CATEGORY: System-Level Clinical **REVISION DATE:** February 2023
ISSUED BY: Diabetes Care Service
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TITLE: **PATIENT USE OF PERSONAL GLUCOSE MONITORING DEVICES IN HOSPITAL**

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Approval: Clinical Policy & Procedures Committee Melissa Bertrand	**Date:** April 5, 2023

PURPOSE

To provide guidelines for the safe use of a patient's own glucose monitoring device in all patient care areas in hospital that are consistent with Ministry of Health and Long-Term Care policy guidelines.

POLICY STATEMENT

For the purpose of this policy, glucose monitoring devices include both blood glucose meters and Flash or Continuous Glucose Monitor (CGM) systems. **This policy does not apply to patients using a patient-controlled device (i.e. insulin pump) in hospital.**

PROCEDURE

Special Instructions

- **SAFETY ALERT! Sensors, transmitters, and receivers must be removed prior to any procedure that involves exposure to magnetic fields or electromagnetic radiation (i.e. X-ray, MRI, CT scan, Radiation Therapy) or diathermy treatment (high-frequency electrical heat).** The effect of X-rays, MRI, CT scans, or diathermy on the performance of these systems has not been evaluated. The exposure may damage the components, which may impact proper function of the device to display accurate readings, detect trends and track patterns in glucose values during the wear period.
- **Warning!** Patients who are receiving medications with acetaminophen or ascorbic acid (Vitamin C) or salicylic acid (Aspirin) while wearing a sensor should be informed that this may cause inaccurate readings. The level of inaccuracy depends on the amount of the interfering substance active in the body and is different for each person.
- A physician or nurse practitioner (NP) order is not required for a patient to continue to wear a glucose sensor.
- Only patients who can independently manage all aspects of their personal glucose monitoring device will be allowed to use said device in hospital.
- The patient's glucose monitoring device will be used to complement, not eliminate or replace, Blood Glucose (BG) checks using the hospital-approved BG meter or laboratory BG.
- Glucose readings from the patient's glucose monitoring device will NOT be used for making treatment decisions (i.e. medication orders/adjustments, insulin scale doses) while the patient is in

hospital. Treatment decisions will only be based upon results obtained using the hospital-approved BG meter or laboratory BG.

- Health Sciences North is not responsible for the care and maintenance of the patient's personal glucose monitoring device.
- Patients are to provide their own supplies for their personal glucose monitoring device (i.e. test strips, sensors). The Diabetes Care Service may occasionally provide patients with personal glucose monitoring devices and/or supplies for educational purposes while in hospital or upon discharge.
- Patients will manage all aspects of use of their personal glucose monitoring device while in hospital. Hospital staff will NOT use the patient's device.
- Patients are responsible for insertion and/or proper disposal of any new sensors while in hospital.
- While in hospital, patients will use the hospital-approved safety lancets for the purpose of obtaining a capillary blood sample. Hospital staff will NOT use the patient's personal lancing device or lancets to obtain a capillary blood sample. The patient may use the same blood sample to test with their personal glucose monitoring device simultaneously; there is no need to pick twice.
- If a patient insists on using their own lancing device in hospital, they must be able to independently dispose of their used sharps (i.e. lancets, applicators) in a biohazard sharps container immediately. Hospital staff will NOT dispose of a patient's used sharps.
- Patients will be provided the *Monitoring Your Sugar Levels in Hospital* handout. **(Appendix B)**

Method

1. The physician, NP or nurse will assess patient competency to be able to independently manage all aspects of their personal glucose monitoring device in hospital.
2. The physician, NP or nurse will inform the patient that point-of-care BG checks using the hospital-approved BG meter will continue to be performed by nursing staff as ordered/required, and that only those or laboratory BG results will be utilized to make treatment decisions.
3. The physician, NP or nurse will inform the patient to notify the nurse if their personal glucose monitoring device indicates hypo/hyperglycemia with or without symptoms so that a point-of-care BG may be obtained promptly to confirm and treatment initiated or adjusted as appropriate.
4. The nurse will perform all BG monitoring using a hospital-approved glucose meter.
5. The nurse will document the existence of a sensor, including insertion site.
6. The nurse will place a "Patient Wearing a Glucose Sensor" sticker on the outside front of the medical chart. **(Appendix C)**
7. The nurse will report the existence of a sensor with any patient transfer off the unit or with any transfer of care.
8. The nurse will ask the patient to remove their sensor in the event of hospital procedures as outlined in the **Special Instructions** section above.
   A. The patient will disconnect any transmitter from the sensor and place it in their bedside table or belongings for safekeeping. It should be clearly labeled with the patient's identifying information. Alternatively, it may be sent home with the patient's family/significant other.
   B. The patient will immediately dispose of the sensor in the biohazard sharps container.

EDUCATION AND TRAINING

Definitions

1. Flash and Continuous Glucose Monitoring (CGM) systems: Health Canada approved devices available by prescription. These devices employ a Glucose Sensor that measures real-time glucose levels in the interstitial fluid and aid in the identification of glycemic patterns and episodes of hypoglycemia or hyperglycemia. The glucose levels are transmitted wirelessly to a Receiver, Reader or insulin pump where they can be viewed by the user.

2. Glucose Sensor: A tiny sensor inserted, using an applicator, just under the skin that measures real-time glucose levels in the interstitial fluid. The sensor stays in place for several days to two weeks depending upon the system, and then must be replaced. Used applicators and sensors should be disposed of in a biohazard sharps container.
3. Applicator: A safety-engineered device that is used to insert the Glucose Sensor under the skin. Once inserted the needle is retracted into the Applicator, and no needles remain in the patient. Each sensor type has its own specific Applicator.
4. Transmitter: Used with CGM systems, a Transmitter is placed into a sensor pod and wirelessly sends information about glucose levels to a Receiver, mobile app and/or integrated insulin pump where they can be viewed by the user. Transmitters attach to each new Glucose Sensor upon insertion and **are NOT disposable**. They are reusable during their three-month battery life.
5. Reader: Used with Flash glucose monitoring systems, a Reader is used to wirelessly scan an inserted Glucose Sensor to provide information about current glucose levels where it is then viewed by the user on the Reader.
6. Receiver: Used with CGM systems, a Receiver displays the patient's glucose levels and trends. The Receiver may be a mobile app on a smart device.
7. Integrated insulin pump and CGM system: A CGM sensor transmits glucose results wirelessly to an insulin pump which can take action, based on the glucose and the programmable features of the insulin pump.

Education/Training Related Information
Review of Health Sciences North diabetes management related policies as required:

- Diabetes Education & Care SLP
- Hypoglycemia Treatment Protocol for Adult Patients Medical Directive (MD HSN 12) SLP
- Patient Use of Personal Glucose Monitoring Devices in Hospital policy
- Safe Use of Insulin Pen Devices procedure

References and Related Documents
Canadian Standards Association (CSA). CAN/CSA-Z22870-07 (R2013). Point of Care Testing (POCT): Requirements for Quality and Competence.

Health Sciences North. Point of Care Blood Glucose Testing for Suspected Hypo/Hyperglycemia medical directive (MD HSN 11).

Health Sciences North. Laboratory Point of Care Standard Operating Procedure "Authorization for Use" (2038).

Institute for Quality Management in Healthcare (IQMH) Accreditation requirement XI.1.6, Version 7.1, April 2017.

International Organization for Standardization (ISO). ISO 15189:2012 – Medical Laboratories: Requirements for Quality and Competence.

International Organization for Standardization (ISO). ISO 22870:2006 – Point of care testing (POCT): Requirements for Quality and Competence.

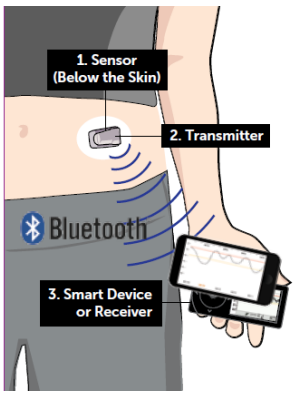
Manufacturer User Guide (Dexcom, Medtronic, Abbott Freestyle Libre) subject to change as new technology emerges.

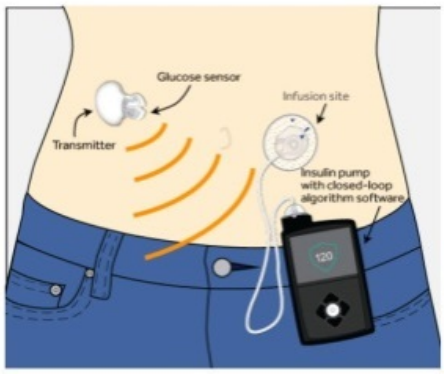
Ministry of Health and Long-Term Care. Revised Point-of-Care Testing Policy Guideline for Hospitals with a Licensed Laboratory, April 12, 2007.

APPENDIX A

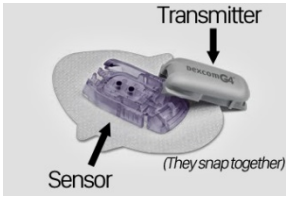
Examples of Personal Glucose Monitoring Devices

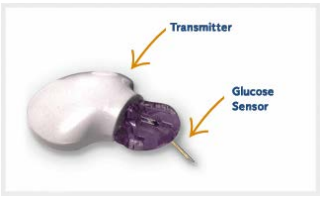
CGM System (Sensor, Transmitter and Receiver or Integrated Insulin Pump)





Sensor and Transmitter (up close)

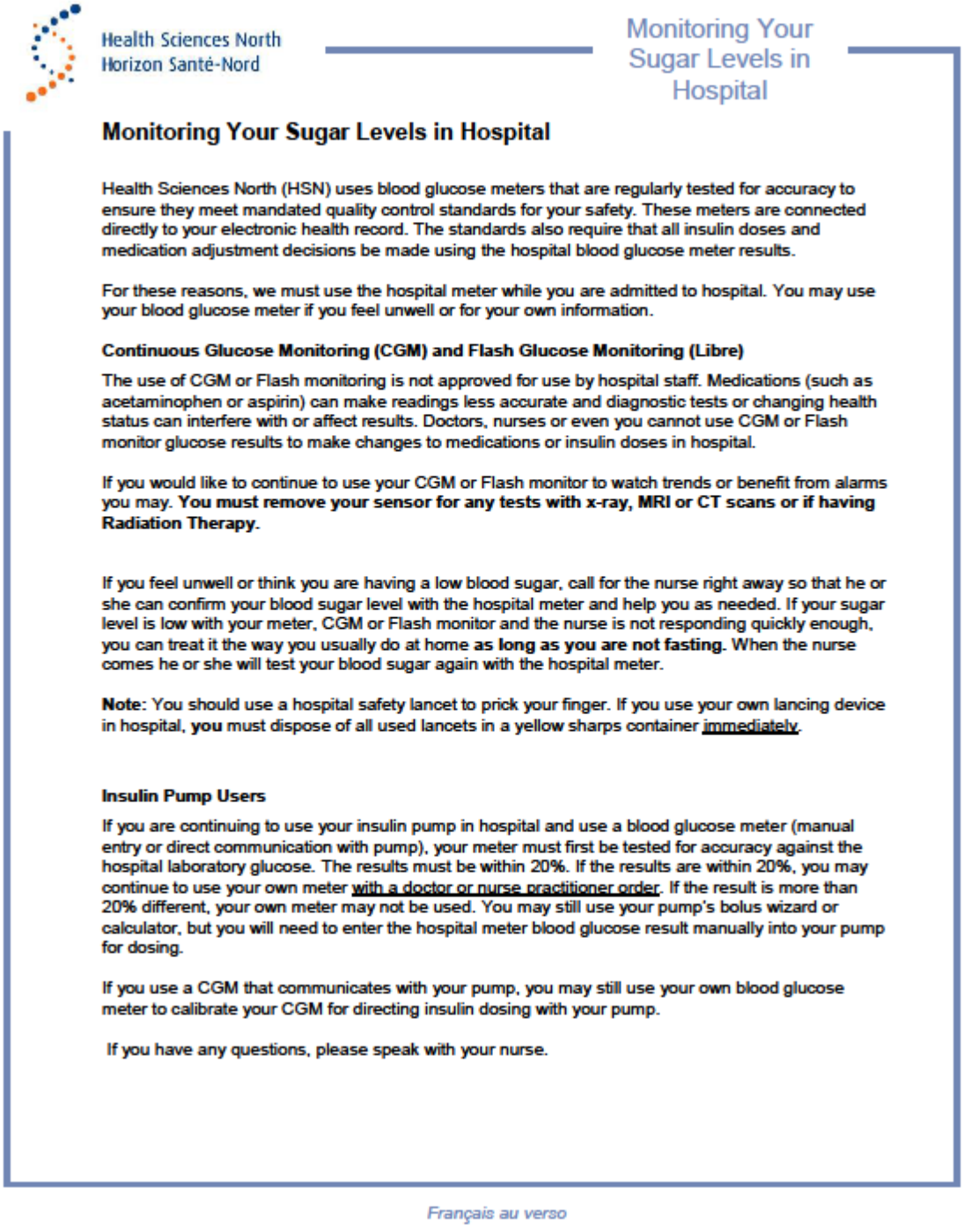




Applicator

Flash Glucose Sensor and Monitor System

APPENDIX B



Health Sciences North
Horizon Santé-Nord

Monitoring Your Sugar Levels in Hospital

Monitoring Your Sugar Levels in Hospital

Health Sciences North (HSN) uses blood glucose meters that are regularly tested for accuracy to ensure they meet mandated quality control standards for your safety. These meters are connected directly to your electronic health record. The standards also require that all insulin doses and medication adjustment decisions be made using the hospital blood glucose meter results.

For these reasons, we must use the hospital meter while you are admitted to hospital. You may use your blood glucose meter if you feel unwell or for your own information.

Continuous Glucose Monitoring (CGM) and Flash Glucose Monitoring (Libre)

The use of CGM or Flash monitoring is not approved for use by hospital staff. Medications (such as acetaminophen or aspirin) can make readings less accurate and diagnostic tests or changing health status can interfere with or affect results. Doctors, nurses or even you cannot use CGM or Flash monitor glucose results to make changes to medications or insulin doses in hospital.

If you would like to continue to use your CGM or Flash monitor to watch trends or benefit from alarms you may. **You must remove your sensor for any tests with x-ray, MRI or CT scans or if having Radiation Therapy.**

If you feel unwell or think you are having a low blood sugar, call for the nurse right away so that he or she can confirm your blood sugar level with the hospital meter and help you as needed. If your sugar level is low with your meter, CGM or Flash monitor and the nurse is not responding quickly enough, you can treat it the way you usually do at home **as long as you are not fasting.** When the nurse comes he or she will test your blood sugar again with the hospital meter.

Note: You should use a hospital safety lancet to prick your finger. If you use your own lancing device in hospital, **you** must dispose of all used lancets in a yellow sharps container immediately.

Insulin Pump Users

If you are continuing to use your insulin pump in hospital and use a blood glucose meter (manual entry or direct communication with pump), your meter must first be tested for accuracy against the hospital laboratory glucose. The results must be within 20%. If the results are within 20%, you may continue to use your own meter with a doctor or nurse practitioner order. If the result is more than 20% different, your own meter may not be used. You may still use your pump's bolus wizard or calculator, but you will need to enter the hospital meter blood glucose result manually into your pump for dosing.

If you use a CGM that communicates with your pump, you may still use your own blood glucose meter to calibrate your CGM for directing insulin dosing with your pump.

If you have any questions, please speak with your nurse.

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APPENDIX C