

Queensland  
Trauma Education

## ABDOMINAL TRAUMA

# Blunt abdominal and orthopaedic trauma

## Immersive scenario

Facilitator resource kit

CSDS



Clinical Skills Development Service



## 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**

**Abdominal Trauma: Blunt Abdominal and Orthopaedic Trauma – Immersive scenario – Facilitator resource kit**  
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## About this training resource kit

This resource kit provides a framework for the assessment and management of a patient with blunt abdominal and orthopaedic trauma.

### National Safety and Quality Health Service (NSQHS) Standards



### Target audience

Emergency department medical and nursing clinicians

### Duration

45-60 minutes

### Group size

Suited to small group participation.

### Learning objectives

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

- Perform a primary assessment of a trauma patient
- Recognise signs and symptoms of shock and hypovolaemia
- Control external haemorrhage
- Identify intraperitoneal bleeding
- Consider strategies for haemodynamic resuscitation.

### Facilitation guide

Immersive scenario delivered as standard format or pause and discuss based on participant level and learning needs.

### Supporting resources

- Imaging resources
- Laboratory results

## Simulation event

### **This section contains the following:**

1. Pre-simulation briefing poster
2. Immersive scenario
3. Resource requirements
4. Handover card
5. Scenario progression
  - a. State 1 – Initial Nurse assessment
  - b. State 2 – Medical Officer attendance
6. Supporting documents
7. Debriefing guide



# Pre-simulation briefing

## Establishing a safe container for learning in simulation



# 1

### Clarify objectives, roles and expectations

- Introductions
- Learning objectives
- Assessment (formative vs summative)
- Facilitators and learners' roles
- Active participants vs observers

# 2

### Maintain confidentiality and respect

- Transparency on who will observe
- Individual performances
- Maintain curiosity

# 3

### Establish a fiction contract

Seek a voluntary commitment between the learner and facilitator:

- Ask for buy-in
- Acknowledge limitations

# 4

### Conduct a familiarisation

- Manikin/simulated patient
- Simulated environment
- Calling for help

# 5

### Address simulation safety

Identify risks:

- Medications and equipment
- Electrical or physical hazards
- Simulated and real patients



Note: Adjust the pre-simulation briefing to match the demands of the simulation event, contexts or the changing of participant composition.

## Immersive scenario

<b>Type</b>	Immersive scenario
<b>Target audience</b>	Emergency Department Medical and Nursing Clinicians
<b>Overview</b>	Regional/Rural environment. Male patient crushed by metal beam sustaining blunt injury to abdomen and leg. Hypovolaemic shock resulting from intraperitoneal haemorrhage and active bleeding from L leg wound.
<b>Learning objectives</b>	<ul style="list-style-type: none"><li>• Perform a primary assessment of a trauma patient</li><li>• Recognise signs and symptoms of shock and hypovolaemia</li><li>• Control external haemorrhage</li><li>• Identify intraperitoneal bleeding</li><li>• Consider strategies for haemodynamic resuscitation</li><li>• Engage local referral pathways</li></ul>
<b>Duration</b>	45 minutes, including debrief

## Resource requirements

### Physical resources

<b>Room setup</b>	Resus bay
<b>Simulator/s</b>	3G / ALS manikin
<b>Simulator set up</b>	<ul style="list-style-type: none"><li>• Stock hand work clothes</li><li>• Sitting 45 deg on trolley</li><li>• Bandage around L leg (moulage leg wound with bleeding)</li></ul>
<b>Clinical equipment</b>	<ul style="list-style-type: none"><li>• Standard resuscitation equipment for resus bay</li><li>• Resus medications</li><li>• Tourniquet, bandage, splints (cervical, pelvic, CT6 or other femoral splint)</li><li>• Fluids</li><li>• TXA, calcium</li></ul>
<b>Access</b>	<ul style="list-style-type: none"><li>• 2x simulated IV access with 2 'No IV' sticker attached</li><li>• No PIVC initially</li></ul>

### Human resources

<b>Faculty</b>	2x facilitators (Dr and Nurse with debriefing experience) to take on roles of scenario commander and primary debrief
<b>Simulation coordinators</b>	Can be performed by primary facilitator if no dedicated Simulation Coordinator
<b>Confederates</b>	Co-worker for handover or QAS (depending on location)

## Handover card

Handover card from ambulance officer/friend

**John:** This is Greg Smith; he is 18 years old. He works as a stock hand at our local property. Today he was getting the cows ready for milking when a metal bar holding the gate open came loose, swinging back and hit him. The bar pinned him against the fencing. Other guys on scene reckon the bar weighs 200kg. He was pinned for about 15 minutes until he was found. His boss was going to let Greg's mum know what has happened.

He couldn't walk as his L leg was hurt in the accident. I just put that bandage around it, but it looks broken.

**Greg:** My leg hurts!

*When asked: No medical history, no medications, no allergies.*

**Greg:** I do smoke cigarettes and drink alcohol on weekends.



## Scenario progression

STATE 1: INITIAL ASSESSMENT – Nurse				
Vital signs		Script	Details	Expected actions
ECG	ST	Greg: "My leg hurts."	<b>Primary assessment</b>  <b>A:</b> patent, nil cervical spine tenderness, anterior neck NAD  <b>B:</b> equal BS, no chest wall tenderness, nil crepitus/subcutaneous emphysema  <b>C:</b> peripherally cool, pale, HS dual. Bruise across abdomen, tender upper abdomen, no wounds.  <b>D:</b> GCS 15, pearl 3mm  <b>E:</b> L leg wound, actively bleeding when dressing removed  Doctor will be delayed.	<input type="checkbox"/> Perform primary survey <input type="checkbox"/> Identify features of shock <input type="checkbox"/> Identify abdominal tenderness and bruising <input type="checkbox"/> Manage active blood loss from leg injury +/- apply tourniquet <input type="checkbox"/> Gain IV access <input type="checkbox"/> Perform initial investigations <input type="checkbox"/> Administer pain relief <input type="checkbox"/> Call for help
HR	110			
SpO <sub>2</sub>	99%RA			
BP	100/80mmHg			
RR	22			
Temp	37			
BGL	12			
GCS	15			

STATE 2: ONGOING MANAGEMENT/SECONDARY ASSESSMENT – MO attendance				
Vital signs		Script	Details	Expected actions
ECG	ST	<b>Greg:</b> “My leg hurts. My belly hurts. I feel faint.”	<ul style="list-style-type: none"> <li>Recognise hypovolaemia</li> <li>Haemorrhage from leg wound and intraperitoneal free fluid</li> </ul> <b>Secondary assessment results</b> <ul style="list-style-type: none"> <li>CXR - NAD</li> <li>Pelvic Xray - normal</li> <li>EFAST- positive free fluid RUQ</li> <li>L leg- compound distal femoral fracture, bleeding from wound</li> </ul>	<b>RN performs clinical handover</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Review primary survey</li> <li><input type="checkbox"/> Ensure adequate analgesia</li> <li><input type="checkbox"/> Give fluid bolus (crystalloid or blood as per local resources)</li> <li><input type="checkbox"/> Consider TXA</li> <li><input type="checkbox"/> Ensure external site bleeding is controlled</li> </ul> <b>Initiate following investigations:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Blood tests</li> <li><input type="checkbox"/> CXR and Pelvic Xray</li> <li><input type="checkbox"/> +/- L leg Xray</li> <li><input type="checkbox"/> EFAST (RUQ only provided)</li> </ul> <b>Engage RSQ for retrieval</b>
HR	110			
SpO <sub>2</sub>	99% RA			
BP	90/50mmHg			
RR	24			
Temp	37			
BGL	12			
GCS	15			

## Supporting documents

The following supporting documents are provided for this case discussion:

1. I-Stat Chem8
2. I-Stat CG4+
3. EFAST – positive RUQ
4. CXR
5. Pelvic XR
6. L femoral fracture Xray

## I-Stat Chem8

-----  
 I-Stat CHEM8  
 Pt: C999997  
 Pt Name : \_\_\_\_GregSMITH

Na	137
K	4.2
Cl	106
iCa	1.20
TCO2	40
Glu	5.3
Urea	5.5
Crea	79
Hct	0.48
Hb*	122
*via Hct	
AnGap	5mmol/L

<>Action range Flag

Sample Type: VEN  
 Field 1: 21031981  
 CPB: No

08:25    06Sep17

Operator ID: 53425436  
 Physician: \_\_\_\_\_

Lot Number: 873488424724763  
 Serial: 336013  
 Version: JAMS143SA  
 CLEW: A34  
 Custom: 14B279XX

-----  
 Reference Ranges

Na	135	145 mmol/L
K	3.2	4.5 mmol/L
Cl	100	110 mmol/L
iCa	1.15	1.35 mmol/L
TCO2	24	29 mmol/L
Glu	3.0	7.8 mmol/L
Urea	2.5	8.0 mmol/L
Crea	60	120 mmol/L
Hct	0.38	0.51
Hb*	120	180 g/L
AnGap	5	15 mmol/L

-----

**I-Stat CG4+**

-----  
I-Stat CG4+  
Pt: C999997  
Pt Name: Greg SMITH  
-----

37.0°C  
PH 7.39  
PCO2 35.8 mmHg  
PO2 48 mmHg  
BE ecf -2 mmol/L  
HCO3 24 mmol/L  
TCO2 27 mmol/L  
sO2 97 %  
Lac 1.3 mmol/L  
-----

<>Action range Flag

Sample Type: VEN  
Field 1: 21031981

08:25 06Sep17

Operator ID: 53425436  
Physician:

-----  
Lot Number: 873488424724763  
Serial: 336013  
Version: JAMS143SA  
CLEW: A34  
Custom: 14B279XK  
-----

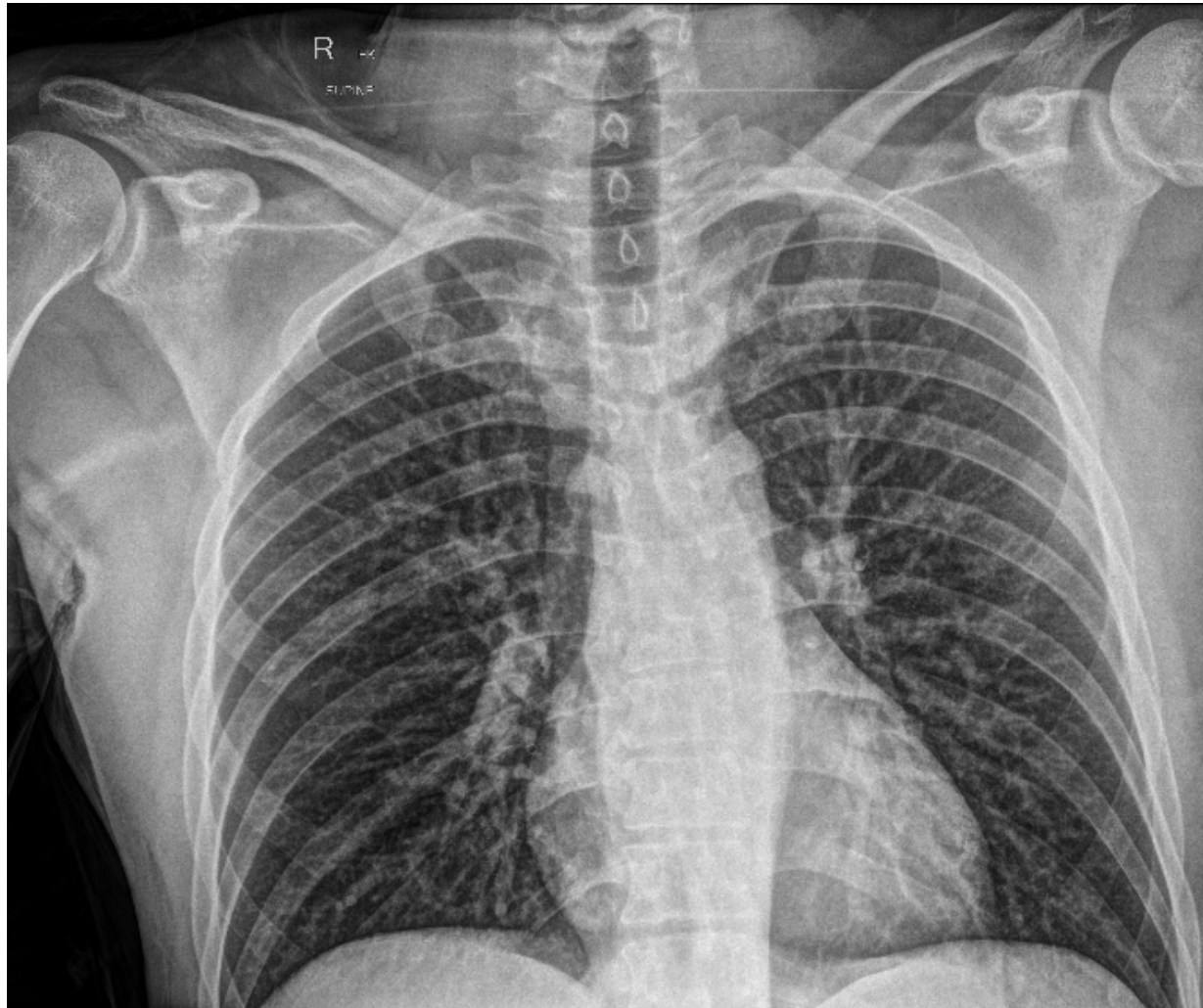
Reference Ranges  
pH 7.340 7.450  
PCO2 35.0 45.0 mmHg  
PO2 80 105 mmHg  
BEecf -2 3 mmol/L  
HCO3 23.0 28.0 mmol/L  
TCO2 24 29 mmol/L  
s)2 95 98 %  
Lac 0.70 2.50 mmol/L  
-----

**EFAST RUQ**





## Chest Xray



## Pelvic Xray



### Left leg Xray



## Debriefing guide

### Scenario objectives

- Primary assessment of trauma patient
- Recognition of shock and hypovolaemia
- Control of external haemorrhage
- Consideration of intraperitoneal bleeding
- Strategy for haemodynamic resuscitation

### Example questions

#### Exploring diagnosis

- What was your approach to the initial assessment of this trauma patient?
- What features on examination identified injury location?
- What investigations were available/chosen in this scenario?
- How did the investigations aid in the diagnosis of injury?

#### Discussing management

- What were the management priorities for this patient?
- What resuscitation strategy was used for this patient?
- What is the role of adjuncts (calcium/TXA)?
- What fluid replacement is used in bleeding trauma patients?
- How was the haemorrhage from leg wound controlled?

#### Discussing teamwork / crisis resource management

- How was the trauma team leader role assigned?
- What elements of clinical handover were most useful?
- What roles did the team members perform?
- When additional tasks were required to be performed, how did the team decide on the role allocation?
- What additional team members are available? Does it depend on timing/day? How are they contacted? (Local process discussion)

### Key moments

- Recognise circulation as primary problem
- Focus on control of external haemorrhage and identification of intraabdominal pathology
- Team approach to manage hypovolaemia

## Share your feedback

### Please complete our survey to help make Queensland Trauma Education better

The survey should take no more than 5 minutes  
to complete.

Scan the QR code or visit:

<https://www.surveymonkey.com/r/3FWL3ZD>



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