

Major incident pre-hospital care

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Abstract

This article gives an overview of pre-hospital care in the context of a major incident, and how some standard operating procedures may be changed to reflect the particular challenges imposed by such an incident. With reference to recent major incidents within the UK, we aim to illustrate how patients may be managed differently and promote understanding of some of the difficulties associated with working in pre-hospital care in general, and in a major incident specifically.

Keywords BASICS; major incidents; PHEM; pre-hospital care; trauma networks; triage

Introduction

Pre-hospital care in the UK has evolved significantly over the last 30 years: from solo doctors with a predominantly general practice background providing an ad-hoc service, progressing through the creation of BASICS (the British Association of Immediate Care Schemes) and recently, pre-hospital care was recognized as the newest sub-speciality Certificate of Completion of Training (CCT) by the General Medical Council. Since the creation of major trauma networks in the UK in 2012, the mortality from trauma has steadily declined by integrating all aspects of trauma care beginning with pre-hospital emergency medicine (PHEM), through initial damage control resuscitation, critical care and onwards to definitive care and rehabilitation. This is usually due to a large resource being invested in a small number of patients at any one time.

During day-to-day operations, the supply of healthcare delivery outstrips demand and there is a large amount of tolerance built into the trauma system. Clinical decision-making tools such as those in [Figure 1](#) have been employed to determine which patients require transport to a specialist major trauma centre (MTC) or can be safely treated at a smaller trauma unit (TU). There are currently 26 designated MTCs in the UK and each region has at least one MTC designated to receive the sickest trauma patients. This is important in the day-to-day working as well as during major incidents because it may not be possible to move every patient to the MTC, nor would it be appropriate. The

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effect of saturating a single centre with multiple undifferentiated casualties would bring the entire system to an abrupt halt. We must, therefore, employ a system where patients with the greatest need for advanced medical care receive it and those requiring assessment and less complex management are sent to appropriate locations to deal with their injuries. This relies on identifying those casualties who are 'time critical' i.e. are at risk of death or serious deterioration without significant intervention in an MTC, as well as those who have conditions which can have delayed treatment. This is the principle behind triage as employed by many ambulance and pre-hospital services around the world.

Recent terror attacks in the UK have raised general awareness of major incidents and, in addition, the recent Hillsborough Inquest (relating to a sports stadium disaster in Sheffield, UK, in 1989) and Kerslake Report (Manchester bombing 2017) demonstrates how emergency services and other organizations will be placed under significant scrutiny, even years after the event.

Major incidents

Major incidents are rare situations that place an extraordinary burden on healthcare resources as a result of the number or type of casualties involved in an incident, which cannot be met by standard available resources. Major incidents can be classified in three ways:

- natural or man-made
- simple or compound
- compensated or uncompensated

Natural major incidents result from severe natural events, e.g. flood, fire, earthquake, and man-made incidents occur whenever there are large groups of people in one place and include incidents related to transport, mass events and terrorism.

Major incident complexity is described by simple or compound, compensated or uncompensated. Simple incidents occur when infrastructure is still intact and a compound incident involves damage to infrastructure. Either of these may be compensated: where (the load is less than the extraordinary capacity) or uncompensated (where the load placed on services exceeds the extraordinary capacity, i.e. it cannot be dealt with by mobilizing extra resources).

Recent terror attacks in London and Manchester were a man-made, simple, compensated major incident where additional resources in a well-resourced urban centre were mobilized to cope with a large number of casualties.

Command and control in a major incident


Communication and teamwork are essential in a major incident, not only due to the clinical needs of multiple patients, but also because a major incident is usually a major crime scene for the police. If not a terrorist event or a man-made incident, there will at least be an inquiry into what happened, possibly many depending on the type of incident and if there were multiple deaths.

Declaring a major incident is a key step in mobilizing several resources to the scene and allowing the activation of the major incident plan. Activation can be done by any member of the emergency services, but ambulance control will need certain

London major trauma decision tool

London Major Trauma Decision Tool (ADULTS & CHILDREN 12 – 18 YEARS OLD)

Step 1	<p>Assess vital signs and level of consciousness</p> <p>1B Glasgow Coma Score of 13 or below 1B Sustained systolic blood pressure less than 90 mmHg 1C Respiratory rate less than 10 or greater than 29 bpm</p>	Yes to any one	Convey to nearest Major Trauma Centre . Ensure pre alert call is passed on PD09.
Step 2	<p>Assess anatomy of injury</p> <p>2A Chest injury with altered physiology 2B Traumatic amputation/mangled extremity proximal to wrist/ankle 2C Penetrating trauma below the head above the knees (not arms) 2D Suspected open and/or depressed skull fracture 2E Suspected pelvic fracture 2F Spinal trauma suggested by abnormal neurology 2G Open fracture of the lower limb proximal to the ankle 2H Burns/scald greater than 30 percent 2I Facial burns with complete skin loss to lower half of face 2J Circumferential burns from a flame injury</p>	Yes to any one	Convey to nearest Major Trauma Centre . Ensure pre alert call is passed on PD09.
Step 3	<p>Assess mechanism of injury</p> <p>3A Traumatic death in same passenger compartment 3B Falls > 20 ft (two storeys) 3C Person trapped under vehicle or large object (including 'one unders') 3D Bullseye to the windscreen and/or damage to the 'A' post of the vehicle caused by impact of individual outside of the vehicle</p>	Yes to any one	Convey to nearest Major Trauma Centre . Ensure pre alert call is passed on PD09.
Step 4	<p>Assess special patient consideration. Patients who have sustained trauma but do not fit any of the above criteria but are:</p> <p>4A Older patients (> 55 years) 4B Pregnant (> 20 weeks) 4C Known to have bleeding disorder or receiving current anti-coagulation therapy e.g. warfarin or novel oral anticoagulant agent 4D Morbidly obese</p>	Yes to any one	Patient may benefit from going to a Major Trauma Centre . Contact The Clinical Hub on PD09.
Step 5	<p>Assess system consideration. Patients who have sustained trauma but do not fit any of the above criteria but there is:</p> <p>5A Significant crew concern only when discussed with a Trauma Paramedic within EOC</p>	Yes to any one	Patient may benefit from going to a Major Trauma Centre . Contact The Clinical Hub on PD09.

Should the airway become compromised and cannot be managed consider conveying/diverting to the nearest Trauma Unit 

Handover and pre-alert call
C CAD
A Age of patient
T Time of injury
M Mechanism of injury
I Injuries found and suspected
S Signs (vital)
T Treatment given or required

Only patients triggering the trauma tool should be taken to a Major Trauma Centre, unless the patient is within the normal catchment of that emergency department. In this case you note LT in the trauma tool trigger box on the PRF.

Is your patient at risk of significant bleeding?
Signs of Shock (diaphoretic)?
 Consider **Tranexamic Acid**.
 Do not delay on scene.

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