**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 shock2. Early goal directed therapy of sepsis3. Diagnosis and management of toxic shock syndrome |  |
| ***Skills:***1. Central line placement |  |
| ***Attitudes/Behaviours:***1. Communication with consultant2. Communication with worried relative |  |

**SCENARIO ENVIRONMENT:**

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| ***Location*** | * KGH emergency department, bed A7
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| ***Monitors*** | * Cardiac monitor, pulse oximetry, temperature probe, non-invasive blood pressure cuff
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|  ***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
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| ***Make-Up/Moulage*** | * Ill appearing young woman. Facial pallor. Faint erythematous rash on trunk, sparing palms and soles.
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| ***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)
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| ***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 mmreactiveappropriately |
| ***Breathing****Resp Rate:**Resp Pattern:**Chest Rise:**Breath Sounds:**Airway Sounds:**% Cyanosis:**Oxygen Saturation:* | 24normalnormalsymmetric, normalnormalnone100 |
| ***Cardiovascular****Heart Rate:**Cardiac Rhythm:**Blood Pressure:* | 120sinus82/61 |
| ***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.
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| ***Personnel B****(Mother)* | * You agree with your daughter’s history. She is generally a “healthy kid” and so you are quite worried about her.
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| ***Personnel C****(RN)* | * Follow directions of physician.
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| ***Personnel D****(Peds ICU attending)* | * Obtain handover from emergency physician. Discuss the DDX and anticipated next steps patient will require.
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**SUGGESTIONS FOR DEBRIEFING:**

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| ***Knowledge:***1. Review DDX of shock including unusual causes2. 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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