



# Intrahospital Trauma Transfer

Simulation-based teaching session: Lesson Plan

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# 1 Purpose

A dilemma commonly presented to trauma teams is the multiply injured patient who has life-threatening haemorrhage requiring emergency surgical intervention, concurrently with a possible or likely head injury requiring imaging and neurosurgical intervention. In many cases, a patient requires damage control surgery before then being transferred to scan to facilitate further decision-making around additional interventions. At Westmead Hospital, the treating anaesthetist is often called upon to safely transfer such a patient to the computed tomography (CT) scanner, and then to the intensive care unit or back to theatre for further surgery. This transfer of a critically unwell post-operative trauma patient through the hospital requires meticulous planning and execution, and is governed by the Australian and New Zealand College of Anaesthetists professional guideline 52 Guideline for transport of critically ill patients 2015<sup>1</sup>.

A group of anaesthetists at the hospital, who have an interest in trauma anaesthesia, have developed an education day aimed at anaesthetic trainees and anaesthetic nurses called 'Trauma Education Day' (TED). The day comprises workshops and simulations focussing on perioperative trauma care and is designed to follow on from the hospital's interdisciplinary Trauma Team Training day, which primarily addresses initial management and resuscitation. One area not currently addressed during TED is the issue of intrahospital transfer following emergency surgery, yet this presents an important and potentially high-risk moment during the anaesthetist's care of a critically unwell trauma patient.

This lesson plan, therefore, is intended to sit within TED, as an additional module on safe transfer with particular reference to trauma.

### 1.1 Specific issues and needs assessment

While trainee anaesthetists and anaesthetic nursing staff gain exposure to intrahospital transfer of the intubated patient as part of routine care (for example post-operative transfer to ICU), the issues of transfer to radiology for CT postoperatively represents specific challenges which are often poorly understood (see table 1).

Table 1: Summary of possible challenges in arranging post-operative intrahospital transfer

Logistic issues	Clinical issues
Duration of transfer: <ul style="list-style-type: none"><li>• Adequate battery life</li><li>• Adequate drug supplies</li><li>• Adequate oxygen supply</li></ul>	Multiply injured patient with possible evolution of injuries, including: <ul style="list-style-type: none"><li>• Traumatic brain injury</li><li>• Chest injuries (pneumothorax, contusions)</li></ul>
Equipment planning <ul style="list-style-type: none"><li>• Emergency equipment (eg airway equipment)</li><li>• Rationalising infusions</li><li>• Transport ventilation</li></ul>	Setting and maintaining physiological target parameters

Communication <ul style="list-style-type: none"><li>• Within team (including porters)</li><li>• Destination (eg CT control room)</li><li>• Disposition (eg ICU or OT)</li><li>• Other specialties (eg neurosurgery)</li></ul>	Maintaining vigilance, identifying and treating problems, calling for help
Risk of dislodgement, access failure, lines kinking etc	

## 2 Aims and objectives

### 2.1 Aims

This session aims to provide participants the opportunity to participate in a simulated trauma scenario involving the time-critical transfer of a trauma patient postoperatively.

There will be multiple competing priorities, particularly around balancing the clinical time pressure and need for ensuring a safe transfer. This will require clear communication and teamwork to ensure efficiency as well as clinical vigilance.

## 2.2 Learning objectives

Table 2: Summary of learning objectives

Code	Learning objective
LO 1	As a team, prepare and execute a time-critical intrahospital transfer of a head-injured patient, post damage control surgery
LO 2	Institute neuroprotective measures to manage raised intracranial pressure
LO 3	Demonstrate maintenance of situational awareness through closed loop communication within the team
LO 4	Demonstrate role allocation to ensure efficient packaging and transport
LO 5	Demonstrate telephone communication with key stakeholders (eg neurosurgeon, radiology, consultant anaesthetist) to ensure involvement of senior decision-makers

## 2.3 Learner characteristics

This simulation-based education session is aimed at anaesthetic trainees and anaesthetic nurses who may be required to facilitate a postoperative intrahospital transfer of a trauma patient, including after hours. Trainee anaesthetists attending TED range in experience from basic trainee to advanced trainee to provisional fellow. Anaesthetic nurses may range in experience from junior staff to senior educators. In simulations, the participant teams are ideally assembled to represent a range of experience, similar to 'real life' working.

### 2.3.1 Summary of participant numbers

- Advanced anaesthetic trainee or fellow x 1
- Basic anaesthetic trainee x 1
- Senior anaesthetic nurse x 1
- Junior anaesthetic nurse x 1
- Embedded faculty x 1
- Observers: can be rest of course attendees therefore max 12

### 2.3.2 Curriculum mapping for anaesthetic trainees

This session is closely mapped to learning outcomes defined in the ANZCA training curriculum<sup>2</sup> including:

Figure 1: Summary of relevant learning outcomes from the ANZCA anaesthetic training curriculum<sup>2</sup>

- AT\_RT 1.12 Discuss the initial assessment and management of Acute traumatic brain injury
- AT\_RT 1.18 Outline the process for arranging a patient transfer
- AT\_RT 1.19 Discuss requirements for the safe transfer of critically ill patients
- AT\_RT 2.7 Recognise and manage evolving injuries during anaesthesia care of the trauma patient

For anaesthetic nurses, being able to facilitate an intrahospital transfer is an expected skill for those working in night shifts, and this scenario could be included in specific nursing training to prepare for transition to night shift work as staff become more senior in experience.



## 2.4 Faculty characteristics

Faculty are comprised of

- Consultant anaesthetists with an interest in trauma and/or simulation and education
- The simulation and education anaesthetic provisional fellow
- The trauma anaesthesia provisional fellow
- Consultant Nurse Educators from the perioperative suite
- Simulation Nurse Educators from the simulation centre

These staff members are usually volunteers who agree to instruct TED. An email call-out for faculty is sent out several months in advance to confirm faculty numbers. Role allocation amongst faculty will be decided prior to the day, and will be made with consideration for supervision and learning needs within the faculty. This might include

- Requirements for specific simulation skill currency – for example controlling the simulation monitoring software (eg iSimulate)
- Requirements for faculty development, for example: supervised debriefing with specific learning goals, and requirement for post-debrief debriefing
- Requirements for embedded staff within the simulation
- Ensuring an adequate balance of nursing and medical faculty

### 2.4.1 Summary of faculty roles

A total of six faculty is required to run the scenario, although with experience of the scenario if the future it may be possible for some faculty to hold more than one role.

This will be subject to ongoing evaluation following the session (see [Faculty Evaluation](#)).

See table 3 for a description of faculty roles.

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Table 3: Summary of faculty roles for the scenario (numbers in brackets indicate the section in the lesson plan referred to)

	Roles					
	Director	Controller	Embedded	Debriefeer 1	Debriefeer 2	AV Operator
Role Summary	Team leader for faculty.	Control observations via iSimulate	Integrated into the scenario	Facilitate debrief	Facilitate debrief	Provide AV feed for observers
Setup <i>Prior to the day</i> During the morning	<i>Communicate with faculty team prior to TED to distribute scenario document, allocate roles and confirm planned timings</i>	Confirm iSimulate charged and working. Assist with set-up in OT 1 using equipment checklists (see <a href="#">Appendix</a> )	Assist with set-up in OT 1 using equipment checklists (see <a href="#">Appendix</a> )			Confirm AV setup working. Assist with set-up in OT 1 using equipment checklists (see <a href="#">Appendix</a> )
Pre-scenario	Lead faculty pre-brief (see <a href="#">Faculty Pre-Brief</a> )	Attend faculty pre-brief (see <a href="#">Faculty Pre-Brief</a> )	Attend faculty pre-brief (see <a href="#">Faculty Pre-Brief</a> )	Attend faculty pre-brief (see <a href="#">Faculty Pre-Brief</a> )	Attend faculty pre-brief (see <a href="#">Faculty Pre-Brief</a> )	Attend faculty pre-brief (see <a href="#">Faculty Pre-Brief</a> )
Participant briefing	Complete <a href="#">Start of Scenario Checklist</a>	Initiate start observations	Be present in OT 1	Brief observers (see <a href="#">Observer section</a> )	Lead participant pre-brief (see <a href="#">Briefing Cards</a> )	Start AV feed to observer room

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<b>In-scenario</b>	Deliver handover to participants (see <a href="#">Briefing Cards</a> ) Timekeeping Communication with controller to prompt scenario progression Decision to end scenario	Deliver observations to participants via iSimulate in line with <a href="#">Scenario Timeline</a>	Role of staff member within the scenario: New-grad anaesthetic nurse, just completed training. Helpful, but needing prompting. If team do not notice blown pupil, can prompt this information	Observe scenario, take notes. Brief conferral with co-debriefer at end of scenario	Observe scenario, take notes. Brief conferral with co-debriefer at end of scenario. Answer phone calls to 'sim switch'	
<b>Post-scenario</b>	Assist packing up	'Count out' check of OT 1 (see <a href="#">Appendix</a> ) Assist packing up	Join debrief	Lead debrief (see <a href="#">Debrief section</a> )	Co-lead debrief (see <a href="#">Debrief section</a> )	'Count out' check of OT 1 (see <a href="#">Appendix</a> ) Assist packing up
<b>Wrap up</b>	Distribute evaluation forms to participants Lead <a href="#">Faculty Debrief</a>	Attend faculty debrief (see <a href="#">Faculty Debrief</a> )	Attend faculty debrief (see <a href="#">Faculty Debrief</a> )	Attend faculty debrief (see <a href="#">Faculty Debrief</a> )	Attend faculty debrief (see <a href="#">Faculty Debrief</a> )	Attend faculty debrief (see <a href="#">Faculty Debrief</a> )

## 3 Simulation preparation

### 3.1 Expected knowledge

This session will take place during the established TED course. It is intended to be run in the afternoon following introductory workshops earlier in the day, which will include key topics relevant to this session including:

- Traumatic brain injury and neuroprotective measures
- Introduction to the hospital's Hamilton T1 transport ventilator

Logistical knowledge of the hospital is helpful but not essential to the scenario as embedded faculty can act as 'porter' to guide the team to the correct destination.

External participants who are not familiar with the hospital can be given an additional brief as part of the pre-brief to ensure they understand the proposed route of the transfer.

### 3.2 Timing

Set-up (during morning of TED): 30 min

Faculty Pre-brief: 10 min

Participant Pre-brief: 10 min

Scenario: 20 min

Debrief: 40 min

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Evaluation: 10 min

Faculty debrief: 10 min

### 3.3 Required resources

#### 3.3.1 Setting

This scenario is intended to allow participants the opportunity to conduct a transfer within the hospital. As the TED course takes place on a Saturday, it is possible to start the scenario in an empty operating theatre and then conduct a transfer to the SiLECT sim centre, which is 5-10 minutes walk away on the same level.

##### **Start of scenario**

Operating theatre 1 (unused), level 3 F Block.

##### **End of scenario**

Sim Lab B, SiLECT simulation centre, level 3 G Block. This will be referred to as the radiology department in the scenario – participants will have this explained as part of the pre-brief. Arrival in SiLECT sim lab B will be the ‘end of scenario’.

#### 3.3.2 Set-up requirements

Needs: 2 x faculty (may include simulation centre staff). Ideally set-up for the scenario can take place earlier during the course day as the operating theatre will not be in use either clinically or for any other course activities.

### 3.3.3 Safety considerations

#### **Psychological safety**

- Pre-brief for participants to create 'safe container'<sup>3</sup> and assert the Basic Assumption<sup>4</sup> (see [Participant Pre-Brief](#))
- Explain purpose of audiovisual (AV) equipment:
  - The live-streamed video will not be recorded, and will only be viewed by other course participants who are acting as remote observers
  - Allows observers to learn from the scenario without crowding and detracting from the fidelity of the scenario
- Ensure realistic mix of trainees and nursing seniority within participant team, to allow adequate experience base to tackle the clinical scenario. This ensures that participants are working within their scope of practice and can approach the scenario as a team.
- Structured debriefing by faculty committed to creating psychologically safe space for reflective discussion and learning.

#### **Physical safety**

- Pre-scenario preparation of anticipated drugs required to minimise use of sharps/breaking vials etc in the scenario
- Intra-hospital movement of a manikin as part of a complex scenario
  - Moving trolley
  - Oxygen cylinder
  - Risk to other staff/patients within the hospital (unusual to encounter in this part of the campus)

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- The scenario will not require procedural skills requiring use of sharps, therefore limiting the risk of a sharps injury.

### **Logistical factors**

- Scenario design to minimise participant requirement to access 'live' clinical equipment
- Use of 'sim' drugs and equipment, risk of cross contamination with clinical area
  - Pre-prepare drugs syringes anticipated to be required by sim participants prior to set-up, clearly labelled as 'simulation drug'
  - Ensure any simulation syringes 'counted out' at the end of scenario to ensure removed from clinical space
- Anticipate emergency equipment needed
  - bring sim 'airway grab bag', clearly labelled, contents to include BVM, OPA, NPA, LMA
  - Ensure any additional equipment 'counted out' at the end of the scenario
- Theatre nurse unit manage and duty anaesthetist for the day of the course should be alerted to the presence of a simulation activity within the theatre suite.
- Faculty in controller and AV roles during the scenario to be responsible for ensuring count out completed following completion of the scenario
- See appendix for suggested [count in/count out checklist](#)



### 3.3.4 Necessary equipment

Table 4: Equipment summary for the scenario

Theatre setup	Transfer setup	Simulation equipment
Anaesthetic machine	Airway 'grab bag' with BVM and facemask, OPAs, NPAs, LMAs	Simulation manikin – can be ALS manikin if necessary but will need to include 'blown pupil'. (Can be simulated with stickers if needed)
Operating theatre equipment	Transfer trolley	2 x peripheral cannulae
Breathing circuit and test lung	'Drugs' pre-prepped: propofol, fentanyl, noradrenaline, rocuronium	Art-line and transducer setup
Infusion pumps x 3	Hamilton T1 transfer ventilator	CVC in situ
Fluid line x 1		iSimulate
Arterial line setup		AV feed setup
Bag of mannitol		AV mobile solution – via iPad?
CVC in manikin		DECT phone for 'sim switch'

### 3.4 Faculty pre-brief

**Duration:** 10 min

**Setting:** within sim centre

**Director to deliver briefing:**

- Purpose of scenario is to allow the teams to execute a time critical intra-hospital transfer
- The scenario involves a polytrauma patient who has had damage control surgery and now needs to go to CT for a trauma pan scan. The participants will discover that the patient has blown a pupil which adds urgency to the need for transfer. They will transfer from theatre back to the sim lab which will represent the CT scanner.
- The participants will need to work as a team to ensure that key interventions are attended to, but while also maintaining momentum
- Ensure faculty understand their roles within the scenario

### 3.5 Participant pre-brief

**Duration:** 10 min

**Setting:** within sim centre

**Debrief 2 to lead participant pre-brief**

- Introductions of participants and faculty (if not done already)
- Welcome to sim

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- Assert the Basic Assumption<sup>4</sup>
- Sim lab general orientation
- Anticipated duration of scenario: 20 minutes, followed by a 40 minute debrief
- You are in your usual roles, working within your usual scope of practice
- The time and day are now – ie Saturday afternoon
- Alert to AV equipment: not recorded, closed loop within the sim centre, mobile AV may be used in the scenarios but again, not recorded and for purposes of allowing observers to learn from the scenarios
- Specific to this scenario
  - How to get to 'CT'
  - Participants to save 'sim switch' phone number in their phones.

### 3.6 Observers

Observers to watch remotely via AV feed in room within the sim centre

Observers to be pre-briefed by debriefer 1.

Pre-brief to include

- Basic assumption
- Purpose of the simulation
- You will be observing, we have told the participants that this will not be recorded, therefore we ask that you respect this and refrain from taking photographs or video of the live feed

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- We have put together a worksheet to prompt you to consider how you might address some of the key challenges presented by the scenario
- You will then observe the participant debrief and may be invited to share some of your thoughts or observations

See appendix for [worksheet](#) to be printed and distributed to observer group. Questions chosen listed below and linked to [learning objective](#) number (eg LO1).

- *Based on the handover, what injuries do you think this patient has? (LO 1)*
- *What problems can you anticipate during the transfer? (LO 1)*
- *The team will spot a complication from this patient's injuries, summarise the clinical priorities for managing this (LO 2)*
- *How have the team used role allocation in the scenario? (LO 4)*
- *What would you bring with you for this transfer? (LO 1)*
- *What did you notice about how the team communicated during the scenario? (LO 3 + 5)*

## 4 Simulation run sheet

### 4.1 Start of scenario checklist

Prior to commencement of scenario, Director to confirm:

- Set-up complete
- Count in checklist complete
- Participant pre-brief complete
- Observers present in observer room
- Observer pre-brief complete, and provided with worksheets
- AV feed working
- Faculty in position ready to commence their in-scenario roles
- Controller initiated iSimulate first observations

## 4.2 Participant briefing

See [Briefing Cards](#) appendix for printable briefing cards for faculty use. Please also refer to the [faculty roles](#) table

### **Participant brief (prior to entry to scenario)**

#### **Faculty member responsible: Debrief 2**

You have been asked to relieve the anaesthetic team in theatre one. They have just finished a trauma laparotomy. I think they're preparing to take a patient to CT.

### **Handover from embedded 'anaesthetic fellow'**

#### **Faculty member responsible: Director**

Hi, glad to see you it's been a long and busy morning! If it's ok, I'd like to hand this patient over to you for transfer to CT and then to ICU?

This is a 20 year old man, Joe Collins, who was riding his motorbike at unknown speed, lost control and clipped a truck on the M4. He was wearing a helmet and proper biking protective gear.

On scene he was hypotensive, tachycardic, and had a positive eFAST for free fluid. HEMS started blood, gave TXA and calcium and brought him here, they put out a pre-hospital code crimson. He was shocked in ED, so we started an MTP and brought him up for damage control.

Any questions so far? *(Allow time for processing and questions)*

We tubed him with ketamine and roc, easy view on CMAC, and we've given about 2 rounds of MTP. Surgeons found a splenic lac, so they've taken the spleen and since then

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he's been pretty stable. They're happy with the abdomen so have closed. He still needs a pan scan though, so I've just been getting him ready to go. He's got a couple of cannulas, I've popped in a CVC and an art line, and he's got an IDC. I've got him on a propofol and a fentanyl infusion, and he's pretty well-sedated, I think.

I've been keeping an eye on his pupils, they've been ok but just have a look before you head to CT.

So next steps, he'll need a pan scan, radiology are expecting you, and then get him back to ICU. You'll need to get a porter and a bed to move him, and there's a transport ventilator and monitor ready for you. There's nothing else pending for theatre tonight.

Any questions? *(Allow time for processing and questions)*

### 4.3 Scenario timeline

Table 5: Table summarising the progression of the simulation scenario

Phase/timing	Obs	Expected actions	Prompts (if needed)	Faculty notes
Start of case 0-2 min	SpO2 98% BP 100/60 HR 90 etCO2 42 RR 10 Pupils 3+3+ until handover complete then 3+5-	Review and reassess  Introduce to embedded faculty  Allocate roles  Re-check pupils	If pupils not checked within first 5 min:  Embedded faculty to prompt or perform pupil check and report to participants  Provide <a href="#">arterial blood gas</a> if requested	
Recognition of blown pupil 2-7 min	SpO2 98% BP 160/60 HR 50 etCO2 42 RR 10 Pupils 3+5-	Alert team, declare a crisis, redelegate  Calls for help/advice: May be neurosurgeon, trauma surgeon, ICU  Increase minute ventilation  Titrate vasopressor to aim SBP >110mmHg	If no neuroprotective measures instituted, or debate or uncertainty on how to implement neuroprotection within first 10 min:  Embedded faculty to suggest speaking to neurosurgery and/or anaesthetic consultant by phone	Amend observations to improve in response to neuroprotective interventions  Expect calls to sim switch, helpful responses to be provided to the team.  <a href="#">Phone advice guide</a>



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		<p>Give mannitol 1g/kg</p> <p>Elevate head 30 degrees</p> <p>Change ETT securement to tape</p> <p>Expedite CT</p>		<p>Neurosurgeon advice: we will meet you in the CT scanner, and we will call the consultant in the meantime</p> <p>Trauma surgeon advice: Support CT transfer, contact neurosurgery if not already done</p> <p>ICU advice: Will need a CT brain before coming to ICU, and Neurosurgical advice.</p> <p>If asked for neuroprotection advice, please provide suggestions:</p> <ul style="list-style-type: none"> <li>• aim etCO2 30-35</li> <li>• aim SBP &gt;110 or higher</li> <li>• mannitol 1g/kg</li> <li>• normothermia, normoglycaemia</li> <li>• tape ETT, 30 degree head up tilt</li> <li>• adequate sedation + paralysis</li> <li>• expedite CT</li> </ul>
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<p>Prepare for transfer</p> <p>7-13 min</p>	<p>SpO2 98%</p> <p>BP 110/60</p> <p>HR 90</p> <p>etCO2 33</p> <p>RR 14</p> <p>Pupils 3+5-</p>	<p>Transfer to transport trolley</p> <p>Use Hamilton ventilator</p> <p>Use iSimulate monitor</p> <p>Maintain sedation with syringe drivers</p>	<p>If not yet transferred to transport trolley by 15 min:</p> <p>Phone call to team from neurosurgeon to emphasise need for CT</p>	
<p>Transfer</p> <p>14-20 min</p>	<p>SpO2 98%</p> <p>BP 110/60</p> <p>HR 90</p> <p>etCO2 33</p> <p>RR 14</p> <p>Pupils 3+3-</p>	<p>Transfer patient to 'CT' (sim lab)</p> <p>Set out plan for transfer to CT table</p> <p>End scenario</p>	<p>Embedded faculty can offer to push the transfer trolley</p>	<p>Faculty to follow participant team back to the sim lab</p>

## 5 Debriefing

### 5.1 Setting

The debrief should take place immediately post-scenario in a separate debriefing space. The faculty debriefers, as well as the embedded faculty and the observers are invited to join the participants for this discussion. Other faculty not involved in the debrief can help with packing up (see [faculty roles](#) table).

The debrief should be closely aligned to the stated [learning objectives](#). A copy is included in the suggested debriefing guide as a reminder for debriefers.

### 5.2 Observers in the debrief

With respect to observer integration, it is suggested that they are invited to share observations related to the questions they've answered in their worksheet. For example, it might be appropriate to invite them to share the list of neuroprotective measures they made. This element of the debrief should be at the debriefers discretion, depending on the progress of the debrief and as a tool to integrate some of the observations to support the learning objectives.

### 5.3 Suggested Debriefing Guide

Table 6: Table summarising a suggested debriefing structure derived from PEARLS<sup>5</sup>

Timing	40 minutes	Location	Sim room C	Learning objectives	LO Code
Faculty	Debriefers 1 & 2, embedded faculty	Room setup	Circle of chairs, faculty opposite sides of circle.	As a team, prepare and execute a time-critical intrahospital transfer of a head-injured patient, post damage control surgery	LO 1
				Institute neuroprotective measures to manage raised intracranial pressure	LO 2
				Demonstrate maintenance of situational awareness through closed loop communication within the team	LO 3
Suggested script	Note: the following is modelled on PEARLS <sup>5</sup> model of debriefing, however debriefers to use whichever structure they are most comfortable with.			Demonstrate role allocation to ensure efficient packaging and transport	LO 4
				Demonstrate telephone communication with key stakeholders (eg neurosurgeon, radiology, consultant anaesthetist) to ensure involvement of senior decision-makers	LO 5

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Phase	Objective	Task	Sample Phrases
<b>Setting the scene</b>	Create the safe container	Explain purpose of debrief Assert Basic Assumption	<i>“The purpose of the debrief is to explore the scenario and what we might learn from it to bring back to our clinical practice. Everyone here is intelligent and wishes to learn and improve in order to be able to provide better care for our patients”</i>
<b>Reactions</b>	Explore feelings	Allow participants to ‘blow off steam’	<i>“I’d like to start by getting some reactions from around the room, how are you feeling, in one word or sentence?”</i>
<b>Description</b>	Establish common understanding of the facts of the case	Elicit description of the scenario	<p><i>“This was a very complex scenario and there was a lot to keep track of, can anyone please give us a short summary of what happened?”</i></p> <p>Key points of the scenario which would be helpful to elicit:</p> <ul style="list-style-type: none"> <li>• Polytrauma patient needing urgent imaging</li> <li>• Newly recognised blown pupil indicating elevated ICP</li> <li>• Instituting neuroprotective measures</li> <li>• Expediting urgent CT transfer</li> <li>• Communication with other specialties (eg neurosurgery)</li> </ul> <p>Confirm the participants agree with the stated facts of the case</p>

<b>Analysis</b>	Explore domains related to learning objectives	<b>Preview topics</b>	<b>Examples related to LOs (in brackets)</b> <i>“I’d like us to spend time talking about neuroprotection because you recognised that the patient might have a high ICP”</i> (LO 2)  <i>“We’ll move on to discussing how you used role allocation within the team to make sure everything was done safely but efficiently”</i> (LO 5)
	<b>Three Analytical Approaches (from PEARLS<sup>5</sup>, adapted to this scenario)</b>		
	<b>Learner Self-Assessment</b>	What aspects of the communication within the team went well, and why? (LO 3)  What aspects would you like to change about the communication within the team? (LO 3)	
	<b>Focussed Facilitation</b>	Advocacy: <i>“I heard you state that this is now a neurosurgical emergency, which seemed to bring your team together and focus on getting the neuroprotection measures implemented ...”</i> (LO 3)  Inquiry: <i>“...how do you see it? what were you thinking at that time?”</i> (LO 3)	

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			<p>Advocacy: <i>“I noticed that you asked the neurosurgeon to meet you in the CT scanner which I think would have sped-up decision-making for this patient when you arrived in CT...”</i> (LO 1 + 5)</p> <p>Inquiry: <i>“...what prompted you to suggest this?”</i> (LO 1 + 5)</p>
		<b>Provide Information</b>	<p><i>“I noticed there was a moment when there were several team members at one stage focussed on the ventilator settings. You might want to consider redelegating team members so you don’t lose momentum or lose situational awareness”</i> (LO 3 + 4)</p> <p><i>“I noticed no-one called the consultant anaesthetist, that might be helpful to do early as it’s likely they’ll need to come in”</i> (LO 5)</p>
	Considerations for observers	<b>Outside of PEARLS approach</b>	<i>“I’d like to touch on neuroprotection, the team implemented hyperventilation and head up positioning. I wonder what other measures we can implement, perhaps our observers might have made a list?”</i>
<b>Application/Summary</b>	Identify key take-homes	Elicit take-homes from learners	<i>“What are your key take home learning points from this session that you would like to bring back to clinical practice?”</i>

## 6 Evaluation

### 6.1 Participant evaluation

Participants are asked to complete an electronic feedback form during the day for each session, using QR code to distribute the form.

#### Questions

1. Likert scoring

Table 7: Table to summarise Likert scores to be elicited in participant evaluation

	1	2	3	4	5
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I found the simulation session useful					
I found the simulation session relevant to my practice					
I enjoyed the simulation session					

2. Tell us three things you learned from this simulation session
3. Is there anything you would suggest changing for next time?

### 6.2 Faculty evaluation

#### 6.2.1 Faculty Debrief

**To be led by Director** (see [faculty roles](#))

#### Specific faculty requirements



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- Allow opportunities for faculty development and feedback as required – for example, faculty who are seeking specific feedback on their debriefing skills
- Plus delta approach: what went well with the simulation, what should change for next time
- Record summary of feedback from faculty relating to the scenario and its execution
- See [faculty evaluation guide](#) in appendix

### **Review of scenario and ongoing development**

Planned report to be completed within one month of the course by the course directors

with a summary of:

- Anonymised participant feedback
- Faculty feedback
- Occurrence of significant problems such as safety breaches
- Any additional issues noted by the course director
- Action points to be used to update the future running of the scenario and the course as a whole
- Goal to update the lesson plan following the report findings within 2 months
- Distribute new version of lesson plan to course faculty for approval for use in future TED courses (save on TED Teams space)

## 7 Bibliography

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2. ANZCA. ANZCA Anaesthesia Training Program Curriculum V1.12. 2017; <https://www.anzca.edu.au/resources/all-handbooks-and-curriculums/anzca-anaesthesia-training-program-curriculum>. Accessed 1st April, 2024.
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## 8 Appendices

### 8.1 Count In/Out Checklist

Table 8: Count in/out checklist

Item	Present in OT1 (pre-scenario)	Removed from OT1 (post-scenario)
Anaesthetic machine		
Morgan trolley		
Transfer trolley		
Breathing circuit and test lung		
iSimulate with battery pack and wifi dongle		
Simulation manikin with 'blown pupil', moulage to include: <ul style="list-style-type: none"> <li>• Head injury</li> <li>• Laparotomy wound</li> </ul>		
Manikin intubated with ETT and tube tied		
2 x peripheral cannulae		
Art-line and transducer setup		
CVC in situ in manikin		
Infusion pumps x 3		
Fluid line x 1		
Arterial line setup		
Bag of mannitol		
CVC in manikin		
Airway Grab bag:	BVM	
	Facemask	
	OPA	
	NPA	
	LMA	
Drugs Infusions: 50mL syringes, labelled with SIM labels on syringe and extension line	2 x Propofol	
	2 x Fentanyl	
	2 x Noradrenaline	
	Rocuronium (2 x red 5mL syringe)	
Hamilton T1 transfer ventilator + circuit		

## 8.2 Observer worksheet

Please use the following questions to prompt your thoughts and ideas based on what you see during the scenario.

Question	Your ideas
<i>Based on the handover, what injuries do you think this patient has?</i>	
<i>What problems can you anticipate during the transfer?</i>	
<i>The team will spot a complication from this patient's injuries, summarise the clinical priorities for managing this</i>	
<i>How have the team used role allocation in the scenario?</i>	
<i>What would you bring with you for this transfer?</i>	
<i>What did you notice about how the team communicated during the scenario?</i>	

### 8.3 Briefing cards

#### Simulation pre-briefing

- Introductions of participants and faculty (if not done already)
- Welcome to sim
  - Assert the Basic Assumption<sup>4</sup>
  - Sim lab general orientation
  - Anticipated duration of scenario: 20 minutes, followed by a 40 minute debrief
  - You are in your usual roles, working within your usual scope of practice
  - The time and day are now – ie Saturday afternoon
  - Alert to AV equipment: not recorded, closed loop within the sim centre, mobile AV may be used in the scenarios but again, not recorded and for purposes of allowing observers to learn from the scenarios
- Specific to this scenario
  - How to get to 'CT'
  - Participants to save 'sim switch' phone number in their phones.

#### Scenario briefing

You have been asked to relieve the anaesthetic team in theatre one. They have just finished a trauma laparotomy, and are in theatre 1. I think they're preparing to take a patient to CT.

#### Handover to participants

Hi, glad to see you it's been a long and busy morning! If it's ok, I'd like to hand this patient over to you for transfer to CT and then to ICU?

This is a 20 year old man, Joe Collins, who was riding his motorbike at unknown speed, lost control and clipped a truck on the M4. He was wearing a helmet and proper biking protective gear.

On scene he was hypotensive, tachycardic, and had a positive eFAST for free fluid. HEMS started blood, gave TXA and calcium and brought him here, they put out a pre-hospital code crimson. He was shocked in ED, so we started an MTP and brought him up for damage control.

Any questions so far? *(Allow time for processing and questions)*

We tubed him with ketamine and roc, easy view on CMAC, and we've given about 2 rounds of MTP. Surgeons found a splenic lac, so they've taken the spleen and since then he's been pretty stable. They're happy with the abdomen so have closed. He still needs a pan scan though, so I've just been getting him ready to go. He's got a couple of cannulas, I've popped in a CVC and an art line, and he's got an IDC. I've got him on a propofol and a fentanyl infusion, and he's pretty well-sedated, I think.

I've been keeping an eye on his pupils, they've been ok but just have a look before you head to CT.

So next steps, he'll need a pan scan, radiology are expecting you, and then get him back to ICU. You'll need to get a porter and a bed to move him, and there's a transport ventilator and monitor ready for you. There's nothing else pending for theatre tonight.

Any questions? *(Allow time for processing and questions)*

## 8.4 Arterial Blood Gas

It is possible the participants may ask for an ABG during the scenario. This is given below and can be provided to the embedded faculty to give to participants if asked. The parameters on ABG are not intended to influence the scenario progress.

This ABG can be printed and laminated in advance of the session.

Name: Joseph Collins	
DoB: 01/01/2004	
MRN: 543 678	
Sex: Male	
Sample type: Arterial	
T: 36.8 °C	
FiO <sub>2</sub> : 50%	
Operator: 123456	
Blood Gas Values	
pH	7.36
pCO <sub>2</sub>	47
pO <sub>2</sub>	200
Electrolyte Values	
cNa <sup>+</sup>	140
cK <sup>+</sup>	4
cCa <sup>2+</sup>	1.18
Metabolite Values	
cGlu	8
cLac	1.9
cHb	101
cO <sub>2</sub>	99
cBase(B)c	-2
cHCO <sub>3</sub> <sup>-</sup>	24

## 8.5 Faculty evaluation guide

To be filled in by course director

1. Thank faculty for their time in helping to run today's session
2. Ensure that opportunities are provided for faculty feedback discussions within the faculty group to take place, for those faculty who have identified that they would like this as part of their own learning and development
3. Hold a brief (10 minutes) meeting with the faculty to cover the following items (see table below)
4. This form can be used in combination with the participant feedback to provide a report to the faculty group, and inform amendments to the lesson plan as indicated

Table 9: Proforma for notes following faculty evaluation meeting

<b>What went well in the simulation session today?</b>	
<b>Were any safety breaches identified?</b>	
<b>What should we change for next time?</b>	
<b>Specific questions: Did we have enough faculty? Did we have too many faculty? Do we think the observers were engaged?</b>	