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| Queen's logo |

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 **Queen’s University Simulation Scenario Template** |
| **Course:** | SR Rounds, Tox II |
| **Case Title:** | Bupivicaine Overdose |
| **Brief Case Description** |
| **An 87 year old woman presents to the ED with multiple lacerations, where a junior resident inadvertently overdoses the patient on Bupivicaine (a local anestheitc).****The patient proceeds to have seizures, and a VF cardiac arrest.****The students must utilize Lipid Emulsion and sodium bicarbonate to resuscitate the patient successfully** |
| **Searchable Keywords:** |
| 1. **Bupivicaine**
2. **Intralipid**
 |
| **Target Audience:** | SR Residents |
| **Number of Participants:** | 5 |
| **CanMeds Roles :** | [ ]  | Medical Expert | [ ]  | Manager | [ ]  | Scholar |
|  | [ ]  | Communicator | [ ]  | Collaborator | [ ]  | Professional |
|  | [ ]  | Health Advocate |  |  |  |  |
| **Objectives:** |  |
| * **Knowledge**
 | To know the toxic dose of bupivacaineTo know the dose of intralipid, and understand its use as an antidote to bupicvicaine toxicity |
| * **Skills**
 |  |
| * **Behaviour**
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| **Stem:** *Detailed description of exercise* |
| **Florence is an 87 year old woman who presents to the ED with multiple lacerations following a fall through a broken glass door. These lacerations require repair, and a junior resident uses bupivacaine as the local anesthetic. The patient is inadvertently overdosed, and subsequently has a generalized seizure, and then progresses to a VT with a pulse, then to VF arrest.****The students must administer Intralipid (lipid emulsion) at a dose of 1.5 ml/kg bolus (100cc). This bolus can be repeated during periods of cardiac instability. Then an infusion of 0.25ml/kg/min for 60 minutes.** **If an ECG is performed, the initial ECG will show NSR with a markedly widened QRS (Na channel blockade). This should be treated with ampules of sodium bicarbonate.** |
| **Roles:** |  |
| **Script (for each role):** | JR: [Runs into the room to get the attending]“Help, Mrs. Jones is having a seizure!I was suturing her wounds when she started to complain of feeling unwell, then she went unresponsive and is having a seizure”[When asked how much Marcaine/Bupivaciane they used:]“I used a lot. There were so many lacerations. I think I’m onto my 4th bottle” |
| **Scenario Tips:*** *Tips to future instructors to keep the scenario flowing.*
* *Anticipated difficulties*
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| **Scenario Details:** |
| **Demographics:*** Name:
* Age:
* Sex:
* BMI
 | Florence Jones87female18 |
| **Chief Complaint:** | Lacerations to her abdomen, arms, and legs after falling through a glass door that broke during the fall.After receiving Marcaine, she suffers a seizure and then cardiac arrest |
| **Past Medical History:** | HypertensionEarly dementia – still active, and lives independently. Completely independent of her ADL/s |
| **Medications:** | HCTZ 25 mg po ODASA 81 mg po OD |
| **Allergies:** | None |
| **Lab data:** (provided if requested) | *Link* |
| **Imaging:** (provided if requested) | *Link* |
| **ECG:** (provided if requested) | *NSR with Wide QRS Complex – Indicative of sodium channel blockade* |

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| **Initial Physical Examination Findings: (Normal if left blank)** |
| **Vital signs:** |
| Temperature | **36.7** |
| HR | **95** |
| BP | **84/40** |
| RR | **18** |
| O2 saturation | **90%RA** |
| Finger stick glucose | **8.7** |
| Weight (kg) | **46 kg** |
| **Cardiovascular:** |
| Heart rate/rhythm | **NSR** |
| Heart sounds | **Normal** |
| JVP | **Normal** |
| Peripheral pulses | **Normal** |
| Evidence of cyanosis? | **No** |
| Diaphoresis | **No** |
| Other |  |
| **Respiratory:** |
| Respiratory rate/pattern | **Normal** |
| Accessory muscle use? | **No** |
| Lung sounds | **Normal** |
| Evidence of fatigue? | **No** |
| Other |  |
| **Abdominal:** |
| Visible signs of pathology? | **No** |
| Bowel sounds | **Normal** |
| Peritoneal signs? | **No** |
| Tenderness? | **No** |
| Hepatosplenomegaly? | **No** |
| Signs of ascites? | **No** |
| Other |  |
| **Neurological:** |
| Level of consciousness & Behaviour | **Altered LOC, generalized seizure** |
| Muscle tone | **Generalized tonic/clonic seizure** |
| Motor |  |
| Sensory |  |
| Reflexes |  |
| Other |  |
| **Head/Ears/Eyes/Nose/Throat/Skin:** |
| Visible abnormalities | **no** |

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| **Flow Table:** |
| **Time or Stage:** | 0:00 | After NRB | After BZD/Propofol | After intubation | 5 minutes | 7 Minutes | After Intralipid & Defib |
| **Heart rhythm:** | NSR |  |  |  | VT | VF | NSR |
| **Heart rate:** | 95 |  |  |  | 130 | 0 | 118 |
| **Heart Sounds:** | Normal |  |  |  | Normal |  |  |
| **Blood pressure:** | 84/40 |  |  |  | 68/30 | 0 | 70/40 |
| **Respiratory rate:** | 18 |  |  |  | Vent |  |  |
| **Respiratory Pattern:** | Normal |  |  |  |  |  |  |
| **O2 saturation:** | 90%RA | 93% NRB |  | 98% | 98% | 0 |  |
| **Temperature:** | 36.7 |  |  |  |  |  |  |
| **Glucose** | 8.7 |  |  |  |  |  |  |
| **Eyes:** | Closed |  | Closed |  |  |  |  |
| **Pupils:** | Normal |  | Normal |  |  |  |  |
| **Specific simulator dialogue:** | None |  | Unresponsive |  |  |  |  |
| **Other:** | Seizure |  | Abort Seizure |  |  |  |  |

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| **Flow Diagram:** |
| Insert specific scenario flow diagram showing pathways for anticipated actions. Each section of the diagram should correspond to a column on the Flow Table above.example |

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| **Simulator Requirements:** |  |
| **Environment:**  | [x]  | ER |
|  | [ ]  | Hospital Ward |
|  | [ ]  | ICU |
|  | [ ]  | Other |
| **Required simulator capabilities:** | [x]  | Adult |
|  | [ ]  | Child |
|  | [ ]  | Ability to talk |
|  | [ ]  | Ability to open and close eyes |
|  | [ ]  | Ability to change pupil size |
|  | [x]  | Output of basic cardiorespiratory rhythms |
|  | [x]  | Ability to change vital signs |
|  | [ ]  | Ability to perform CPR |
|  | [ ]  | Ability to deliver energy via LifePack |
|  | [ ]  | Ability to gain IV access |
|  | [ ]  | Ability to gain IO access |
|  | [ ]  | Ability to get 12 and 15 lead EKG’s |
|  | [ ]  | Ability to deliver drugs |
|  | [ ]  | Ability to ventilate |
|  | [ ]  | Ability to intubate |
|  | [ ]  | Ability to catheterize |
|  | [ ]  | Ability to needle decompress |
|  | [ ]  | Ability to insert chest tube |
|  | [ ]  | Ability to seize |
|  | [ ]  | Ability to simulate cyanosis |
|  | [ ]  | Other: |
| **Task trainers required:** | [ ]  | IV access trainer |
|  | [ ]  | IO access trainer |
|  | [ ]  | Lumbar puncture trainer |
|  | [ ]  | Central line access trainer (IJ, femoral, subclavian) |
|  | [ ]  | Chest tube trainer |
|  | [ ]  | Cricothyrotomy trainer |
|  | [ ]  | Pericardiocentesis trainer |
|  | [ ]  | Thoracotomy trainer |
|  | [ ]  | Other: |
| **Communications Equipment:** | [ ]  | One way wireless (confederate) |
|  | [ ]  | Two way wireless (confederate) |
|  | [ ]  | Overhead Speakers |
|  | [ ]  | Telephone |
|  | [ ]  | Pager |
|  | [ ]  | Other: |

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| **Moulage:** |

*Describe any scenario-specific moulage on the diagram below:*



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| **Mannequin Clothing** |
| [ ]  | Hospital gown |
| [ ]  | Formal work attire |
| [ ]  | Casual attire |
| [ ]  | Athletic clothing |
| [ ]  | Other:  |

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| **Equipment Required:** |  |  | Quantity Required | Sizes Required*(if applicable)* |
| **Diagnostic/Monitoring:** | [ ]  | Portable monitor |  |  |
| [ ]  | Thermometer |  |  |
| [ ]  | NIBP |  |  |
| [ ]  | Defibrillator |  |  |
| [ ]  | EKG |  |  |
| [ ]  | CXR |  |  |
| [ ]  | O2 saturation probe |  |  |
| **Airway:** | [ ]  | Bag valve mask |  |  |
| [ ]  | Peak flow meter |  |  |
| [ ]  | Nasal cannula |  |  |
| [ ]  | Nebulizer |  |  |
| [ ]  | Non-rebreather mask |  |  |
| [ ]  | Mechanical ventilator |  |  |
| [ ]  | Oropharyngeal airway |  |  |
| [ ]  | Nasopharyngeal airway |  |  |
| [ ]  | Non-invasive positive pressure ventilation |  |  |
| [ ]  | Laryngoscope |  |  |
| [ ]  | Endotracheal tube |  |  |
| [ ]  | Syringe |  |  |
| [ ]  | Stylet |  |  |
| [ ]  | End tidal CO2 detector (colorimetric) |  |  |
| [ ]  | End tidal CO2 detector (capnographic) |  |  |
| [ ]  | Bougie |  |  |
| [ ]  | Glidescope |  |  |
| **Vascular access:** | [ ]  | Peripheral IV |  |  |
| [ ]  | Arterial line |  |  |
| [ ]  | Central line |  |  |
| [ ]  | PICC line |  |  |
| [ ]  | Swan Ganz catheter |  |  |
| [ ]  | Dialysis catheter |  |  |
| **Resuscitation:** | [ ]  | Crash cart |  |  |
| [ ]  | Trauma cart |  |  |
| [ ]  | Difficult airway cart |  |  |
| [ ]  | Cricothyrotomy tray |  |  |
| [ ]  | Chest tube tray |  |  |
| [ ]  | Pericardiocentesis tray |  |  |
| [ ]  | Chest tube tray |  |  |
| [ ]  | Urinary catheter tray |  |  |
| **Other:** | [ ]  |  |  |  |
| **Fluids and Drugs** |  |  | Volume, Concentration or Dose Required | Number of Units Required |
| **IV Fluids:** | [x]  | NS |  |  |
| [ ]  | 0.45% NS |  |  |
| [ ]  | 3% NS |  |  |
| [ ]  | 2/3 1/3 NS |  |  |
| [ ]  | D5W |  |  |
| [ ]  | D5 ½ NS |  |  |
| [ ]  | Ringer’s lactate |  |  |
| [ ]  | Pentaspan |  |  |
| [x]  | Other: Intralipid (100mL minibag filled with milk) | 100 cc | 2 |
| **Blood products:** | [ ]  | 25% albumin |  |  |
| [ ]  | 5% albumin |  |  |
| [ ]  | pRBC’s |  |  |
| [ ]  | Platelets |  |  |
| [ ]  | Fresh Frozen Plasma |  |  |
| [ ]  | Cryoprecipitate |  |  |
| [ ]  | Factor VIII concentrate |  |  |
| [ ]  | Factor IX concentrate |  |  |
| [ ]  | Other: |  |  |
| **Pre-filled drugs:** | [ ]  | D50W |  |  |
| [x]  | Epinephrine |  |  |
| [x]  | Bicarbonate |  |  |
| [ ]  | Calcium chloride |  |  |
| [ ]  | Lidocaine |  |  |
| [ ]  | Atropine |  |  |
| [ ]  | Adenosine |  |  |
| [ ]  | Other: |  |  |
| **Other drugs:** | [ ]  | Fentanyl |  |  |
| [x]  | Midazolam |  |  |
| [x]  | Propofol |  |  |
| [ ]  | Etomidate |  |  |
| [ ]  | Ketamine |  |  |
| [x]  | Succinylcholine |  |  |
| [ ]  | Roccuronium |  |  |
| [ ]  | Glucagon |  |  |
| [ ]  | Digoxin |  |  |
| [ ]  | Lasix |  |  |
| [ ]  | Nitrogylcerin |  |  |
| [ ]  | Labetelol |  |  |
| [ ]  | Other: |  |  |

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| **Audiovisual Needs:** |  |
| **Imaging:** | *(link to x-rays, CT scans, ultrasounds, MRI’s)* |
| **Bloodwork:** | *(link to bloodwork here)* |
| **EKG’s:** | *(link to EKG’s here)* |
| **Short didactic presentation:** | *(link to short presentation here – max 5 minutes)* |
| **Handouts:** | *(link to handouts here)* |
| **Simulator exercise file:** | *(link to simulator exercise file here)* |
| **References:** |  |
| **Required reading:** | *(link to required reading here)* |

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| **Debriefing points:** |  |
| * **Knowledge**
 | *Link from objectives* |
| * **Skills**
 | *Link from objectives* |
| * **Behaviour**
 | *Link from objectives* |

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| **Assessment:** |  |
| * **Knowledge**
	+ Objective 1
	+ Objective 2
	+ Objective 3
 | 111 | 222 | 333 | 444 | 555 |
| * **Psychomotor**
	+ Objective 1
	+ Objective 2
	+ Objective 3
 | 111 | 222 | 333 | 444 | 555 |
| * **Behaviour**
	+ Objective 1
	+ Objective 2
	+ Objective 3
 | 111 | 222 | 333 | 444 | 555 |
| **Global performance:** | 1 | 2 | 3 | 4 | 5 |
| * **Critical action:**
 |  |
| * **Critical errors:**
 |  |
| * **Participants’ evaluation:**
 | *Link to evaluation for the session to be filled out by the participants* |