**SIMULATION SCENARIO**

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| **CASE TITLE:** | Toxic Shock Syndrome |

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| **TARGET LEARNING GROUP:** | PGY 3-5 Emergency Medicine Residents |

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| **LEARNING OBJECTIVES:** |  |  |
| ***Knowledge:***  1. DDX of hypotension and shock  2. Early goal directed therapy of sepsis  3. Diagnosis and management of toxic shock syndrome | |  |
| ***Skills:***  1. Central line placement | |  |
| ***Attitudes/Behaviours:***  1. Communication with consultant  2. Communication with worried relative | |  |

**SCENARIO ENVIRONMENT:**

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| ***Location*** | * KGH emergency department, bed A7 |
| ***Monitors*** | * Cardiac monitor, pulse oximetry, temperature probe, non-invasive blood pressure cuff |
| ***Props/Equipment*** | * Defibrillator * Resuscitative medications at bedside (epinephrine, calcium, amiodarone, lidocaine, atropine, dextrose, sodium bicarbonate) * Airway equipment – BVM, NRB mask, nasal prongs, facemask, oxygen tubing, O2, oral/nasal airways, laryngoscope, ETT, CO2 detector, stylet, syringe, tape. * IV equipment – catheter, tubing, IV fluids * Glucometer * Otoscope, ophthalmoscope |
| ***Make-Up/Moulage*** | * Ill appearing young woman. Facial pallor. Faint erythematous rash on trunk, sparing palms and soles. |
| ***Multi-Media*** | * Picture of rash (PPT) * Picture of pharyngitis (PPT) * Bloodwork (PPT) * Chest xray - normal(PPT) * Soft tissue neck xray – normal (PPT) * ED ultrasound images- normal (PPT) * ECG- sinus tachycardia (PDF) |
| ***Personnel*** | * Team leader, Patient, Patient’s mother, Emerg nurse, Peds ICU attending |
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**INITIAL SIMULATOR SETUP:**

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| ***Mannikin Position*** | Sitting upright in bed, vomiting, worried mother at bedside. |
| ***Pupils***  *Size:*  *Reactivity:*  *Blinking:* | 3 mm  reactive  appropriately |
| ***Breathing***  *Resp Rate:*  *Resp Pattern:*  *Chest Rise:*  *Breath Sounds:*  *Airway Sounds:*  *% Cyanosis:*  *Oxygen Saturation:* | 24  normal  normal  symmetric, normal  normal  none  100 |
| ***Cardiovascular***  *Heart Rate:*  *Cardiac Rhythm:*  *Blood Pressure:* | 120  sinus  82/61 |
| ***Other Setup*** | Attached to cardiorespiratory monitor. |
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***The Script:*** *(Scenario flow & management outcomes)*

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| **Scenario Transitions**  **& Evolution** | **Effective Management** | **Ineffective Management** | **Notes** |
| 1. Initial Simulator settings as above | -Obtains appropriate histroy  -Complete physical examination  -Comments appropriately on visual stimuli of physical exam findings  -Orders appropriate investigations including bloodwork, ECG, xrays, pregnancy test  -Identifies DDX including sepsis, toxic shock syndrome, anaphalaxis, ruptured ectopic pregnancy, adrenal insufficiency, etc.  -Initiates IV fluid boluses  -Initiates broad spectrum antibiotics e.g. Ceftriaxone, Flagyl, Vancomycin  -Interprets bedside US correctly | -Incomplete history/physical exam  -Does not recognize severity of illness  -Limited DDX  -Does not initiate aggressive resuscitation  -Does not provide adequete and/or early antibiotics  -Does not order or interpret investigations correctly | -HR and BP deteriorate if no IV fluids are provided |
| 2. 5 mins into case. Patient has received 2L of fluid. Simulator Settings:  65/50, HR 132, RR 25, sats 94%, temp 38.3, pupils 3mm and reactive, | -Recognizes the patient is in shock and entertains ddx of sepsis vs toxic shock  -Investigations become available  -Recognizes need for central and arterial monitoring  -Initiates vasopressor therapy and EGDT  -Considers Vancomycin, Clindamycin, IV Ig for toxic shock syndrome  -Ensures patient’s tampon is removed  -Consults Peds ICU | -Does not reassess  -Does not initiate EGDT  -Does not involve Peds ICU | -Patient still critically ill at end of case and will hand over to Peds ICU |

**INSTRUCTIONS FOR PERSONNEL:**

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| ***Personnel A***  *(Patient)* | * You have been sick for one day. You have been having non-bloody vomiting and diarrhea and felt “like crap”. Your throat is sore, you have a headache, your muscles hurt, and today you have been really light-headed and actually fainted trying to get out of a chair at school. You also feel “feverish” and weak. To top it off you are also having your period this week. You are healthy apart from a history of strep throat, don’t take any medications, and have no allergies. |
| ***Personnel B***  *(Mother)* | * You agree with your daughter’s history. She is generally a “healthy kid” and so you are quite worried about her. |
| ***Personnel C***  *(RN)* | * Follow directions of physician. |
| ***Personnel D***  *(Peds ICU attending)* | * Obtain handover from emergency physician. Discuss the DDX and anticipated next steps patient will require. |

**SUGGESTIONS FOR DEBRIEFING:**

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| ***Knowledge:***  1. Review DDX of shock including unusual causes  2. Diagnosis and management of toxic shock syndrome |
| ***Skills:***  1. Central and arterial line placement |
| ***Attitudes/Behaviours:***  1. Communication with consulting Peds ICU attending |
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