HYPOGLYCEMIA

Aliases:
- Diabetic coma, insulin shock

Patient Care Goals:
- Recognize and appropriately reverse symptomatic hypoglycemia

Patient Presentation:
- Patient may present with any of the following:
  - Blood glucose (<60mg/dL for non-diabetics OR <80mg/dL in diabetic)
  - Altered mental status
  - Stroke symptoms (e.g. hemiparesis, dysarthria)
  - Seizure
  - History of diabetes and other medical symptoms

Treatment and Interventions:
- Manage airway as indicated (see Airway Management protocol)
- Treat seizure as indicated (see Seizure protocol)
- Treat shock as indicated (see Shock protocol)
- Initiate EKG monitoring
- If symptomatic and blood glucose is <60mg/dL for non-diabetics OR <80mg/dL in diabetic administer one of the following:
  - Conscious patient with a patent airway:
    - Instaglucose (see instaglucose formulary for other sugar-containing alternatives and FRG)
  - Unconscious patient, or patients who are unable to protect their own airway:
    - Dextrose 10% (see dextrose formulary and FRG)
    - Glucagon (see glucagon formulary and FRG)
- Evaluate for presence of an automated external insulin delivery device (insulin pump)
- For patients with an insulin pump who are hypoglycemic with associated altered mental status (GCS <15):
  - Stop the pump, disconnect or remove at insertion site if patient cannot ingest oral glucose or ALS is not available
  - Leave the pump connected and running if able to ingest oral glucose or receive ALS interventions
- Reassess Blood glucose after interventions at appropriate time intervals as needed (note glucagon may take 20-45 minutes to see full effect)
- If maximal field dosage of dextrose solution does not achieve euglycemia and normalization of mental status:
  - Initiate transport to appropriate facility for further treatment of refractory hypoglycemia
  - Continue treatment of hypoglycemia using approved therapies
  - Evaluate for alternative causes of altered mental status
Disposition:
- If hypoglycemia with continued symptoms, transport to appropriate receiving facility
- Hypoglycemic patients who have had a seizure should be transported to the hospital regardless of their mental status and response to therapy
- If symptoms of hypoglycemia resolve after treatment, release without transport should only be considered if **all** of the following are true: (see **Hypoglycemia refusal checklist**)
  - Patient has diagnosis of Type I or Type II Diabetes
  - No apparent disease process other than isolated hypoglycemia
  - Patient has no further complaint (ex. chest pain, vomiting, shortness of breath etc.)
  - Repeat blood sugar is >80 mg/dL (adult) and >60mg/dL (pediatric)
  - Patient takes insulin OR metformin to control diabetes
  - Normal mental status and normal neurological exam
  - Did NOT have a seizure from hypoglycemia
  - Patient can promptly obtain and will eat a meal containing carbohydrates
  - A reliable adult will be staying with the patient.
- Patient should be instructed to contact their primary healthcare practitioner ASAP to discuss medication regimen.
- Patient should be instructed to recheck their blood glucose frequently in the following hours.

Key Considerations:
- Consider contribution of oral diabetic medications to hypoglycemia
- When necessary to remove/discontinue insulin pump use family/patient assistance when available.
- Consider potential for intentional overdose of hypoglycemic agents (insulin overdoses are exceptionally lethal and require transport)
- Avoid overshoot hyperglycemia when correcting hypoglycemia. Administer dextrose10% in small doses until either mental status improves or a maximum field dose is achieved

Patient/Provider Safety Considerations:
- Sulfonylureas (e.g. glyburide, glipizide) have long half-lives ranging from 12-60 hours. Patients with corrected hypoglycemia who are taking these agents are at particular risk for recurrent symptoms and frequently require hospital admission.