Glucose

Point-of-Care Testing (POCT)

Staff Training – to Coincide with 2021-2022 Quiz

Glucose Meter

- At this time, the Abbott Precision Xceed Pro glucose meter is being used.

Prior to testing: Limitations that affect accuracy – please think about these *before* you test.

IMPORTANT: Doing the finger stick is only one part. *You also need to ensure the number/result is accurate*. Please see below:

- **Never** test body fluids, serum or plasma.
- Results are falsely decreased in patients with excessive water loss or dehydration, shock, or hyperglycemic-hyperosmolar state.
- High hematocrits (above 70%) can cause erroneously lower results and low hematocrits (below 20%) can cause falsely elevated results.
- Testing in an environment with a temperature below 15°C (59°F) or above 40°C (104°F), or a relative humidity below 10% or above 90%, may skew results (also important for patient education).

Prior to testing: Error messages when you get the meter

- "Last Upload Incomplete, Redock Meter" or “Upload Required” -- **you may continue to use meter**, but then ***redock***.

  If this does not resolve the issue, ***reboot*** *the computer* that the docking station is connected to (and check the connecting cable, but do not disconnect the cable if it is connected).

  If error message persists, ***contact IT*** (and probably lab).

- Also, if it says "Strip Error, Wet or Damaged Strip" -- start over. Add sample only when instrument reads to apply sample.

More about docking

When docking a glucometer, please watch for a few seconds to make sure it says it is uploading the information (which may take several minutes to complete) (Green circle moving is an indication of uploading.)

Dock glucometers once a day. Glucometers usually are docked when controls are run, but not during the 0300 hour.

Docking daily is important -- in part, to upload employee competency information to individual glucometers and thus provide access.

Prior to testing: Always identify the patient.

Per MRCH "Patient Identification" Policy (accessed March 2021) all patients must be identified with two identifiers:

- "Identification of patients . . . is verified by *name and date of birth*."
- "Licensed caregivers will not administer medication, blood or blood products or *obtain blood samples* from patient who has not been identified using the name and date of birth."

Procedure

- Please do HAND HYGIENE before reaching into a glucometer case.
- Turn glucometer on.
- Select either “Control Test” or “Patient Test.”

Scanning procedure: Once you have chosen "Control test" or "Patient test," scan "Operator ID."

What is an Operator ID?

Your Mad River Hospital unique ID is your Operator ID and is used to identify you as the person performing a glucose test.

Scan the barcode on the back of your badge.

Poor procedure: Would you let someone borrow your credit card or Social Security number?

This is why you never allow anyone to use your badge.

- If a co-worker's badge does not work, there is a valid reason, and they should address this with the POCT coordinator.
- Remember you are legally responsible for all tests performed using your ID.
- Your name is tied to every glucose test performed using your ID.
- It is a work rule violation (can be grounds for dismissal).
- But how can you help a co-worker who does not have current glucometer access?

Scanning procedure: Scan patient armband.

- Remember to SCAN patient's armband.

We would like to GREATLY underscore the importance of scanning the patient's armband, and STRONGLY DISCOURAGE inputting a patient's Medical Record #, birthdate, or any random string of numbers for the patient ID ("1234" etc.). The glucometer is set up to link to the patient's account number via CPSI. If other numbers are input, it could erroneously link to the wrong account.

More about scanning and patient numbers

Scanning is everything

- Scanning prevents manual entry errors and results going to the wrong patient chart.

- Troubleshooting tips if there are scanning difficulties:
  - Clean the scanning window with a soft cloth (2x2 gauze ok).
  - Replace batteries that are too low.

- If you must manually enter a number, double- check it before you press enter. *This should be a rare issue* unless you work in the outpatient areas. Use the number on the patient's armband that begins with 10 . . . .

Attached armbands should always be used!

NEVER USE ARMBANDS NOT ATTACHED TO PATIENT:

- Found lying in the patient's room
- Taped to the bed
- Found in chart
- Or at the nursing station
- Barcoded labels lying around

Procedure in emergencies: 5150

- This number is used exclusively in OB and ER for emergency cases -- where an armband is not available because patient is not registered yet.
- Patient identification must be documented on the 5150 log located in these departments.

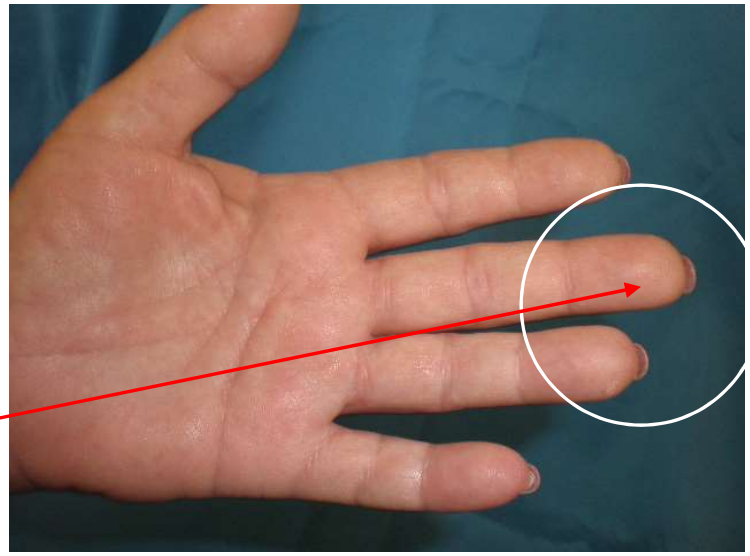
Procedure: Test strip

Scan the barcode on the test strip.

(Do not use test strips with damage to the foil package.)

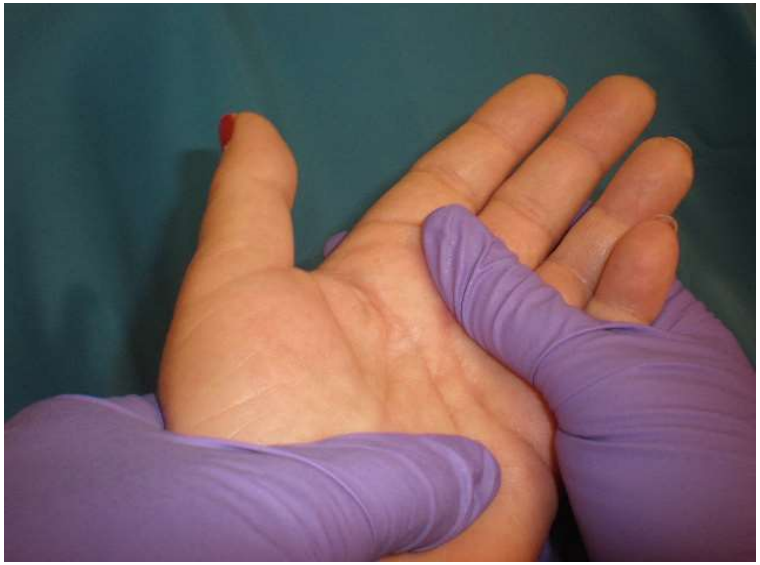
Finger stick procedure: Choose finger carefully.

- Best locations for a finger stick are the 3rd and 4th fingers of the non-dominant hand.
- Avoid the 2nd and 5th fingers if possible.
- Avoid fingers that are cold, cyanotic, swollen, scarred, or covered with a rash.



Finger stick procedure, to get an adequate drop of blood: Massage or warm site.

- Massage to warm the finger and increase blood flow by gently squeezing from hand to fingertip 5-6 times.
- You also can squeeze from elbow to fingertip.
- When not contraindicated, it can be helpful to use a warm cloth and/or ask patients to hang their hand over the side of the bed/chair ("gravity is your friend" in instances where getting a drop of blood is difficult).



Finger stick procedure: Clean site and allow alcohol to dry.

- Cleanse fingertip with 70% isopropyl alcohol -- ***scrub vigorously.***
- Allow alcohol to dry thoroughly before testing. Do not fan, blow on, or wipe off (infection control).
- ***Caution: Wet alcohol*** *can* ***false****ly elevate or lower blood glucose results.*

Finger stick procedure

- Using a sterile lancet, make a skin puncture just off center of the finger ***pad*** – *so* on the *side of the finger* ***pad*** (NOT on the finger side close to the bone).

- NEVER use the tip or center of the finger.

- **Wipe away the first drop of blood** (which tends to contain excess tissue fluid).

Finger stick procedure: Do not milk the finger.

- The drop of blood must be big enough to fill the strip completely.
- **If necessary, apply light** pressure to the surrounding tissue until another drop of blood appears.
- **Avoid "milking":** Do NOT squeeze or apply strong repetitive pressure to the site. This may result in hemolysis or increased tissue fluid in the blood, causing incorrect glucose results.
- ***Caution:*** *Free flowing blood is necessary to obtain reliable results. Increased pressure beyond that necessary to hold the finger can result in inaccurate results.*

Procedure: Apply sample.

- If strip was not placed into meter previously, place strip into meter. The screen will say “apply sample” – if not, push the strip into the meter a little more firmly.

- Apply sample to the target area of the strip – let the end wick up the blood.
  If more blood is needed, it should be applied within 20 seconds.

Alert values

Alert Values: <40 or >400 mg/dL

- Alert Values must be confirmed by repeating the test.
- Any values <40 or >400 MUST be checked or confirmed by laboratory, *venous* blood draws. Venous draws continue until patient's BG is >40 or <400.

Always: Protect the glucometer.

Always keep the meter flat when running a test. This prevents solutions or blood from running into the port and damaging the meter.

If you are getting strip reading errors and it appears liquid may have run into the port, bring glucometer to lab for a new sample port or new glucometer.

Pre or post procedure: CONTROL TEST

- **Always check the controls' expiration date**.
  Expires 90 days from date opened or manufacturer's outdate, whichever comes first.
- If expired: discard. Open and date a new QC set.
- Write on new QC bottle (or on a label affixed to bottle that does NOT cover barcode):
  date opened, date of expiration, initials.
  (A piece of clear tape over writing on the bottle also can help it not be rubbed off – but, again, try to avoid the barcode.)
- Scan barcode on bottle and follow prompts.
- **QC must be performed every 24 hours**; meters have QC lockout.

Pre or post procedure: Controls, quality

Items that affect whether the Quality Control tests are valid – so check these if your Quality Controls fail.

IF these all seem fine, remove the glucometer from use and take it to the laboratory (which replaces malfunctioning glucometers).

- Expired control bottles (LO and HI).
- Appropriate control bottle (LO or HI) used per instructions on glucometer screen.
- Poorly mixed control (so gently shake it) -- and/or air bubbles in the control solution placed on the strip.

Pre and Post Procedure: Clean the Glucometer.

- The glucometer must be cleaned before each patient test, after each patient test, and every 24 hours.
- Glucometers must be cleaned with PDI germicidal Super Sani Cloth disposable wipes. Pay special attention to the end of the glucometer with the test strip port and any areas of obvious blood contamination.
- If you are having trouble scanning, try cleaning the scanning window (e.g. with a dry 2x2). (The window can get a film build up from repeated PDI cleaning.)

Always: Testing yourself or co-workers

- It is a work rule violation to test yourself or co-workers.
- Exception to this is an emergency -- and the person will need to go to the Emergency Room.

Usually annually: Competency renewal

Per COLA, the organization that accredits the MRCH lab, all staff using POC blood glucose monitors must re-do their competencies annually.

In addition at MRCH, new employees who use the glucometer re-do their competency at the 6-month point.

Feel free to contact lab personnel who deal with glucometer competencies, or Staff Development, if you have questions.

Where to find information

- Information can be found in the lid of the carrying case.
- Glucometer user manual can be found on the internet.

Per “Diabetes Standard of Care” MRCH policy
(accessed March 2021 -- please consult entire policy):

Overall, strive for capillary BG of 80-140 before meals and 100-140 at bedtime, or as ordered.

Hypoglycemia: BG less than 70.

- If BG 40-70, or if there are s/s of hypoglycemia, give glucose (juice or gel) (if patient is able to swallow safely).
- With symptomatic Hypoglycemia, ensure there is IV access; and notify MD immediately.
- (If patient is unable to swallow, call physician and be prepared to administer IV dextrose or inject glucagon.)
- After treating, re-check BG in 15 minutes; goal is to get BG greater than 80 – then treatment may be snack/meal.

Questions/Concerns

If you have problems with your meter that you could not resolve,
please call the Lab if possible.

E N D

This page left blank.