Queensland Trauma Education

TRAUMA TEAMS

Unstable trauma patient

Immersive scenario

Facilitator resource kit

Clinical Excellence Queensland
JAMIESON TRAUMA INSTITUTE
CSDS Clinical Skills Development Service
Queensland Government

Queensland Trauma Education

The resources developed for Queensland Trauma Education are designed for use in any Queensland Health facility that cares for patients who have been injured as a result of trauma. Each resource can be modified by the facilitator and scaled to the learners needs as well as the environment in which the education is being delivered, from tertiary to rural and remote facilities.

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Queensland Trauma Education
Trauma Teams – Unstable trauma patient: Immersive scenario – Facilitator resource kit
Version 1.0

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About this training resource kit

This resource kit provides the learners the opportunity to consider multiple shock states in the trauma patient.

National Safety and Quality Health Service (NSQHS) Standards

Target audience

Emergency department medical and nursing clinicians.

Duration

30-45 minutes.

Group size

Suited to small group participation.

Learning objectives

By the end of this session the participant will be able to:

- Flexible team role allocation with minimal pre-notification
- Identification of multiple life-threatening pathologies
- Shared mental model for the management of complex trauma presentations

Facilitation guide

1. Facilitator to adapt the scenario to local processes
2. Scenario can be run with team members entering at different time points to further explore handover and shared mental models

Supporting Resources (in Printable Resources)

1. Pre-simulation briefing poster
2. CXR- large L tension pneumothorax with midline shift
3. CXR- ICC L and improvement midline shift
4. CXR- ETT, L ICC and hard collar
5. PXR- NAD
6. VBG- hypoventilation, hypoxia and hypercarbia
7. ROTEM- TIC with A5<10
8. FAST - positive

Simulation event

This section contains the following:

1. Immersive scenario
2. Resource requirements
3. Handover card
4. Scenario progression
    a. State 1
    b. State 2
    c. State 3
    d. State 4
5. Debriefing guide

Immersive scenario

Type	Immersive scenario
Target audience	Emergency Department medical and nursing clinicians
Overview	Altered patient presentation with signs of hypoperfusion and shock with multiple competing priorities.
Learning objectives	• Team communication, role allocation and shared mental model • Structured assessment of the shocked trauma patient
Duration	45-60 minutes, including debrief.

Resource requirements

Physical resources

Room setup	Resuscitation bay
Simulator/s	3G SIM man
Simulator set up	• Street clothes • Abrasions to L chest
Clinical equipment	• Ultrasound machine • Airway trolley and RSI medications • ICC insertion equipment and UWSD • Blood + administration equipment • Warming devices
Access	L PIVC. No IV sticker on R arm.
Other	ED chart and relevant paperwork

Human resources

Faculty	2 facilitators with debrief experience (medical and nursing) to take role of scenario commander and primary debrief
Simulation coordinators	1 for mannequin set up and control
Confederates	1 confederate in room, optional 1 confederate to provide QAS handover / radiographer / other team members
Other	Trauma team composition- 3 nurses and 3 doctors in room (or team composition as per local area)

Handover card

Handover from ambulance officer

Hi, this is an unknown male. He was found in the bushes 2 streets from the hospital. It is very unclear what has happened, the ambulance was called by a bystander who found him on their morning walk.

We found the patient to be altered, with a GCS 6 (E3, V1, M2), his pupils are equal and reactive. His other vital signs are HR 113, BP 97/68, RR 20, sats 78%RA, temp 35deg.

We have managed to place an PIVC in L ACF but not administered any medications as yet.

Scenario progression

<table>
<tr><th colspan="4">STATE 1: INITIAL ASSESSMENT</th></tr>
<tr><th colspan="2">Vital signs</th><th>Script</th><th>Details</th><th>Expected actions</th></tr>
<tr><td>ECG</td><td>ST</td><td rowspan="9">Person
Nil verbal</td><td rowspan="9">Clinical features
A Maintaining own

B Respiratory distress with air hunger, decreased BS L.
Nil subcut emphysema/crepitus

C Peripherally cold, grey colour.
Nil external haemorrhage

D Pupils large and sluggishly reacting to light, moving 4 limbs to pain, localising

E Diffuse abdominal tenderness, nil wounds/bruising
Pelvis aligned, long bones NAD
Nil external signs of head injury

• Improvement in GCS
• Recognition of shock state
• Assessment focussed on identification of the cause of shock
• CXR: L tension PTx
• PXR: NAD</td><td rowspan="9">❑ Rapidly organise team into roles
❑ Receive handover
❑ Perform primary survey
❑ TL to articulate priorities to team</td></tr>
<tr><td>HR</td><td>113</td></tr>
<tr><td>SpO₂</td><td>80% RA</td></tr>
<tr><td>BP/ART</td><td>70/40</td></tr>
<tr><td>RR</td><td>28</td></tr>
<tr><td>Temp</td><td>35</td></tr>
<tr><td>BGL</td><td>6</td></tr>
<tr><td>GCS</td><td>9
(E3,V1,M5)</td></tr>
<tr><td></td><td></td></tr>
</table>

STATE 2: IDENTIFICATION OF LIFE THREATS & INITIAL MANAGMENT				
Vital signs		**Script**	**Details**	**Expected actions**
ECG	ST	**Person** Mumbling incoherently	• Recognises tension pneumothorax as contributing to obstructive shock • Considers alternate causes of shock and initiates management • CXR- improvement in mediastinal shift	❑ Identification of immediate management needs ❑ Improve oxygenation ❑ Safe performance of chest decompression + ICC ❑ Consideration of analgesia and sedation needs to perform interventions ❑ Commence volume resuscitation with blood products ❑ Prioritise warming patient
HR	120			
SpO_2	94% 15LNRB			
BP/ART	80/55			
RR	28			
Temp	35			
BGL	7			
GCS	11 (E3,V3,M5)			

<table>
<tr><th colspan="4">STATE 3: FURTHER ASSESSMENT & MANAGEMENT</th></tr>
<tr><th colspan="2">Vital signs</th><th>Script</th><th>Details</th><th>Expected actions</th></tr>
<tr><td>ECG</td><td>ST</td><td rowspan="9">Person
Agitated and non-compliant</td><td rowspan="9">• Re-assessment
• Improvement in vital signs with release of obstructive shock
• Increasingly challenging to manage agitation and behaviour
• FAST positive</td><td rowspan="9">❑ Repeated structured assessment
❑ Identification of bleeding source
❑ Repeat CXR for ICC position
❑ Consideration of ROTEM to guide coagulopathy management</td></tr>
<tr><td>HR</td><td>110</td></tr>
<tr><td>SpO_2</td><td>99% 15L NRB</td></tr>
<tr><td>BP/ART</td><td>100/70</td></tr>
<tr><td>RR</td><td>22</td></tr>
<tr><td>Temp</td><td>35</td></tr>
<tr><td>BGL</td><td>6</td></tr>
<tr><td>GCS</td><td>13 (E3,V4,M6)</td></tr>
<tr><td></td><td></td></tr>
</table>

STATE 4				
Vital signs		**Script**	**Details**	**Expected actions**
ECG	As above	**Person** Responds to sedation delivery if given to control agitation		❑ Consideration of +/- RSI or sedation ❑ Urgent CT vs OT (site specific) ❑ Ongoing haemostatic resuscitation ❑ Clear communication of shared goals with surgical/anaesthetic teams
HR				
SpO_2				
BP/ART				
RR				
Temp				
BGL				
GCS				

Debriefing guide

Scenario objectives

- Flexible team role allocation with minimal pre-notification
- Identification of multiple life-threatening pathologies
- Shared mental model for the management of complex trauma presentations

Example questions

Exploring diagnosis

- How did the team identify the life-threatening injuries in this patient
- What investigations helped in making critical decisions
- What were strategies that allowed the team to have a shared mental model for the investigation priorities

Discussing management

- How did the team prioritise each intervention
- Were there barriers to each intervention required
- Was patient warming a consideration/priority
- How was the resuscitation and coagulopathy managed

Discussing teamwork / crisis resource management

- How was the team organised when the patient arrived with no pre-notification
- What were the challenges faced by the team in managing this patient

Key moments

- Identification of life-threatening obstructive shock
- Management of the agitated trauma patient
- Team communication and role allocation

Acronyms and abbreviations

Term	Definition
RSI	Rapid sequence induction
ICC	Intercostal catheter
UWSD	Under water seal drain
PIVC	Peripheral intravenous cannula
ED	Emergency department
QAS	Queensland ambulance service
CXR	Chest xray
PTx	Pneumothorax
PXR	Pelvic xray
NAD	Nil abnormalities detected
EFAST	Extended focused assessment with sonography in trauma
CT	Computed tomography
OT	Operating theatre
ROTEM	Rotational thromboelastometry
FAST	Focussed assessment with sonography in trauma

References

1. Hargestam, M., Lindkvist, M., Jacobsson, M., Brulin, C. & Hultin, M. (2016). Trauma teams and time to early management during in situ trauma team training. *BMJ Open, 6*(1). https://doi.org/10.1136/bmjopen-2015-009911
2. Georgiou, A., & Lockey, D.J. (2010). The performance and assessment of hospital trauma teams. *Scand J Trauma Resusc Emerg Med, 18*, 66. https://doi.org/10.1186/1757-7241-18-66

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