HYPOGLYCEMIA: RECOGNITION AND TREATMENT OF FEBRUARY 2013

PRINTED copies of Clinical Practice Standards and Procedures may not be the most recent version.
The ***OFFICIAL*** version is available on the InsideNet.

1.0 PRACTICE STANDARD

Purpose:

To guide nursing (RN, RPN and LPN) in the residential care environment with consistent best practice prevention, recognition and treatment of hypoglycemia.

Scope of Practice and Competency:

Registered Nurses (RN), Registered Psychiatric Nurses (RPN) and Licensed Practical Nurses (LPN) are required to work within their scope of practice and competency level.

Standard:

In Residential Services nursing staff follow the IH Residential Hypoglycemia Protocol (810196) to recognize (assess) and treat the signs and symptoms of low blood sugar.

LPNs are required to collaborate with an RN/RPN in the event of glucagon administration or in the care of an unstable resident.

LPNs require a physician/nurse practitioner (NP) order to administer glucagon SC/IM (refer to Insulin PPO 829477, or physician orders).

RNs can administer glucagon with or without an order and accordingly the RN is accountable to the CRNBC standards for acting with or without an order (*CRNBC, 2012, pg.11)*

It is the professional responsibility of all registered healthcare providers who are expected to respond to hypoglycemia to maintain competency. This will include an annual review of this CDST and IH glucagon monograph. Healthcare providers are responsible for the development of a personal learning plan to address any education deficits. An IH hypoglycemia self learning module has been provided for nurses to support competency development in hypoglycemia management.

2.0 DEFINITIONS AND ABBREVIATIONS

Alpha-glucosidase:
- Oral anti-diabetic drug. Prevents the absorption of starches and simple sugars.

CDST:
- Clinical Decision Support Tool

Glucose:
- A simple form of sugar that acts as fuel for the body. It is produced during digestion of carbohydrate.

Hypoglycemia Severity:
- **Mild:** Blood glucose less than 4 mmol/L. Autonomic symptoms are present. Resident is able to consume oral treatment.
- **Moderate:** Blood glucose less than 4 mmol/L. Autonomic and neuroglycopenic symptoms are present. Resident is able to consume oral treatment,
- **Severe**: Blood glucose typically less than 2.8 mmol/L. Resident requires assistance, unconsciousness may occur. Persons with dementia, or on psychotropic medications may show confusion, stroke-like symptoms and unawareness of symptoms when their blood glucose is low. “Neuroglycopenic symptoms” may occur at blood glucose values higher than 2.8 mmol/L in the elderly.

Hypoglycemia:	• Low blood glucose level (less than 4 mmol/L). • Development of autonomic or neuroglycopenic symptoms (more common in elderly). • Symptoms responding to the administration of carbohydrate.
Insulin Secretagogue:	• Oral medication which simulates the pancreatic beta cells to produce insulin. This medication is often associated with hypoglycaemia in the elderly and should only be given at meal times. Example: glyburide.
LPN:	• Licensed Practical Nurse
NP:	• Nurse Practitioner
RN:	• Registered Nurse
RPN:	• Registered Psychiatric Nurse

3.0 EQUIPMENT – Minimum supplies

Oral fast acting sugars;

- 2 juice boxes; 6 packages sugar; 1 package glucose/dextrose tablets; 4 packages honey

Carbohydrates;

- 6 packages of crackers, Boost/Resource/Glucerna (Carbohydrate and Protein)

Protein;

- 4 packages of peanut butter, plastic knife

Medications;

- Glucagon 1mg kit

4.0 PROCEDURE

4.1 **Recognition** – See IH Residential Hypoglycemia protocol (810196) for signs and symptoms of autonomic or neuroglypenic symptoms. All residents with these symptoms require blood sugar testing by glood glucose meter.

4.2 **Treatment:** If blood glucose is less than 4.0 mmol/L, initiate the treatment algorithm within the IH Residential Hypoglycemia Protocol (810196).

Disclaimer: The procedure steps may not depict actual sequence of events. Resident specifics must be considered in applying Interior Health Clinical Practice Decision Support Tools

5.0 DOCUMENTATION AND COMMUNICATION CONSIDERATIONS

Document in health care record the assessment, interventions, evaluation, sequence of events, and notification of physician.

Record blood glucose readings on Blood Glucose Monitoring Record

Record medications administered on Medication Administration Record (MAR)

Contact family if glucagon is administered and/or resident is transferred to hospital

6.0 SPECIAL CONSIDERATIONS

Reflect on reason for hypoglycemia and take steps to prevent future episodes (i.e. discuss medication optimization with physician, review/modification of care plan).

7.0 REFERENCES

Canadian Diabetes Association. (2008). Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. *Can J. Diabetes* 32 (supply1): [S62-S64; S71-S74].

Interior Health Authority. (2012). Acute Care Hypoglycemia Protocol.

Interior Health Authority. (2010). *North Okanagan Residential Services – Hypoglycemia Protocol by* Cecile Baer, R.N, BScN, CPE and Joyce Kunzelman, R.N. BScN, CPE.

8.0 DEVELOPED BY

Protocol Developed by:
Dr. Maureen Clement, IH Diabetes Medical Lead [2010]

Clinical Practice Standard and Procedure Developed by:
Nicole Seyl, RN, Clinical Practice Educator, Residential Services [January, 2013]

9.0 REVISED BY

N/A

10.0 REVIEWED BY

Chapman, Angela, IHA Diabetes Administrative Lead – [February, 2013]
Clement, Maureen Dr., IHA Diabetes Medical [February, 2012]
McDonald, Eileen, Professional Practice Leader, IHA PPO Office [April, 2012]
Cooper, Diane Clinical Practice Educator, Medicine [June, 2012]
Residential Services Clinical Practice Educators [April, 2012]
Residential Services, Medical Directors [September, 2012]
Residential Services Registered Dietitians [February, 2012]
Rourke, Sandra Community Dietitian, Certified Diabetes Educator [December, 2011]

11.0 ENDORSED BY

Protocol endorsement:
Health Authority Medical Advisory Committee [January, 2013]
Regional Pharmacy &Therapeutics [October, 2012]
IHA Insulin Safety Task Group [May 2, 2012]

Clinical Practice Standard Endorsement:
Residential Services Leadership Team [October, 2012]
Heather Cook, Chief of Professional Practice & Nursing. [February, 2013]

APPENDIX A: 810196

SAMPLE

Interior Health

RESIDENTIAL HYPOGLYCEMIA PROTOCOL

LPNs are required to collaborate with an RN in the event of glucagon administration or in the care of an unstable resident. Refer to the Residential Practices Hypoglycemia CDST.

Autonomic Symptoms	Shaking or trembling Sweating Hunger	Tingling Anxiety	Palpitations Nausea	
Neuroglycopenic Symptoms	Confusion Drowsiness Dizziness	Vision changes Trouble Concentrating or Speaking	Weakness Headache Tiredness	Seizures

Note: In the elderly person, hypoglycemia may present more often as neuroglycopenic symptoms or may be asymptomatic.

Blood Glucose less than 4 mmol/L

Able to take oral treatment

1. **Administer 20 grams of glucose. Choose ONE of the following:**
   - 200 mL juice (or thickened juice for dysphagic) OR
   - 5 x 4 grams glucose tablets OR
   - 4 packets (4 tsp) sugar dissolved in 60 mL water OR
   - 20 mL (4 tsp) honey (for dysphagic)
   - Residents on alpha-glucosidase inhibitor (acarbose) preferred treatment: honey or glucose tablets

   Note: Treat with fast acting carbohydrate ONLY until blood glucose is above 4 mmol/L. Do NOT FEED resident as this may delay rise in blood sugar
2. **Check blood glucose after 15 minutes**
   - if less than 4 mmol/L repeat oral treatment
   - may repeat oral treatment 3 times
   - notify physician if blood glucose remains less than 4 mmol/L
3. **When blood glucose is above 4 mmol/L**
   - administer a protein and carbohydrate snack unless meal is less than one hour away
     - 250 mL diabetic meal replacement (Resource®, Boost®, Glucerna®)
     - ½ meat or cheese sandwich

Unable to take oral treatment or Unresponsive

1. **Administer glucagon 1 mg SC/IM**
2. **Call Emergency Services (911)**
   - Notify Physician
3. **Check blood glucose Q15 minutes**
   - If blood glucose **more than** or equal to 4 mmol/L and able to take oral treatment, provide protein and carbohydrate snack
   - If blood glucose **less than** 4 mmol/L and able to take oral treatment, follow oral treatment box
   - **If unable to take oral treatment, repeat glucagon 1 mg SC or IM**
     - May repeat glucagon twice after initial dose

- Document hypoglycemic event in resident's chart. Evaluate resident for cause, eg, missed meal, increased activity, change in medications (decreased steroids, increased insulin).
- If hypoglycemia was successfully resolved by oral treatment alone – notify physician within 24 hours; diabetes management may need to be changed.

810196 Feb 18-13