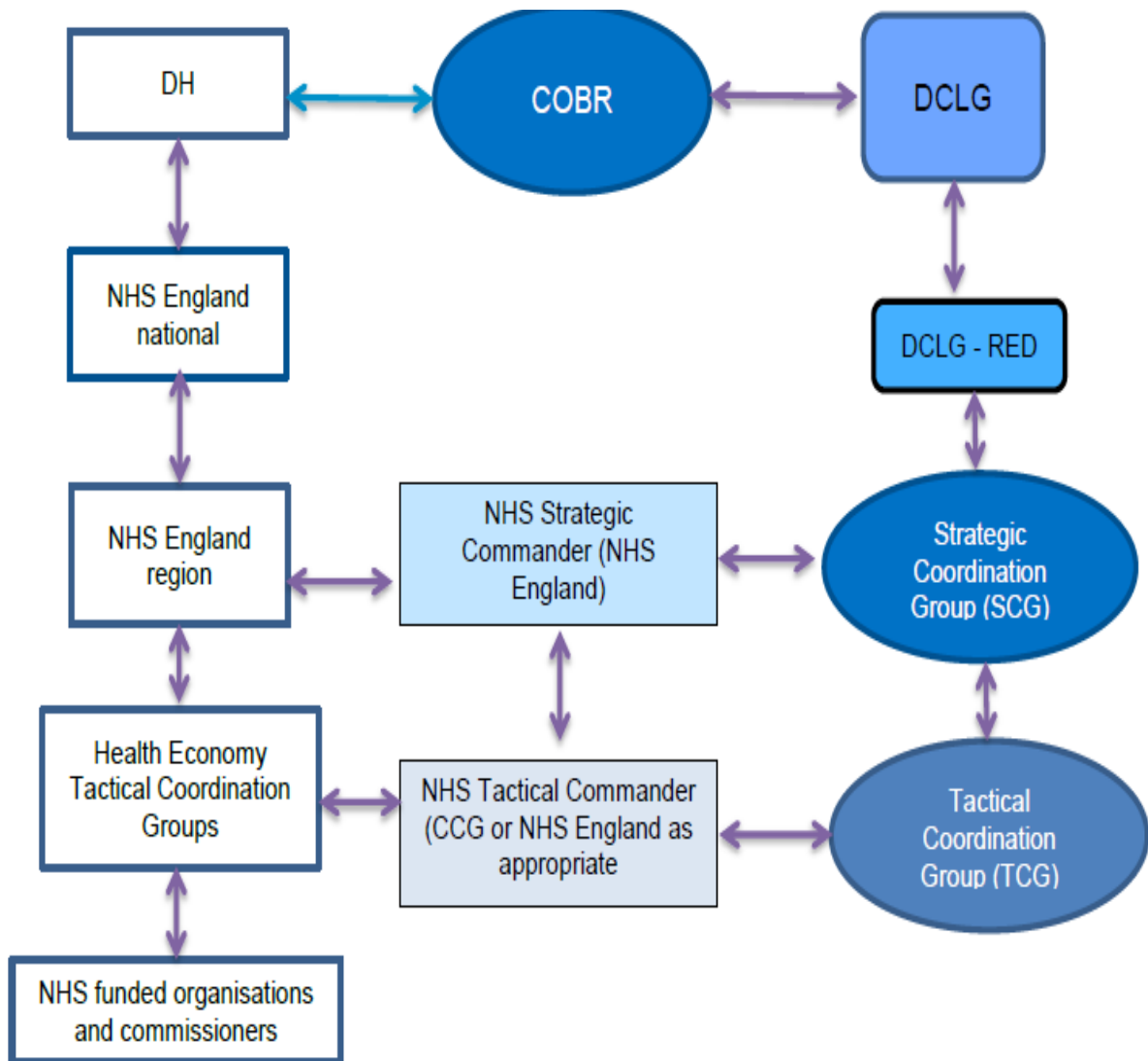
Source needs to be added

Source: Pan London Major Trauma Networks: Response to Mass Casualty Incident

Appendix 6 – Golden Rules for Mass Casualty Events

1. Treat and admit will be needed irrespective of injuries in first hours
2. Secondary Transfer Protocols are turned off
3. Trauma Units will take P1, P2 and P3 casualties.
4. No damage control surgery greater than 1 hour
5. All clinical communication to occur through the Network Clinical Co-ordination Team
6. Aim to do the “Most for the most”
7. Transport will be unavailable for some time
8. Stop all elective work and don't restart too early
9. Appoint a surgical/anaesthetic floor walker early
10. Consider whole body CT scan on P1s

Appendix 7 - NHS Response Diagram



Source: NHS England EPRR Framework (2015)

Appendix 8 – ACTION CARD

ACTION CARD	NO 11	
INCIDENT ROLE	SUSSEX MAJOR TRAUMA Network Clinical Advice Team	
Role Held by	Critical Care Consultant (Chair) Neurosurgical Consultant, General Surgical Consultant, Ortho Consultant, Paed Surgeon Consultant	
Location	ED Seminar Room, Floor 7, Trust HQ	
Role Description	<p>To act as liaison between other hospitals and MIO/Clinical Lead & Tactical lead at BSUH</p> <p>To act as a liaison between TUs, LEHs & the Specialty Cons</p> <p>To facilitate clinical advice to TUs and LEHs</p> <p>To prioritise patients for admission to a MTC</p> <p>This is a hands off role & is based near to the HICC</p> <p>This team must function until stood down.</p>	
Declared Mass Casualty Major Incident		Time
Notification by the Clinical Lead/Major Incident Officer/clinical lead or your Consultants on Call		
1	Proceed immediately to the HICC for update then ensure a room is set up that all the telephones plugged in (ED Seminar Room).	
2	Gather team: to include Neurosurgical cons, General Surgical Cons and Ortho Consultant (+/- Paed Surgeon Consultant) and a member of Major Trauma Network Support or volunteer staff to act as admin support. The NCCT must consist of a minimum 3, maximum 5 consultants.	
3	Log: Ensure you document all decisions made & actions taken	
4	Liaise with the Hospital Ambulance Liaison Officer (HALO) within BSUH HICC and the MIO in the BSUH HICC & confirm contact number	
5	Call RSCH Switchboard and inform them that the NCCT is set up & that all new referrals should now be via the NCAT on ext 4495	
6	Inform the local TU HICC's of your location & contact details	
7	Maintain a list of the Major Trauma patients requiring transfer to an MTC or tertiary care and their current location within the Sussex Trauma Network using preformed Excel spreadsheet (found on the MTC Intranet page)	
8	Review activity and capacity at the TUs in relation to ED, Operating Theatre, recovery & ICU workload (TUs to email or phone NCCT with details at 8am and 3pm)	
9	Advise TUs: facilitate clinical advice to MTUs managing Major trauma patients	
10	Liaise with SECamb and TUs/LEH to prioritise patients for admission	
11	Chair 8 hourly meeting with relevant clinical specialities HICC and 8am 3pm 10pm(or as appropriate)	
12	Relief: If this is likely to be a prolonged incident assess the need to call in another 3 appropriate cons to take over from you after 12 hours or when necessary.	
13	Recovery: Consider recovery as early as possible	

14	Trust Stand down: the BSUH HICC should not stand down until all Sussex Trauma Network Hospitals have stood down.	
15	Plan handover to the Major Trauma Team and Inform Switchboard of the referral process	
16	Inform TUs and LEHs of ongoing referral process	
17	Attend the 'hot' debrief with the HICC staff immediately after the incident.	
18	Documentation: Complete any documentation created during the incident, and leave within the HICC cupboard.	

Appendix 9 – OPEL - Major Trauma Network OPEL descriptors

OPEL and CRITCON STATUS

	Pre-hospital (commissioned services only) Resource Escalation Action Plan (REAP)	Trauma Units - TU	Major Trauma Centre - MTC	Major Trauma Network - MTN	ACTION
OPEL 1 (CRITCON Level 0 and 1 - Normal to Low Surge) GREEN	REAP GREEN (1) Demand for service within normal parameters Pre-hospital able to support primary and secondary transfers	TUs able to receive triage positive patients and able to support time critical secondary transfers	MTC able to receive critically injured patients into appropriate critical care area	Network functioning as currently, triage tool at steps 1 & 2 [limited] only	No action required; providers can maintain patient flow and meet anticipated demand within available resources.
OPEL 2 (CRITCON Level 2 – Medium Surge) AMBER	REAP AMBER (2) Operating with moderate pressures which may be affecting service delivery Ability to run primary transfers and time critical secondary transfers only	50% or less TUs. TUs only able to accept triage positive patients with airway compromise or life- threatening haemorrhage (if all TUs in network escalate to OPEL-3) Or 50% or less TUs or critical care transfer service not able to support time critical secondary transfers (if all TUs in network escalate to OPEL-3)	MTC can provide immediate resuscitation, emergency surgery and specialist critical care for life threatening conditions but limited capacity for other categories of automatic transfers or ward level patients	Any of the below: MTC at OPEL-2 50% or less TUs not accepting triage positive trauma (if all TUs in network escalate to OPEL-3) 50% or less TUs or critical care transfer service not able to support time critical secondary transfers (if all TUs in network escalate to OPEL-3) Pre-hospital running primary transfers and time critical secondary transfers only	<ul style="list-style-type: none"> • System starting to show signs of pressure, enhanced coordination and communication needed to monitor OPEL level and consider focused local actions for de-escalation and return to OPEL 1. • Follow internal escalation protocol i.e. through Incident Control / Command and Control structure, consider use of de-escalation support tool as per local action plan (Appendix 3) • Additional support requirements should be agreed locally if needed

					<ul style="list-style-type: none"> National and Regional team informed via ODN and MTC sitrep
OPEL 3 (CRITCON Level 3 – High Surge) RED	REAP RED (3) Operating with a severe pressure, where clinical quality and / or patient experience may be affected Ability to run primary transfers only	More than 50% of TUs only able to accept triage positive patients with airway compromise or life-threatening haemorrhage Or More than 50% of TUs not able to support time critical secondary transfer	MTC can provide immediate resuscitation, emergency surgery and specialist critical care for life threatening conditions but MTC unable to accept other categories of automatic transfers or ward level patients	1. MTC at OPEL-2 AND any of the below: <ul style="list-style-type: none"> Pre-hospital running primary transfers and time critical secondary transfers only More than 50% TUs only able to accept triage positive patients with airway compromise or life-threatening haemorrhage More than 50% TUs or critical care transfer service not able to support time critical secondary transfers Or 2. Adult or Paeds MTC in network at OPEL-3 Or 3. All TUs only able to accept triage positive patients with airway compromise or life-threatening haemorrhage Or 4. All TUs and / or critical care transfer service not able to support time critical secondary transfers	<ul style="list-style-type: none"> Regional teams to be made aware of increasing pressure. It will be necessary to provide local support as deemed necessary. National team informed by National ODN MTC sitrep Follow internal escalation protocol i.e. through Incident Control / Command and Control structure National and Regional teams informed via ODN and MTC sitrep Providers should liaise with local ICC Incident Control Centre / Regional Operational Centre (ROC) in case of escalation to OPEL 4. Consider guidance from National Clinical Director for Major Trauma system for regional and national response Intra network cooperation to match patients to capacity and speciality care Increased use of air asset transfer across region (where available)

					<ul style="list-style-type: none"> • Increased use of critical transfer service (where available) • use the de-escalation support tool as per local action plan (Appendix 3)
OPEL 4 (CRITCON Level 4 – Triage Emergency) BLACK	REAP BLACK (4) Trust operating under extreme pressure, which will be affecting service delivery Unable to run primary or secondary transfers	All TUs unable to accept triage positive trauma and /or all TUs unable to support time critical secondary transfer	No capacity for critical care Or MTC cannot provide immediate resuscitation and / or emergency surgery	Pre-hospital service unable to run primary transfers Or All TUs unable to accept triage positive trauma and / or support time critical transfers Or Any MTC is at OPEL-4 (either adult/Paed/combined MTC) No rapid access to specialist care	<ul style="list-style-type: none"> • Pressure continues to escalate across major trauma providers, if sustained impact across regional boundaries; national action may be required. • All major trauma to local hospital. • Follow internal escalation protocol i.e. through Incident Control / Command and Control structure. • National and Regional team informed via ODN and MTC sitrep • Providers through local ICC Incident Control Centre / Regional Operational Centre (ROC) seek guidance from National Clinical Director (NCD) for system, regional and national response. • Cross network cooperation to match patients to capacity and speciality care

					<ul style="list-style-type: none"> • Mutual Aid with neighbouring networks • Use of the de-escalation support tool as per local action plan (Appendix 3) • If Pre-Hospital at OPEL 4: • Refer to pre-hospital escalation plans • If All TUs at OPEL 4: • Refer to local and Network escalation plans • If MTC at OPEL 4: • Refer to MTC and Network plans but consider the following: • Patients transferred back to TUs for ward stays • Ward level patients remain in trauma units • Primary bypass to remaining / neighbouring MTCs where possible • Onward transfer to receiving MTCs on case by case basis from TUs • Redeployment of staff to support trauma care at remaining units where possible
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