Point of Care Testing

Bedside Glucose Meter
Regulatory Overview

- All lab tests are regulated by the government.
- Bedside glucose is a point of care (POC) lab test
- **YOU** are performing this lab test **under** the Lab’s CLIA license
  - It is scrutinized during the hospital inspection process
  - Yearly re-certification in February is **required** for everyone
- The FDA has enacted labeling changes specific to the use of waived whole blood glucose devices
  - The limitation clause: “This system has not been evaluated in the critically ill” has been added
Resources

Your Resource Staff includes:

- Unit Educators
- Patient Care Coordinators
- Lab Staff
  - Monitors for compliance
  - Serves as technical resources
Glucose Meter System Parts

Provided by Lab:
- Glucose Meter Carrying Case
- Docking Station or Cable

Provided by Testing Area:
- Testing Supplies
- AA Batteries
Meter Parts

1. Display screen – prompts action and displays information
2. Test Strip Port – where test strip is inserted for testing
3. Connector Pins – connects with docking station or cable to relay information
4. Battery compartment – holds 2 AA batteries

Display screen has battery icon to indicate charge
Meter Keypad
ON/OFF

• Press once to turn on the meter

• Press and hold for 3 seconds to turn meter off

• It automatically turns off after 4 minutes to preserve battery power.
METER KEY PAD

Enter
Used to enter information into the meter after typed into the keyboard

Meter Keypad Menu
Will toggle you back and forth between testing menu and review results menu
Meter Keypad

Clear

- Will back up one space while entering numbers
- Will delete a barcode
- Will return you to a previous screen
- Used to delete info entered incorrectly
- Please scan the patient’s barcode on their arm *not* their sticker! This is a safety issue!

Backlight

- Press and HOLD lower left key (under 7) for 2 seconds to activate the backlight then release.
- Great tool for nightshift
Scanner Use

• Used to scan the barcode of the item you will be using.
  o Test Strips
  o Control Bottles
  o Employee Badge
  o Patient Armband

• Press and hold the scan key to activate the digital camera scanner
  o Hold still to activate the green light over the barcode
  o Need to be approx. 3-12 inches away from barcode to allow the meter to take a picture

• Listen for beep to indicate capture
Trouble-Shooting Scanner

- Check battery power
- Clean scanner window with soft cloth
- Scanner works best if test strips and armband barcode is flat
- Meter will turn off scanner if scanner key depressed too long.
Patient ID’s and Glucometers

Remember you need to scan the patient’s armband, not their sticker. See below examples.

Chinese Square QR Code / Aztec Code

Larger Linear Barcode
METHOD ONE
Hold down scan button, and review account number on the screen, immediately after scanning.
If the scanned ID is incorrect, press clear to delete the ID and try scanning again.

METHOD TWO
Review the account number, at top of the screen, when result is viewed.
If the ID is incorrect, use the POC Corrected Report form to get the patient ID corrected.
Battery Replacement

To remove the battery cover

• Using both hands, press down firmly on the cover.
• Position one thumb on rubber tab and other on raised lines.
• Push to slide the cover down, then lift up and away from the meter.
• Remove old batteries and position new AA batteries in meter following ‘+’ and ‘-’ guides.
Battery Compartment Cover

• Reinsert the battery cover:
  • Align battery cover with the slots on the meter, then slide up and into place.
  • **Do not snap it down** as it will break off the tab.
Glucose Control Expiration Date
Controls expire 90 days after opening

1. Write Revised Expiration date

   Write 90 day expiration date with marker. If manufacturer’s expiration date is sooner than the 90 day expiration date – use manufacturer’s date and circle it. Do not write over bar code.

2. Place Tape over the expiration date

   The expiration dates get rubbed off even if permanent marker is used. Use tape to protect the expiration date.
Running Quality Controls

1. Press ON/OFF
2. Press 2 - Control Test
3. Scan or enter Employee ID
4. Scan Control Barcode
5. Scan Test Strip Barcode on wrapper
6. Insert Test Strip from the wrapper you scanned
7. Mix controls by gently inverting prior to use. Do **no** shake. Air bubbles will cause it to fail. Apply a small drop of control solution onto test strip making sure to **keep the meter flat**! Do not allow liquid to enter strip port. It will damage the meter.
8. 5 second countdown: PASS or FAIL
   Both levels (LO & HI) must be run each day of patient testing after 0100 (has to be the time on the meter)
Reasons Controls

- Controls are expired
  - Check date on vials
    - Look at bottle expiration date
    - Is it past the 90 day handwritten date?
- Wrong level of control was run
- Controls not mixed
- Air Bubbles in nozzle of vial
Prior to Performing a Patient Test

- Verify the patient using two patient identifiers using the patient armband.
- Verify that the armband is for the **correct facility** with current MRN and Financial ID Number (FIN).
- **If patient is transferred from another facility, the wristband must be updated.** Test results will not be transmitted if wrong FIN is used.
- Always **scan the barcode (patient’s armband)**, when available, to ensure correct fin number entry into meter. **Scan if you can.**
Finger-Stick Collection

- Choose a spot that is on the bottom side of the tip of one of the center fingers of either hand.

- Clean finger with alcohol, prior to poking. **Allow to dry.**
Finger-Stick Collection

- Gently squeeze across the entire finger at the last joint.
- Do not ‘milk’ finger.
- Always wipe off the first drop of blood, after poking finger, and apply second drop to test strip.
Applying Sample To Test Strip

- Apply sample to top or end of application area until you hear a ‘beep’
- If no beep, remove the test strip and press the ‘clear’ key to start over with new test strip.
- **You may not add more sample to the test strip!**
- If using a syringe, point blood sample **away** from the meter.
- Remember to keep the glucose meter **flat** so sample does not flow into meter.
Patient Testing

- Press ON/OFF
- Press 1 – Patient Test
- **Scan** or enter your employee ID
- **Scan** or enter patient Financial ID Number (FIN) from armband
- Use all 9’s, if no FIN# (do not make-up numbers)
  - Only use when patient has not yet been admitted
    - No FIN# available.
    - Examples: New Babies, ER Urgent Situation
- Confirm patient Financial ID Number, if prompted
Patient Testing Continued

- Scan barcode on test strip wrapper
- Insert test strip into glucose meter
- Collect blood sample and apply to target area on test strip. **Keep meter flat!**
- “Sample Accepted” will display
- 5 second countdown
Patient Testing Continued

- Test results will be displayed with patient information
- Review patient information and test result for accuracy.
- For level 1 patient areas
  - Glucose level samples for *lab* must be drawn from the below
    - Central line
    - Peripheral line
    - Venous draw
    - Arterial line
  - Sent in a green tube for lab testing
  - This is not for POC testing. DO NOT use the meter for level 1 patients!
Comment Code #4

- Entering “4” will stop the results from going to the patient record in the event of an error

- If you do not enter a comment code, be sure to press ENTER to complete the test cycle.

Don’t 4-get to use code 4 to get that result.
Troubleshooting
Patient Results

If the blood glucose result appears to be inconsistent (lower or higher than expected), there may be a problem with the test strip, collection technique, or patient condition. Repeat the test using a new test strip.

Results that are incorrect may have serious medical consequences.

Order a lab performed glucose if Point of Care (POC) Glucose is questionable.
Limitations

- Point of Care (POC) glucose testing, on critically ill patients, must follow compliance standards required by CMS, CLIA, and CAP. These state that use of glucose meters, outside of the FDA approved intended use, is not permitted.
- Each facility must define “critically ill”, for their institution, for POC glucose testing.
- For the purpose of POC glucose testing at St. Luke’s, a critically ill patient is defined as “any level 1 patient”
Critically Ill Patients

A critically ill patient is any patient who is:

- Severely dehydrated
- Severely hypotensive
- In shock
- In hyperglycemic-hyperosmolar state (with or without ketosis)

Examples of critically ill patients

- All level 1 patients
- Diabetic Ketoacidosis (DKA)
- Sepsis
More Limitations To Test....

- A patient must have a hematocrit range between 15%-65%
- Caution advised in the interpretation of neonate glucose values below 50 mg/dL
- Do not use glucose meter during IV infusion of ascorbic acid or xylose absorption testing.
Example:

- A critically ill defined patient’s glucose level (LAB DRAWN) was 182 at 01:25.
- The POC glucose at 01:23 was 76 and at 01:46 was 32.

- The LAB value is the accurate glucose reading.
- The POC glucoses near that time were NOT accurate.
Critically Ill Sampling

- Blood samples **must** be drawn from a:
  - central line
  - peripheral line
  - venous draw
  - arterial line
- Send to lab in a **green** tube for testing
- The Abbott FreeStyle Precision Pro glucose meters **CANNOT** be used for **any** critically ill patient on **any** arterial, venous, or capillary specimen!!
Neonatal Glucose

As a matter of good clinical practice, caution is advised in the interpretation of neonatal glucose values below 50 mg/dL.
Process for Sending Glucose Samples to Lab

- Send green tubes to lab in yellow bag. This helps lab process samples quickly.
- Bags can be requested through lab
Critical Values

High Critical Values (greater than 399) will have an arrow pointing up ▲ before the result.
Example: ▲ 425

Low Critical Values (less than 40) will have an arrow pointing down ▼ before the result.
Example: ▼ 35

ACTION:
Repeat if questionable and follow critical value notification process. Treat for hypoglycemia, if appropriate.

**Remember that a lab glucose must be performed on all level 1 patients**
Out-of-Range Results

- Results that are **too high** for the meter to read will appear as **>500**. (greater than 500)

  **ACTION:** Recheck if questionable and **order lab test to confirm result.**

- Results that are **too low** for the meter to read will appear as **<20**. (less than 20)

  **ACTION:** Recheck if questionable and treat patient for hypoglycemia.

**Remember that a lab glucose must be performed on all level 1 patients**
Repeating a Patient Test

1. If you question a test result, run the test again on the same glucose meter.

2. Run the second test within 5 minutes of the first test.

3. Do not download the glucose meter between tests.

4. Only the second test will be sent to the patient record, if 1-3 points are followed.
Meter Cleaning/Care

- Clean the meter after each patient use to prevent the spread of diseases.
- Clean the supply case if blood is visible.
- Wear gloves when cleaning the meter.
- If blood is visible on gloves, change them before cleaning the meter.
- Use only hospital approved disinfectant wipes and allow meter to air dry.
- Do NOT write on the meters.
Review Patient Results

Press MENU

Choose 1 – Data Review

Enter Employee ID Number

Choose 1 – ‘Patient by OperID’ to review previous patient results by current operator

Choose 2 – ‘Patient by Pat ID’ to review previous patient results by patient ID #

Choose 3 – ‘All Patient Data’ for all previous patient records

After selecting review option Press 1-Previous

Press 2-Next to review more recent results
Result Documentation

- For results to appear in the EMR, place the meter into the docking station.
  - Do **not** remove it while the arrows are circling..
  - This **must** be done after each patient test or group of patient testing.

- If download is unsuccessful “Last Upload Incomplete Re-Dock Meter” will display.
Docking Station

• Place the glucose meter **gently** into the docking station, sliding into place.
• Meter will turn on when properly positioned. **Do not force it on.** These are **very** costly to replace.

Docking stations are located in nursing station areas.
# Troubleshooting Downloading

<table>
<thead>
<tr>
<th>Test</th>
<th>If the circling arrows do not rotate, test results are not transmitted.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check</td>
<td>Check battery power by turning on meter and observe battery icon. If low, replace AA batteries.</td>
</tr>
<tr>
<td>Take</td>
<td>If problem continues, take meter to closest docking station to download.</td>
</tr>
<tr>
<td>Contact</td>
<td>Contact IT Service Desk (7070) to report problem with downloading and to receive assistance.</td>
</tr>
</tbody>
</table>
You may have scanned an wrong barcode or one from another facility. Document manually.

If you manually entered the FIN Number you may have entered it incorrectly. Document manually.

If EMR is down, there are network problems, results will not transmit. Document manually.

Results will usually populate into EMR within 5 minutes unless patient sticker was scanned. Scan the patient’s armband to avoid this issue!

Contact IT Service Desk (7070) to report a problem and receive assistance if needed.
Meter Replacement

• Clean meter with disinfectant wipe
• Walk meter to lab and state problem
• Lab will issue you replacement
• DO NOT send meters through the pneumatic tube!
POC Corrected Result Form

- You must fill out the POC Corrected Result form and send it to the Laboratory whenever:
  - You enter all 9’s as the patient ID
  - You need patient results corrected for any reason

- Complete all sections of the form. Include patient information once the visit number has been assigned. Forward to laboratory when completed. This process must be completed to ensure patient glucose results are in the EMR.
QUESTIONS?

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