**Section 1: Case Summary**

|  |  |
| --- | --- |
| **S****cenario Title:** | **Seizure 2° Hypoglycemia** |
| Keywords: | Hypoglycemia, Seizure |
| Brief Description of Case: | Patient recently admitted for cellulitis of the arm requiring antibiotics, with history of Insulin-dependent Diabetes II, chronic kidney disease, hypertension, and smokes. Is late for lunch and came up the stairs 15 minutes ago due to elevator malfunction. Case will begin with nurse bringing patient lunch, whereupon patient will seize (tonic clonic) twice, first seizure lasting 2 minutes and second lasting 1 minute. Case will end after hypoglycemia determined, corrected, and plan of care verbalized post-second seizure. |

|  |  |
| --- | --- |
| **Goals and Objectives** | |
| Educational Goal: | Practice peri- and post-treatment/interventions of hypoglycemic seizure |
| Objectives:  (Medical and CRM) | * Identify and treat hypoglycemic seizure * Practice SBAR communication * Establish role clarity and distribute workload appropriately * Call for help early * Use cognitive aids and mobilize resources, including Clinical Policy Office documents for [Seizure](http://fhpulse/clinical_resources/clinical_policy_office/Lists/CDST%20Library/DispForm.aspx?ID=1982) and [Hypoglycemia Protocol](http://fhpulse/clinical_resources/clinical_policy_office/Lists/CDST%20Library/DispForm.aspx?ID=125) |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Learners, Setting and Personnel** | | | | | | |
| Target Learners: | Physicians | Nurses | | RTs | Inter-professional | |
| Other Learners: | | | | | |
| Location: | Sim Lab | | In Situ | | | Other: |
| Recommended Number of Facilitators: | Instructors: 1 (also does patient voice) | | | | | |
| Confederates: 1 (if physician unavailable) | | | | | |
| Sim Techs: 1 (can be instructor) | | | | | |

|  |  |
| --- | --- |
| **Scenario Development** | |
| Date of Development: | 2019.11 |
| Scenario Developer(s): | Christina Choung |
| Affiliations/Institutions(s): | Fraser Health |
| Contact E-mail: | [simulation@fraserhealth.ca](mailto:simulation@fraserhealth.ca) |
| Last Revision Date: |  |
| Revised By: |  |
| Version Number: | 1 |

**Section 2A: Patient Information**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1. **Patient Chart** | | | | | | |
| Patient Name: John Roger | | | | Age: 56 | Gender: M | Weight: 70kg |
| Admitting diagnosis: Cellulitis | | | | | | |
| Last set of vital signs: | | | | | | |
| Temp: 38.2 | HR: 98 | BP: 149/86 | | RR: 20 | O2Sat: 98% | FiO2: RA |
| Cap glucose: 5.6 | | | | GCS: (E V M ) 4 / 5 / 6 | | |
| Handover:  John was admitted to the unit this morning from ED for cellulitis requiring IV antibiotics and possible debridement. He’s been having intermittent chills and fevers, pain in the arm, and increased swelling over the past week. In the ED his white count was 28 and they decided he needed to be admitted for IV antibiotic therapy for the next couple of days.  Upon admission, John’s vital signs were as above.  John has a history of Insulin-dependent Diabetes II, chronic kidney failure, and hypertension. He went downstairs for a smoke about 40 minutes ago. The elevators malfunctioned while he was down there and he ended up taking the stairs. He missed lunch, so the case starts with you bringing in his lunch. | | | | | | |
| Allergies: NKDA | | | | | | |
| Past Medical History:   * IDDM II * CKD stage 3A * HTN * Smoking 2 packs per week x20 years | | | Current Medications:   * Clindamycin 600mg IV q8h * Insulin Glargine 12units SC qAM * Metformin 500mg PO TID * Amlodipine 5mg PO daily * Tylenol 325-650mg PO q6h PRN * Morphine 1-2mg PO q4h PRN | | | |

**Section 2B: Extra Patient Information**

|  |  |
| --- | --- |
| **A. Further History** | |
| *n/a* | |
| **B. Physical Exam** | |
| *List any pertinent positive and negative findings* | |
| Cardio: Patient feels hot to touch | Neuro: loss of consciousness and confusion between seizures |
| Resp: normal | Head & Neck: normal |
| Abdo: normal | MSK/skin: hot and swollen arm |
| Other: n/a | |

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

|  |
| --- |
| **A. Patient** |
| Mannequin: SimMan 3G (requires seizing capability) |
| Standardized Patient |
| Task Trainer |
| Hybrid |
| **B. Special Equipment Required** | |
| * One peripheral IV with drainage system * Glucometer * Vital signs machine / patient monitor | |
| **C. Required Medications** | |
| |  |  | | --- | --- | | Seizure Management  (have on hand; none actually required)   * Lorazepam vial (IV) * Midazolam vial (IV) * Phenytoin 400mg IV | Hypoglycemia management   * D50W (IV) | | |
| **D. Moulage** | |
| n/a | |
| **E. Monitors at Case Onset** | | |
| Patient on monitor with vitals displayed  Patient not yet on monitor | | |
| **F. Patient Reactions and Exam** | | |
| * Ability to seize (will happen 10 seconds after scenario begins) * Confusion post-seizure; will also have no recollection of seizing | | |

**Section 4: Confederates and Standardized Patients**

|  |  |
| --- | --- |
| **Confederate and Standardized Patient Roles and Scripts** | |
| Physician (if n/a) | * Watch for quality of SBAR report   + If not reported, ask specifically for:     - SpO2     - How long seizure has lasted     - Is patient still seizing     - Have they been placed on their side     - Has O2 been applied     - Glucose reading * Do not order any anti-convulsant medications * Ask if patient has an IV; Order D50W 25g IV (if not yet given) * Order Seizure Precautions * Ask for continued monitoring and to call code if:   + SpO2 <88% and prolonged   + Seizure lasts for longer than 4 minutes |

**Section 5: Scenario Progression**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Scenario States, Modifiers and Triggers** | | | | |
| Patient State/Vitals | Patient Status | Learner Actions, Modifiers & Triggers to Move to Next State | | Facilitator Notes |
| **1. Baseline State**  \*after patient states they don’t feel good (and seizing begins)\*  Rhythm: STach  HR: 131  BP: 168/92  RR: 10  O2SAT: 🡫92% over 20 seconds  T: 38.8 oC  Gluc: 2.9  GCS: Tonic-clonic seizure with eyes open | Starts out normal.  After 10 seconds will state they “don’t feel good” and will start tonic-clonic seizing for next 2 minutes | Expected Learner Actions  Call for help  Place patient flat and on side  Take VS/SpO2  Assess LOC  Ensure bed position lowered and side rails up  Apply supplemental O2 (NP or FM)  Assess for possible oral airway  Take glucose  Initiate hypoglycemia protocol & administer 1 amp D50W  Monitor/document length of seizure  Call physician with SBAR report | Modifiers  -if code is called, “Code Team” will arrive in 4 minutes  Triggers  -move to Phase 2 after 2 minutes complete | * 10 seconds after case begins, patient to state they feel funny and will then begin seizing * Mouth will be shut if/when assessment done for oral airway |
| **2. Recovery**  Rhythm: ST to SR  HR: 95  BP: 132/81  RR: 24  O2SAT: 🡩 98% over 40 seconds  T: unchanged  GCS: Confused and slow, otherwise normal | Post-ictal: does not remember seizure  Confused: unsure of time or day, feels foggy, can’t immediately remember why in hospital | Expected Learner Actions  Assess LOC  Assess VS including glucose  Document length of seizure  If not yet done:  Administer 1 amp D50W  Initiate Seizure Precautions (lower bed, side rails up, document level and accompaniment in chart and kardex) | Modifiers  -if code team was called, Code Team will arrive and ask for report. Will then give same instructions as previous physician (see Confederate script), and leave  Triggers  -Move to Phase 3 after patient states they feel funny again | * Patient will be confused – see “Patient Status” * Approximately 2 minutes after beginning of Phase 2, or after Code Team leaves, patient to once again state they feel funny and will then begin seizing |
| **3. Refractory seizure**  Rhythm: STach  HR: 131  BP: 168/92  RR: 10  O2SAT: 🡫92% over 20 seconds  T: 38.8 oC  Gluc: 2.9  GCS: Tonic-clonic seizure with eyes open |  | Expected Learner Actions  Verbalize to all that seizing has re-started  Place patient flat and on side  Re-assess LOC and VS  Place O2 if not on  Monitor/document length of seizure | Modifiers  -n/a  Triggers  -Move to Phase 4 after 1 min  - |  |
| **4. Final recovery**  Rhythm: ST to SR  HR: 95  BP: 132/81  RR: 24  O2SAT: 🡩 98% over 40 seconds  T: unchanged  GCS: Confused and slow, otherwise normal | Same as Phase 2 | Expected Learner Actions  Same as Phase 2 | Modifiers  -n/a  Triggers  -Case ends after physician arrives and verbalizes plan of care | * If no physician present: after learners have re-assessed patient and completed majority of expected actions, arrive at bedside as physician and ask for patient summary. Verbalize next steps, then c will end. |

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

|  |
| --- |
| As per goals and objectives:   * Identify and treat hypoglycemic seizure * Practice SBAR communication * Establish role clarity and distribute workload appropriately * Call for help early * Use cognitive aids and mobilize resources, including Clinical Policy Office documents for [Seizure](http://fhpulse/clinical_resources/clinical_policy_office/Lists/CDST%20Library/DispForm.aspx?ID=1982) and [Hypoglycemia Protocol](http://fhpulse/clinical_resources/clinical_policy_office/Lists/CDST%20Library/DispForm.aspx?ID=125) |

**References**

|  |
| --- |
| 1. FHPulse Clinical Resources, Clinical Policy Office, [Seizure Precautions – Pre Printed Order](http://fhpulse/clinical_resources/clinical_policy_office/Lists/CDST%20Library/DispForm.aspx?ID=1982). Last modified November 1st, 2019  2. Brennan, M.R. & Whitehouse, F.D. (2012). [Case Study: Seizures and Hypoglycemia](https://clinical.diabetesjournals.org/content/30/1/23). *Clinical Diabetes*, 30(1), 23-24.  3. FHPulse Clinical Resources, Clinical Policy Office, [Hypoglycemia: Adult – RN Initiated Management – Clinical Practice Guideline](http://fhpulse/clinical_resources/clinical_policy_office/Lists/CDST%20Library/DispForm.aspx?ID=125). Last modified November 1st, 2019 |