**Section 1: Case Summary**

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| **S****cenario Title:** | **Hypothermia and ACLS** |
| Keywords: | Hypothermia, Rewarming, VFib, Ventricular Fibrillation |
| Brief Description of Case: | Patient arrives to ED in the early AM after being found face-up in a shallow pool of water. It has been -5°C overnight. Patient is hypothermic at 25°C. Participants will have time for a zero point survey (prep prior to arrival), and 10 minutes to treat the patient. Objectives focus on anticipation and planning via ECMO consult, re-warming, and continuous CPR; mobilization of resources (warming equipment, LUCAS, guidelines/pre-printed orders); and teamwork related to role clarity, workload distribution, and effective communication. |

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| **Goals and Objectives** |
| Educational Goal: | Effectively treat a hypothermic patient in VFib arrest |
| Objectives:(Medical and CRM) | * Anticipate and plan for hypothermic arrest, including ECMO consult, re-warming, and continuous CPR
* Mobilization of resources, including warming equipment, LUCAS, hypothermia protocol/pre-printed orders
* Effective teamwork related to role clarity, workload distribution, and effective communication
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| **Learners, Setting and Personnel** |
| Target Learners: | [x]  Junior Learners | [x]  Senior Learners | [ ]  Staff |
| [x]  Physicians | [x]  Nurses | [x]  RTs | [x]  Inter-professional |
| [ ]  Other Learners:  |
| Location: | [ ]  Sim Lab | [x]  In Situ | [ ]  Other:  |
| Recommended Number of Facilitators: | Instructors: 2 |
| Confederates: 1 (can be instructor; handover from EHS. If no physician present, will also need to play part of physician) |
| Sim Techs: 1 |

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| **Scenario Development** |
| Date of Development: | 2019.11 |
| Scenario Developer(s): | Christina Choung |
| Affiliations/Institutions(s): | Fraser Health |
| Contact E-mail: | simulation@fraserhealth.ca |
| Last Revision Date: | January 27, 2021 |
| Revised By: | Zoe Schuler |
| Version Number: | 2 |

**Section 2A: Initial Patient Information**

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| 1. **Patient Chart**
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| Patient Name: Gerry Lee | Age: 46 | Gender: M | Weight: 80kg |
| Presenting complaint: Hypothermia and VFib |
| Temp: 25.1°C | HR: VFib | BP: n/a | RR: n/a | O2Sat: n/a | FiO2: Flush |
| Cap glucose: 3.1 | GCS: (E1 V1 M1 )  |
| Triage note / Handover: It is 0730 on a very cold morning in the ED. The paramedics have called to say they’re bringing over a 46 year old male who was found face-up in a shallow pool of water, non-responsive. On scene he was bradycardic with a pulse of 42, BP 68/39, Temp of 25.3°C and glucose 2.7. So far he’s had 1.5L of NS, They’re due to arrive in 2-5 minutes.After 2-5 minutes, EHS rolls in with patient and CPR is ongoing. Report:He had a wallet in his pants, which the paramedics will give to Social Work on their way out. |
| Allergies: NKDA |
| Past Medical History: * Unknown
 | Current Medications: * Unknown
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**Section 2B: Extra Patient Information**

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| **A. Further History** |
| Wife will be contacted and have this update ~5 min after arrival:Patient has a history of NIDDM II, and takes Metformin 500mg BID. He was out with friends last evening. They last saw him at around 2000. |
| **B. Physical Exam** |
| Cardio: Mottled, cyanosed throughout and cold  | Neuro: n/a; unable to determine whether pupils reactive |
| Resp: Coarse crackles throughout | Head & Neck: stiff |
| Abdo: soft | MSK/skin: stiff and cold |
| Other: cold |

**Section 3: Technical Requirements/Room Vision**

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| **A. Patient** |
| [x]  Mannequin: SimMan 3G |
| [ ]  Standardized Patient |
| [ ]  Task Trainer |
| [ ]  Hybrid |
| **B. Special Equipment Required** |
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| Manikin* 2 PIV drainage bags
* OETT in situ
* Defib pads attached
 | Rewarming* Bair/bear hugger + forced air blanket
* Warm IV fluids / IV fluid warmer
* Warm fluids for bladder lavage (CBI)
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| **C. Required Medications** |
| * Epinepherine (Cardiac) IV x3
* Amiodarone 300mg IV x3
* Dextrose amp IV x2

[Hypothermia Pre-Printed Order](https://pulse/clinical/dst/Pages/dst.aspx?dstID=4910)* Bring PPO and ECMO checklist
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| **D. Moulage** |
| n/a |
| **E. Monitors at Case Onset** |
| [ ]  Patient on monitor with vitals displayed[x]  Patient not yet on monitor (ECG only displayed when case starts) |
| **F. Patient Reactions and Exam** |
| *n/a* |

**Section 5: Scenario Progression**

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| **Scenario States, Modifiers and Triggers** |
| Patient State/Vitals | Patient Status | Learner Actions, Modifiers & Triggers to Move to Next State  | Facilitator Notes |
| **1. Preparation / Zero point survey** | Patient not on scene | Expected Learner Actions [ ]  Share patient details with team[ ]  Determine roles and responsibilities[ ]  Identify need for maintenance of temperature/re-warming; retrieve protocol. Delegate tasks related to protocol:[ ]  Forced air warming blankets[ ]  Warm CBI[ ]  Warm fluids / fluid warmer[ ]  Warm room[ ]  Identify likelihood of cardiac deterioration and need for continuous CPR[ ]  Retrieve LUCAS[ ]  Call RCH/ECMO consult team and update of situation[ ]  Update charge nurse of need for possible patient transfer related to ECMO | Modifiers*n/a*Triggers- Proceed to Phase 2 in 2-5 min |  |

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| **2. Patient Arrival**Rhythm: sinus bradycardiaHR: 42BP: 68/39RR: 6, shallow, requires supportO2SAT: 85% with BVMT: 25.3oC GCS: 3Glucose: 2.7 (if asked) | A – tolerates OPAB – course crackles throughoutC – pale, cold, cyanosedD – unconscious, not rousableE - cold | [ ]  Takes report from EHS[ ]  Apply monitor[ ]  Check IV patency [ ]  Identify bradycardia[ ]  Call physician[ ]  Apply AGP PPE[ ]  check glucose and administer D50[ ]  Insert temperature probe (may verbalize) | ModifiersIf bag-ventilations started, increase SpO2 to 91% | If no physician available, facilitator to state that physician is tied up, will come ASAP |
| **3. Deterioration**Rhythm: VFibHR: n/aBP: n/aRR: n/a O2SAT: n/aT: 25.3oC GCS: 3Gluc: 2.7EtCO2: 6 🡪 ↑ 12 when LUCAS placed |  | Expected Learner Actions [ ]  Continue CPR[ ]  Continue manual ventilation / oxygenation[ ]  Hook up to defibrillator[ ]  Repeat defibrillation (up to a total of 3)[ ]  Epi / Amio administration (to a total of 3 cycles)[ ]  Documentation begins[ ]  Re-check temp[ ]  Re-check glucose[ ]  Administer D50W [ ]  Placement of LUCAS[ ]  Warming begins: initiation of: [ ]  Forced air warming blankets[ ]  Warm CBI[ ]  Warm fluids / fluid warmer[ ]  Call and update ECMO team | Modifiers* If glucose checked & D50 given, glucose will be 4.2

Triggers |  May verbalize stage IV hypothermia protocol |
| **4. ROSC**Rhythm: Sinus Brady with PVC’sHR: 50BP: 68/40RR: none spontaneous, needs BVMO2SAT: 68% 🡪 ↑ to 89% over 20 secondsT: 25.9oC ETCO2: 12 🡪↑ 20 over 20 secGCS: 3Gluc: 4.2 | A – tolerates OPAB – course crackles throughoutC – pale, cold, cyanosedD – unconscious, not rousableE - cold | [ ]  Identify ROSC[ ]  Check pulse[ ]  Consider intubation[ ]  consider pressors[ ]  |  | Physician to arrive, states will contact ECMO teamScenario END |

**Appendix C: Facilitator Cheat Sheet & Debriefing Tips**

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| *Include key errors to watch for and common challenges with the case. List issues expected to be part of the debriefing discussion. Supplemental information regarding any relevant pathophysiology, guidelines, or management information that may be reviewed during debriefing should be provided for facilitators to have as a reference.*  |

**References**

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| 1. FHPulse, Clinical Resources, Clinical Policy Office, [Hypothermia, Accidental – Initial Management – Pre Printed Order](http://fhpulse/clinical_resources/clinical_policy_office/Lists/CDST%20Library/DispForm.aspx?ID=2717)2. FHPulse Clinical Resources, Clinical Policy Office, [Hypothermia, Accidental – Adult – Initial Emergency Department Management – Clinical Protocol](http://fhpulse/clinical_resources/clinical_policy_office/Lists/CDST%20Library/DispForm.aspx?ID=2595)3.  |