 <p>Winnipeg Regional Health Authority Office régional de la santé de Winnipeg Caring for Health À l'écoute de notre santé</p> <p>PRIMARY CARE PRACTICE GUIDELINES</p>	<p>Practice Guideline: <i>Emergency Management of Hypoglycemia in the Primary Care Setting</i></p>	<p>Guideline Number PCPG2</p>
	<p>Approved By: <i>Primary Care Management Team Community Health Management Team</i></p>	<p>Pages: 1 of 4</p>
	<p>Approval Date: <i>PCPMT- September 6, 2011</i></p>	<p>Supercedes: <i>June 2007</i></p>

1. PRACTICE OUTCOME

- To identify hypoglycemia in the primary care setting and provide an emergency response based on best available evidence.
- The goals of treatment for hypoglycemia are to detect and treat a low blood glucose level promptly by using an intervention that provides the fastest rise in blood glucose to a safe level, to eliminate the risk of injury and to relieve symptoms quickly in order to improve outcomes.
- Provide client education that focuses on self management to prevent, detect and treat further episodes of hypoglycemia and optimize blood sugar control.

2. DEFINITIONS

Hypoglycemia is defined by

- A blood glucose level <4 mmol/L
- The development of autonomic or neuroglycopenic symptoms, although clients with diabetes and who have autonomic neuropathy may not have any warning symptoms before developing neuroglycopenia. Not all BG < 4.0 is symptomatic even in those without autonomic neuropathy. All results < 4 should be treated regardless of symptoms, ensuring that the monitor is properly calibrated and good technique is used, see Practice Guideline "Point of care testing: blood glucose monitoring".
- Symptoms responding to the administration of carbohydrate
- Severity of hypoglycemia is defined by clinical manifestations as described below.

Mild hypoglycemia is Blood glucose <4 mmol/L

- Early signs of hypoglycemia are autonomic symptoms (tremors, palpitations, sweating, and excessive hunger)
- Client can self-treat; therefore education on self management is important for all clients with diabetes. See client education materials available at Insite http://home.wrha.mb.ca/quality/caremap/files/Care_Map_PCD_10.pdf or WRHA Internet site http://www.wrha.mb.ca/healthinfo/a-z/diabetes/files/Care_Map_PCD_10.pdf.

Moderate hypoglycemia range between mild-severe levels 2.8-4 mmol/L

- Autonomic and later signs of hypoglycemia which are neuroglycopenic symptoms (headache, mood changes, irritability, parasthesia, visual disturbances, confusion, difficulty speaking) are experienced as the central nervous system becomes glucose deficient
- client can self treat, may require some assistance


Severe hypoglycemia is Blood glucose <2.8 mmol/L

- client requires assistance and unconsciousness may occur

3. GUIDELINES

Assessment

1. Onset: Sudden onset with rapid progression of symptoms
2. Usual Causes:
 - a. Too much insulin or medication (insulin secretagogues)

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- b. Delayed or missed meal, insufficient amount of carbohydrate
- c. More than usual amount of exercise
- d. Alcohol consumption can cause delayed hypoglycemia
- 3. Signs & Symptoms:
 - a. Autonomic - tremors, palpitations, sweating, excessive hunger
 - b. Neuroglycopenic - headache, mood changes, irritability, parasthesia, visual disturbances, confusion, difficulty speaking. These symptoms may also be suggestive of stroke.
 - c. Can progress to unconsciousness, seizures or coma

Intervention

- 1. Treat hypoglycemia according to Guidelines for Treatment of Hypoglycemia in Section 5 and outlined in Appendix A
- 2. Activate 911 if client does not respond to treatment after two doses of glucose tablets, client loses consciousness or clinical signs of progressing deterioration, including hypoxia hypotension, tachy cardia or bradycardia.
- 3. Continue with emergency response/treatment as outlined in Primary Care Emergency Response guidelines, including checking vital signs and communicating with EMS and ER personnel as appropriate.
- 4. Consult with physician or nurse practitioner for medication or insulin adjustment as required post event.
- 5. Document treatment on Appendix A, and place on client's chart.

4. EQUIPMENT/SUPPLIES REQUIRED

Blood Glucose testing strips
 Blood Glucose monitor
 Glucose 5 gram tablets
 Glucagon
 Needles 23 gauge, 1" needle & syringe
 Oximeter
 Alcohol swabs

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5. RESOURCES/QUICK REFERENCE SHEET

<p align="center">Treatment Guidelines for Hypoglycemia (Clients >= 5 years of age)</p>		
<p align="center">Mild-Moderate Hypoglycemia</p>	<p align="center">Severe Hypoglycemia (If conscious)</p>	<p align="center">Severe Hypoglycemia (If unconscious)</p>
1. Check blood glucose	1. Check blood glucose	<p>1. CAB (Circulation, Airway, Breathing) assessment and check for medic alert.</p> <p>2. Activate Emergency Medical System</p> <p>3. Check vital signs (blood pressure, heart rate, oxygen saturation, and respiratory rate) and blood glucose</p> <p>4. Administer 1 mg Glucagon IM (deltoid). Place in recovery position.</p> <p>5. Reassess vital signs q 5 minutes.</p>
2. Treat with 15 g (3 tablets) glucose	2. If client conscious treat with 20 g glucose (4 tablets)	
3. Wait 15 minutes	3. Wait 15 minutes	
4. Retest	4. Retest	
5. Treat with another 15 g (3 tablets) of glucose if blood glucose remains <4.0 mmol/L	5. Treat with another 15 g (3 tablets) of glucose if blood glucose remains <4 mmol/L	
6. Retest	6. Retest. If blood glucose remains <4 mmol/L, activate EMS	

IMPORTANT CONSIDERATIONS:

- If the next meal is 30 minutes or more away, have the patient eat a source of carbohydrate and protein as soon as they are able. This can be in the form of cheese and crackers or a half a sandwich.
- If the patient has taken Prandase/Acarbose (alpha-glucosidase inhibitor) and is experiencing hypoglycemia, it must be treated with 3 glucose tablets or, if unavailable, 250 mL of milk or 3 tsp. of honey only.

Resource for clients regarding hypoglycemia is posted at http://home.wrha.mb.ca/quality/caremap/files/Care_Map_PCD_10.pdf or WRHA Internet site http://www.wrha.mb.ca/healthinfo/a-z/diabetes/files/Care_Map_PCD_10.pdf.

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6. **SOURCE/REFERENCES**

- 6.1. Canadian Diabetes Association 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada <http://www.diabetes.ca/files/cpg2008/cpg-2008.pdf>
- 6.2. Hypoglycemia (2003). Canadian Diabetes Association. Clinical Practice Guidelines Expert Group.
- 6.3. WRHA Home Care Policy & Procedure Manual
- 6.4. WRHA Long Term Care Program

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