Title: eg Traumatic Hypovolaemia

Put approp national standard symbols

Target Group: (include min/max number of participants)

et. Junior ED registrars (min 3/max 5)

Faculty required: (include any role play/confederate required)

Eg:
Debrief (1 or 2) can be 1x medical/2x medical/1x medical & 1x nursing
1x Nurse confederate
1x ED consultant confederate
1x ambulance officer confederate for handover
1x surgeon on phone

Learning objectives

e.g. By the end of the simulation participants will have:

- Demonstrated a structured/systematic ABCDE approach to the care of the trauma patient on a simulated patient (manikin).
- Practiced team behaviours in a simulated crisis situation.
- Discussed the assessment and management for the hypovolaemic trauma patient.

Overview of scenario
(this is a brief summary of the scenario including an end point)

The ED is notified by the ambulance of a patient being transported by road car to the ED with an ETA of 2mins. The team has this time to prepare themselves and the environment. James is a 32yr old male who was crushed by a 3m brick wall at work approx. 45mins ago. He self extricated with the help of co-workers. His vital signs are initially within normal limits however he has increasing pain not relived with analgesia and as his femoral fracture continues to bleed he will deteriorate toward hypovolaemic shock. The team must identify and treat the hypovolaemia. Once the RBC are commenced and the surgeon is notified the vital signs will normalise and the scenario will end.
Case History

<table>
<thead>
<tr>
<th>Patient Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>James Robbin</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
</tr>
<tr>
<td>Age</td>
<td>32</td>
</tr>
<tr>
<td>Past History</td>
<td>Nil</td>
</tr>
<tr>
<td>Allergies</td>
<td>Nil</td>
</tr>
<tr>
<td>Medications</td>
<td>Nil</td>
</tr>
<tr>
<td>Social History</td>
<td>Lives with girlfriend</td>
</tr>
<tr>
<td></td>
<td>Social alcohol</td>
</tr>
<tr>
<td></td>
<td>Social smoker</td>
</tr>
<tr>
<td>History of Present illness</td>
<td>Crush injury. Whilst at work a 3m brick wall fell onto lower half of patient 45mins ago, self extricated with help of co-workers.</td>
</tr>
<tr>
<td>Presenting symptoms</td>
<td>Swollen, grazed Rt thigh</td>
</tr>
<tr>
<td></td>
<td>Pain to Rt thigh</td>
</tr>
<tr>
<td></td>
<td>Pale &amp; sweaty</td>
</tr>
</tbody>
</table>

Scenario Stem (set the scene)

ie: The scenario stem is the initial information provided to participants to enable them to commence the scenario (similar to a handover, including the setting, time of day and any relevant patient/clinical information)

It is the middle of the day in a suburban hospital and the ED has just been notified of James a 32 yr old male crushed by a 3m wall. He has a painful, grazed and swollen Rt thigh. His vital signs are RR20, SpO2 99%, HR 85, BP 108/58, AVPU. ETA 2mins
## Resources

### a) Room requirements

<table>
<thead>
<tr>
<th>Setting</th>
<th>Eg emergency department resus room with resus room 1 sign on door and above bed</th>
</tr>
</thead>
</table>
| Environment | Eg 1x patient trolley  
Ventilator/CPAP etc  
Glidascope/C mac etc  
12 lead ecg machine  
1x fully stocked resus trolley including airway and circulation equipment  
ECG, NIBP, Sp02, Art line, Co2 monitoring available  
Standard resus monitor display  
Various oxygen delivery devices  
Procedure trolley (eg IDC equipment/CVC equipment/Art line/ICC equipment)  
telephone |
| Supporting Documentation required | Eg triage notes completed MR...  
Blank medical ED assessment chart MR... (medical and nursing)  
Blank graphic obs chart MR...  
Ambulance paperwork completed etc.  
ABG’s  
Blood results  
Xrays  
12 lead Ecg |

### b) Manikin/Simulated patient requirements

<table>
<thead>
<tr>
<th>Manikin/Simulated patient</th>
<th>Eg male SimMan ALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wig</td>
<td>Eg Young male wig</td>
</tr>
<tr>
<td>Patient Attire</td>
<td>Eg bricklayer clothes with Rt trouser leg cut to expose leg, patient is initially covered with a sheet to simulate that patient hasn’t arrived in department yet</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Eg Ambulance service monitoring attached to patient on arrival ECG/NIBP/SpO2</td>
</tr>
</tbody>
</table>
| Moulage                  | Eg 20g IVC to Rt ACF  
Half empty 1000ml Hartmans on IV giving set attached to Rt IVC  
Graze & swelling to Rt upper leg  
Femoral splint to Rt leg insitu  
Pelvic splint insitu |
| Patient position         | Eg supine position |
### c) Miscellaneous/consumable requirements

<table>
<thead>
<tr>
<th>Consumable</th>
<th>Number</th>
<th>Sourced from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood products</td>
<td>2x O-ve PRBC</td>
<td></td>
</tr>
<tr>
<td>IV cannulas various sizes.</td>
<td>Eg 2 each</td>
<td></td>
</tr>
</tbody>
</table>
| IV fluids                   | Eg 3x 1000 ml NaCl  
2x 1000ml Hartmans  
2x 100ml Nacl |                                                  |
| IV giving sets              | Eg 2x manual hand pump set  
2x standard giving set  
2x blood infusion set |                                                  |
| Mixed Antibiotics           | Eg Cephazolin  
Ceftriaxone  
Metronidazole |                                                  |
| Medications                 | Eg Specific induction drugs  
Specific sedation  
Other medications |                                                  |

### Role Plays

#### Faculty Role Play – eg Nurse

**Instructions for faculty role play**: be specific with prompts if needed
- Eg
- You are a competent and helpful but not necessarily pro-active ED resus nurse
- You are working in a tertiary ED with all facilities available
- When the registrars arrive describe the clinical situation and wait for direction
- Alert the registrars to deterioration as required
- Perform tasks diligently and in a timely but realistic fashion

#### Faculty Role Play – ED Consultant

**Instructions for faculty role play**
- Eg
- You are an ED consultant. Your primary role is to support the participant in managing this patient.
- Your role is important in moving the scenario in the correct direction in a timely manner whilst allowing the registrar to troubleshoot and work through a management plan for the hypotensive, tachycardic bleeding patient

#### Faculty Role Play – Ambulance officer

**Instructions for faculty role play**
- Eg
- You will provide the following handover to the team receiving the patient
- M- 32 yr old male bricklayer at work today when 45mins ago a 3m newly built brick wall fell on him, denies headstrike, he self extricated with the help of co-workers.
- I-graze to Rt thigh
- S-RR20, SpO2 99%, HR 85, BP 108/58, AVPU, swelling to Rt thigh
- T- femoral splint to Rt leg, pelvic binder, 20g IVC Rt ACF, 500ml Hartmans, 5mg IV morphine
- His girlfriend and employer are on their way
Scenario Flow (sequence of events in states with potential triggers, below is an example)

State 1: Preparation
- The registrars should choose a leader and allocate other roles appropriately & should prepare the team for arrival of the patient based on “bat phone call” and handover from ambulance officer

State 2: Presentation
- Handover from Ambulance officer – see handover instructions
- The patient is in a semi fowler position on ED trolley fully dressed
  - GCS is 15 (E4, V5, 65)
- Observations:
  - HR 90, BP 106/68, RR 20, Sat 98%
  - Pupils (3mm)
- The team should:
  - Perform an ABCDE assessment and report findings to team leader & document
  - Auscultate chest
  - Attach monitoring and note vital signs
  - Insert a second large bore cannula
  - Take bloods incl. BGL
  - Order CXR & pelvis Xray & Rt leg xray

State 3: Deterioration
- Patient pain will increase to 10/10
- Confirm correct placement of femoral splint if not already done during primary survey
- Patient has no pedal pulse present, thigh swelling is worsening
- Pt is becoming hypotensive and tachycardic
- The team should assess for bleeding as cause of deterioration and order and initiate 2x units of RBC
- Analgesia should be administered and pain will decrease

State 4: Resolution
- Once RBC are commenced hypotension and tachycardia will begin to improve
- Surgical intervention should be sought
## 2.6 Simulator Programming considerations

<table>
<thead>
<tr>
<th>System</th>
<th>State 1 preparation (state 2 can be set now while team prepares but not displayed)</th>
<th>State 2 primary survey</th>
<th>State 3 deterioration</th>
<th>State 4 Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRWAY</td>
<td></td>
<td>Patency- open, teeth intact, Secretions- nil</td>
<td>Patency- nil change, Secretions-nil</td>
<td>Patency- nil change, Secretions-nil</td>
</tr>
<tr>
<td>Other comments</td>
<td></td>
<td>If O2 applied SpO2 will inc to 100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BREATHING</td>
<td></td>
<td>RR-20, SpO2-98%</td>
<td>RR-24, SpO2-</td>
<td>RR-24, SpO2-</td>
</tr>
<tr>
<td>Other comments</td>
<td></td>
<td>AE=L-R, chest clear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIRCULATION</td>
<td></td>
<td>HR-90, Rhythm-SR, BP-106/68</td>
<td>HR-125, Rhythm-SR, BP-87/50</td>
<td>HR-98, Rhythm-SR, BP-95/53</td>
</tr>
<tr>
<td>Other comments</td>
<td></td>
<td>Pale, sweaty, no pedal pulse detected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISABILITY</td>
<td></td>
<td>GCS-15 (E4 V5 M6), PEARL-3mm, BSL-6.2</td>
<td>GCS-15, PEARL-3mm, BSL-6.2</td>
<td>GCS-15, PEARL-3mm, BSL-6.2</td>
</tr>
<tr>
<td>Other comments</td>
<td></td>
<td>Patient will complain of inc pain to Rt thigh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response to expected participant intervention</td>
<td></td>
<td>Team should prepare for patient arrival</td>
<td>If O2 applied SpO2 will inc to 100%</td>
<td>Hypotension and tachycardia should be noted and Rt femur # identified as source of bleeding.</td>
</tr>
<tr>
<td>At 2min mark state 2</td>
<td></td>
<td>Request for Hb on ABG</td>
<td>Nearing completion of primary survey start trend into state 3</td>
<td>When 2x units of RBC commenced trend into state 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Correct femoral splint placement should be confirmed</td>
<td>Surgical input should be requested</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Earliest**

- Airway: Patency- open, teeth intact, Secretions-nil
- Breathing: RR-20, SpO2-98%
- Circulation: HR-90, Rhythm-SR, BP-106/68
- Disability: GCS-15 (E4 V5 M6), PEARL-3mm, BSL-6.2

**Next**

- Airway: If O2 applied SpO2 will inc to 100%
- Breathing: AE=L-R, chest clear
- Circulation: Pale, sweaty, no pedal pulse detected
- Disability: Patient will complain of inc pain to Rt thigh

**If tolerated**

- Airway: Patency- nil change, Secretions-nil
- Breathing: RR-24, SpO2-
- Circulation: HR-125, Rhythm-SR, BP-87/50
- Disability: GCS-15, PEARL-3mm, BSL-6.2

**Final**

- Airway: Patency- nil change, Secretions-nil
- Breathing: RR-24, SpO2-
- Circulation: HR-98, Rhythm-SR, BP-95/53
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Debriefing Points: (Example only)
Ask “how did looking after this patient make you feel?”
Allow each participant to briefly express their thoughts. Avoid having a participant give you a blow-by-blow description of the scenario. At this stage we are canvassing feelings alone.

“I would like to discuss the clinical presentation of this patient”. Give a brief synopsis of the scenario and allow the participants to express any thoughts they have.
Ask “How would you treat a patient with this presentation?”
If there are points of concern arising from the treatment of the patient, use an Advocacy-inquiry question to explore that. “Steve, I noticed when you recognized that the patient was becoming increasingly hypotensive, you sat them up and gave them a glass of water. I’m concerned that this was not the priority for this patient at this time. Can you help me understand what was going on for you at that time?”

If teaching points arise, announce to the group that we are going to park the debrief for a moment, and talk in general terms about the management of hypovolaemia. Once you have addressed the knowledge gap, return to the scenario debrief.

“I would now like to discuss the non-technical management of this scenario. Specifically I would like to start by talking about the team leadership.” It may be that you have opportunity to talk about only 2 or 3 non-technical issues.

“Are there any other comments, concerns or questions about any aspect of that scenario?” Once all issues have been addressed, wrap up the debrief:
“I would like to wrap up this scenario. This was a case of a 32 yo male involved in an accident resulting in profound hypovolaemia as a result of his leg injury. The severity of his condition was noted during the primary survey, and appropriate fluids administered. As his condition improved, you arranged for him to be transferred to the OR for definitive management. I would now like to know what your take-home message is? What is one thing you will take away with you and put into your clinical practice?” Canvass thoughts from each participant.

It is worth reminding the participants that they have signed a confidentiality form and to not discuss the other participants or the content of the scenarios.

Supporting evidence (references/policies/links etc APA style)