

**UPMC  
POLICY AND PROCEDURE MANUAL**

**POLICY: HS-LAB0001\***  
**INDEX TITLE: Lab**

**SUBJECT: Point of Care Glucose Testing**  
**DATE: February 1, 2024**

**I. POLICY**

It is the policy of the UPMC to perform point-of-care (POC) testing of whole blood glucose levels utilizing a hospital laboratory approved instrument.

For the facilities indicated in section III, glucose management at UPMC is only to be performed with values obtained with Abbott FreeStyle Precision Pro glucose meters and appropriate FreeStyle Precision Pro supplies. Glucose results from home-use meters obtained by patient self-testing are not to be used for glucose management while receiving care at UPMC.

Links to policies referenced within this policy can be found in Section XIX.

**II. PURPOSE**

The purpose of this policy is to define the appropriate use of the FreeStyle Precision Pro (FSPP) handheld meter. The FSPP meter is intended for use with FreeStyle Precision Blood Glucose test strips for the in vitro quantification of glucose in human whole blood.

This system is not used in diagnosing diabetes mellitus but is to be used as an aid in monitoring the effectiveness of diabetes control programs. The FSPP may only be used by personnel trained via an approved UPMC training.

**III. SCOPE**

This policy applies to the following United States based UPMC facilities:

[Check all that apply]

<input checked="" type="checkbox"/> UPMC Children’s Hospital of Pittsburgh	<input type="checkbox"/> UPMC Pinnacle Hospitals
<input checked="" type="checkbox"/> UPMC Magee-Womens Hospital	<input type="checkbox"/> Harrisburg Campus
<input checked="" type="checkbox"/> UPMC Altoona	<input type="checkbox"/> West Shore Campus
<input checked="" type="checkbox"/> UPMC Bedford	<input type="checkbox"/> Community Osteopathic Campus
<input checked="" type="checkbox"/> UPMC Chautauqua	<input checked="" type="checkbox"/> UPMC Carlisle
<input checked="" type="checkbox"/> UPMC East	<input checked="" type="checkbox"/> UPMC Memorial
<input checked="" type="checkbox"/> UPMC Hamot	<input checked="" type="checkbox"/> UPMC Lititz
<input checked="" type="checkbox"/> UPMC Horizon	<input checked="" type="checkbox"/> UPMC Hanover

<input checked="" type="checkbox"/> Shenango Campus	<input type="checkbox"/> UPMC Muncy
<input checked="" type="checkbox"/> Greenville Campus	<input type="checkbox"/> UPMC Wellsboro
<input checked="" type="checkbox"/> UPMC Jameson	<input type="checkbox"/> UPMC Williamsport
<input checked="" type="checkbox"/> UPMC Kane	<input type="checkbox"/> Williamsport Campus
<input checked="" type="checkbox"/> UPMC McKeesport	<input type="checkbox"/> Divine Providence Campus
<input checked="" type="checkbox"/> UPMC Mercy	<input type="checkbox"/> UPMC Cole
<input checked="" type="checkbox"/> UPMC Northwest	<input type="checkbox"/> UPMC Somerset
<input checked="" type="checkbox"/> UPMC Passavant	<input type="checkbox"/> UPMC Western Maryland
<input checked="" type="checkbox"/> Main Campus	
<input checked="" type="checkbox"/> Cranberry	
<input checked="" type="checkbox"/> UPMC Presbyterian Shadyside	
<input checked="" type="checkbox"/> Presbyterian Campus	
<input checked="" type="checkbox"/> Shadyside Campus	
<input checked="" type="checkbox"/> UPMC Western Psychiatric Hospital	
<input checked="" type="checkbox"/> UPMC St. Margaret	

**Provider-based Ambulatory Surgery Centers**

- UPMC Altoona Surgery Center
- UPMC Children’s Hospital of Pittsburgh North
- UPMC St. Margaret Harmar Surgery Center
- UPMC South Surgery Center
- UPMC Center for Reproductive Endocrinology and Infertility
- UPMC Digestive Health and Endoscopy Center
- UPMC Surgery Center – Carlisle
- UPMC Surgery Center Lewisburg
- UPMC Pinnacle Procedure Center
- UPMC West Mifflin Ambulatory Surgery Center
- UPMC Community Surgery Center
- UPMC Leader Surgery Center

**Free-Standing Ambulatory Surgery Facilities:**

- UPMC Hamot Surgery Center (**JV**)
- Hanover Surgicenter
- UPMC Specialty Care York Endoscopy
- Susquehanna Valley Surgery Center
- West Shore Surgery Center (**JV**)

**IV. PRINCIPLE**

- a. The FSPP Blood Glucose Test Strips use proprietary glucose-specific chemistry that includes dehydrogenase enzyme, NAD cofactor, and PQ mediator. This chemistry is used for testing glucose because it is not affected by maltose, icodextrin, and other common substances at normal therapeutic levels. It also ensures minimal measurement bias from oxygen, hematocrit, and other physiological variables.
- b. When the blood sample is applied to the test strip, the glucose in the blood reacts with chemicals to produce a small electrical current. This current is measured displaying a result on the meter screen. The size of the current depends on the amount of glucose in the sample.

**V. TEST ORDER/ACCESS**

- a. Requests for bedside POC glucose testing are initiated by the licensed independent practitioner as an electronic order in the patient electronic medical record (EMR).
  1. Orders may also be placed by nursing staff on behalf of the physician, which is then routed back to the ordering physician for approval.
  2. Specific testing frequencies as well as any other pertinent clinical instructions are captured in the Electronic Communication order.
- b. Responsibility / Access / Log-On:
  1. Authorized users are granted access to meter operation via ID badge (Employee ID Barcode) once successful participation in training and competency have been achieved.

**VI. SPECIMEN**

- a. Approved specimen types (collection methods)
  1. Capillary, venous, or arterial fresh whole blood as well as neonatal whole blood samples. Test immediately.
  2. Blood samples in anticoagulants (Lithium Heparin) are acceptable if tested within 30 minutes of collection. Specimen must be labeled with 2 patient identifiers (Medipac/chart label preferred).
    - IFU indicates EDTA anticoagulant are acceptable for collection this has not been validated at UPMC and should not be used.

**VII. PERFORMANCE CHARACTERISTICS**

- a. Performance of the test strip and meter has been evaluated and approved by the UPMC Laboratory Service Center (LSC) and clinical studies.
- b. Reportable Range: 20 – 500 mg/dL
- c. Sample Volume: 0.6  $\mu$ L minimum
- d. Test Time: 5 seconds

**VIII. EQUIPMENT AND MATERIALS**

- a. Abbott FreeStyle Precision Pro Meter
- b. Docking Station / LAN Tronix or DigiBox Terminal Server
- c. Abbott FreeStyle Precision Pro Blood Glucose Test Strips
- d. Medi-Sense® Glucose and Ketone Control Solutions (Low and High)
- e. RNA Medical Glucose and  $\beta$ -Ketone Calibration Verification Controls
- f. Abbott FreeStyle Precision Pro Meter Quick Reference Guide
- g. Gloves
- h. 70% Isopropyl Alcohol Wipes
- i. 2" x 2" Gauze Pads

- j. Approved hard-surface disinfectant cleaning wipes
- k. Single-use Lancet
- l. Employee ID badge

## IX. STORAGE AND HANDLING

### a. Abbott FreeStyle Precision Pro Test Strips

1. **DO NOT OPEN STRIPS IN ADVANCE.**
2. Sealed in individual foil packets, labeled with a barcode. The barcode contains the test strip type, lot number, expiration date, control solution ranges and lot specific calibration information.
3. Store the strips at temperature between 39°F and 86°F (4°C and 30°C) in original packaging. Storage outside this range may cause erroneous results. Keep away from heat and direct sunlight.
4. Do not use the test strips beyond the expiration date.
5. Use the test strip immediately after opening.
6. Do not scan a packet's barcode and then use a test strip from another packet.
7. Do not use wet, bent or damaged test strips.
8. Use the test strip only once and discard.
9. Do not use the test strip if the foil packaging has a puncture or tear.

### b. MediSense® Glucose and Ketone Control Solutions: Low and High

1. Storage must be between 39°F and 86°F (4°C and 30°C).
2. Product expires 90 days after opening.
  - Write the new expiration date on the control vials or preprinted stickers after opening. Do not use controls beyond the expiration date or the unopened manufacturer expiration date, whichever is sooner.
3. Do not swallow or inject the solution.

### c. Evaluate Meter Prior to Use

1. Turn meter on by pressing On/Off button and observe display. Meter will display "*Running Self-Tests, Please Wait*" and then display Main Menu.
2. Items displayed include current date and time, battery status, wireless connectivity status, **1-Patient Test, 2-Control Test** and any overdue tasks such as quality control (QC) testing or meter uploading.
3. If meter indicates "*QC Due Now*", quality control must be completed before patient testing can be performed.
4. If meter indicates "*Upload Overdue*", this is a warning that the meter has not transmitted results in the last 12 hours. Patient testing can still be performed by selecting #1 – **Continue**. Docking the meter in a docking station will allow results to transmit and the warning will be satisfied.

5. To replace batteries, remove back cover and replace with 2 new AA non-rechargeable batteries, observing orientation diagram in battery compartment. Replace cover.

- Data is not affected if batteries are removed.

NOTE: The Clear Key is used to clear a scanned entry, clear a numerical code entry, to back up one space or to return to a previous menu.

**X. QUALITY CONTROL**

- a. Quality control (QC) samples evaluate and ensure the accuracy of the meter. In addition to scheduled QC and required QC, it is important to evaluate the performance of the meter if unusual situations occur. Some examples of when additional QC should be run are included in the list below. The list is not all inclusive and QC should be run anytime an adverse event concerning the meter or the strips is suspected. If unsure, non-scheduled QC may be necessary; please consult with the POC Coordinator/laboratory. Perform if any of the conditions are true:
  1. Meter display indicates QC testing is due. QC to be run every 24 hours-both high and low when in use for patient testing.
    - All meters have an automatic lock-out feature enabled that prevents patient testing from being performed until successful quality control (both low and high) is obtained. Meter will display *PASS / FAIL*.
  2. Whenever it is suspected that the meter or test strips are not working properly, or patient testing results are questioned.
  3. When liquid enters the test strip port protector.
  4. If meter was dropped.
  5. POC Department only: When the test strip port is removed or replaced.

b. Quality Control Step-by-Step Procedure

<b>Power on meter and Select #2 - Control test.</b>	
<i>Scan or Enter Operator ID</i> = Press SCAN button and scan EMP ID barcode on back of ID badge.	“NOT on the Operator List” indicates person has not successfully completed training or competency requirements – contact the POC Department.
<i>Scan or Enter Low Level Solution Lot</i> = scan barcode on the low solution QC bottle	
<i>Scan or Enter Strip Lot</i> = Scan the strip lot barcode on strip package	
<i>Insert Strip.</i>	Keep meter in a horizontal position
Invert QC bottle 3 to 4 times. Wipe tip of QC bottle	Do NOT shake - introduction of bubbles will cause test to fail.
<i>Apply Low Solution.</i>	
When the correct amount of solution is applied, meter will display <i>Sample Accepted</i> .	

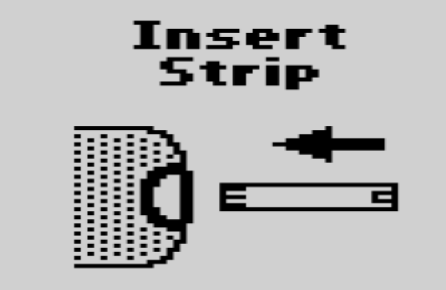
Wipe tip of QC bottle. Recap bottle promptly after use.	
Meter will display <i>Analyzing Sample</i> and will begin a 5-second countdown	When 3 seconds are left, the meter will start beeping to alert that the test is almost done. Do not remove strip until test is complete.
Meter will display the <i>PASS/FAIL</i> status of the QC. If QC status indicates <i>PASS</i> , no further action is required	
Select #1- <b>Next Level</b> and repeat steps above using the High Control Solution	
If the result of the High QC status indicates <i>PASS</i> , select #1- <b>Exit</b> to exit test menu	
If the QC status of either test indicated <i>FAIL</i> , select #2 – <b>Repeat Test</b> .	<ol style="list-style-type: none"> <li>1. Evaluate supplies (test strips / QC vials) as well as technique; replace any expired supplies and/or correct any user technique.</li> <li>2. If QC fails after replacing supplies, use another meter for the patient test. Return failed meter to POC department.</li> </ol>

**XI. CALIBRATION VERIFICATION (LINEARITY)**

- a. Calibration verification is performed by the POC Coordinator/laboratory upon receipt of new meter or for troubleshooting as needed..
- b. If the performance of the analyzer is in question, contact the POC department to determine if calibration verification is required.

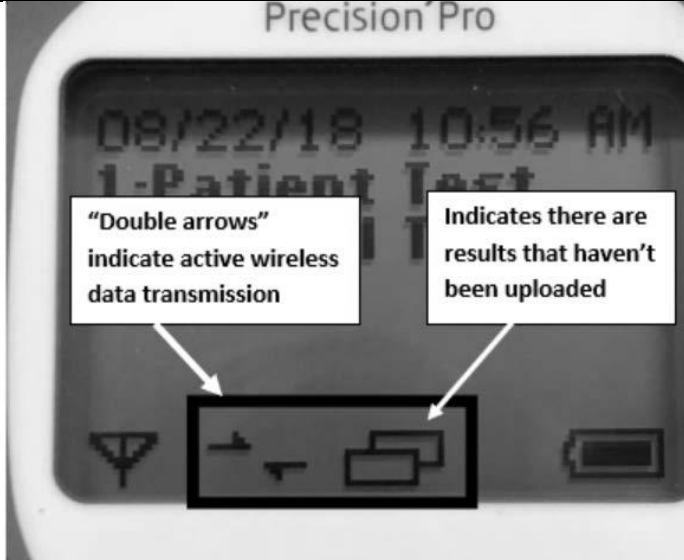
**XII. TESTING PROCEDURE**

Perform hand hygiene ( <u>HS-IC0615</u> ) and don general use gloves using standard precautions.	
Prepare patient by explaining the procedure and verifying patient identity. Compare patient name and date of birth located on patient arm band to information in EMR or asking the patient to state their name and date of birth.	
Power meter on and Select #1 – <b>Patient Test</b> .	
<i>Scan or Enter Operator ID</i> = Scan EMPLOYEE ID (EMP-ID) barcode on the back of the employee badge.	Sharing of badges or operator IDs is prohibited.
<i>Scan or Enter Patient ID</i> = Scan patient FIN/CSN barcode directly from the patient arm band.	<ul style="list-style-type: none"> <li>• Manual entry of patient ID will require ID be re-entered for confirmation.</li> </ul>

	<ul style="list-style-type: none"> <li>• Emergencies that involve testing on a non-registered patient, scan the generic STAT barcode provided in the carrying case (if applicable) or manually enter zeros or nines. Western PA utilizes 13 digits and Central PA utilizes 9 digits total.             <ul style="list-style-type: none"> <li>○ POC department must be notified in writing (email, fax, form) to include the PATIENT NAME, FIN/CSN, DATE, TIME, RESULT.</li> <li>○ Failure to complete will cause the result to not display to the patient’s chart.</li> </ul> </li> <li>• Self-testing is prohibited.</li> </ul>
<p><i>Scan or Enter Strip Lot = Scan test strip barcode.</i></p>	
<p><i>Insert Strip</i></p>	
<p><i>Apply Arterial or Capillary Sample.</i></p>	<p>Keep meter in a horizontal position</p>
<p>Capillary Whole Blood Sample:</p> <ol style="list-style-type: none"> <li>1. Use the side of patient’s fingertip for testing. Heel-stick sampling can be performed for infants only.</li> <li>2. Clean with a 70% Isopropyl Alcohol Wipe to ensure effective disinfection. Ensure site is completely dry prior to lancing to prevent dilution of specimen.</li> <li>3. Puncture the skin using a single-use lancing device.</li> <li>4. Wipe the first drop of blood from the puncture site.</li> <li>5. Encourage blood flow using a repetitive, gentle press-release action.</li> </ol>	

<p>➤ Do not squeeze. Strong repetitive pressure may cause hemolysis or tissue fluid contamination of the specimen.</p> <p>6. Apply blood sample to the tip of the test strip.</p>	
<p>Venous Blood Sample:</p> <ol style="list-style-type: none"> <li>1. Ensure sampling site is clean and dry before venipuncture.</li> <li>2. Collect the venous blood in a vacutainer collection tube containing Lithium Heparin.</li> <li>3. Make sure that the tube is filled to the stated volume. <ul style="list-style-type: none"> <li>• DO NOT UNDERFILL.</li> </ul> </li> <li>4. Invert the tube containing the blood 7-8 times before use.</li> <li>5. Sample to be used immediately or within 30 minutes of collection.</li> </ol>	
<p>Arterial Blood Sample-Line Draw:</p> <ol style="list-style-type: none"> <li>1. Flush, discard 5-10cc of blood from arterial line before collecting the sample into a heparinized syringe. Apply patient label.</li> <li>2. Mix the blood sample well immediately before use.</li> <li>3. Sample to be used immediately or within 30 minutes of collection.</li> </ol>	
<p>Once sample is applied, meter will display <i>Sample Accepted</i> and, if enabled, emit an audible beep.</p>	
<p>Meter will display <i>Analyzing Sample</i> and will begin a 5-second countdown.</p>	<p>When 3 seconds are left, the meter will start beeping to alert you that the test is almost done. Do not remove strip until test is complete.</p>
<p>Remove the test strip after the result is displayed.</p>	<p>Removing prematurely will result in an error message being displayed and the test will need repeated.</p>
<p>Press the ENTER button to accept this result.</p>	<p>If there is a known or suspected issue with the testing/result, the code #7 for Procedure Error should be utilized. This will suppress the result from crossing to the EMR and the test must be repeated immediately.</p>
<p>Meter will display #1 – <i>Next Patient</i>, #2 <i>Patient History</i>. Press menu key to return to the Main Menu to wirelessly transmit glucose results.</p>	



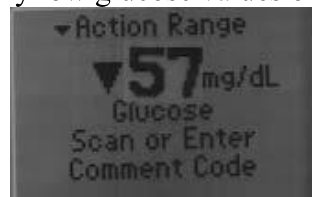
	
<p>When the meter powers down, wireless transmission of any stored results will occur.</p>	<p>The following screen displays,</p>
<p>Clean meter using bleach wipe. Follow cleaning product instruction for appropriate wet/dry time.</p>	
<p>If the results do not transmit wirelessly, place meter in the docking station for uploading of results to patient EMR. The results should be interfaced into EMR within 5 minutes.</p>	<p>Meter will display <i>Last Upload Successful</i> if properly working. Meter will display <i>Last Upload Incomplete – Re-dock the meter</i> if not working properly. If after re-docking, the display still shows <i>Last Upload Incomplete – Re-dock the meter</i> or the results are not posting to the EMR contact the POC department.</p>
<p>If an Error Message is generated, follow the instructions displayed on the screen. If an Error Code rather than an Error Message is generated, repeat the patient test. If Error Code recurs, return meter to laboratory.</p>	

**XIII. REPORTING RESULTS**

- a. **Western PA** (All facilities in scope except UPMC Carlisle, Memorial, Lititz and Hanover):

Reference (Normal) Range:	Critical Range:
70 – 99 mg/dL (fasting)	Adult: $\leq 50$ or $\geq 500$ mg/dL
<140 mg/dL (non-fasting)	Pregnant: $\leq 50$ or $\geq 250$ mg/dL
	Neonates: $\leq 30$ or $\geq 250$ mg/dL

- b. Results display on the meter as a numeric value. Once the meter returns to the main menu or is powered off, the result information will interface with the EMR.
- c. The POC meters have a limited range in which values can be reported, this is called the reportable range. When the result is out of the reportable range (display will show < or > signs) a true value can only be obtained by sending a sample to the laboratory. The UPMC meters have a reportable range of 20 to 500 mg/dL.
- d. Critical Values require immediate repeat testing to confirm result. Both results must be accepted and displayed in the patient’s chart. Do not use a procedure error code for the initial critical value.
- Exception – repeat is not required for neonates or patients that are already under current protocol/treatment for hypoglycemia.
  - If the two critical results are inconsistent, repeat a third time for confirmation or send a sample to the main lab for confirmation.
  - Do not delay hypoglycemic treatment during repeat testing.
- e. Low Glucose Results
1. The Hypoglycemic Treatment Protocol is initiated with values less than 70 mg/dL, which includes critically low glucose values of  $\leq 50$  mg/dL.



2. Hypoglycemic events are documented using the Hypoglycemic Event Treatment form within Cerner and includes documentation of physician notification.
  - eRecord instruction for hypoglycemic event protocol are on the Infonet.
3. Certain specialty units (ex. Emergency Departments) document results outside of the hypoglycemic event form within Cerner.
  - If the testing personnel is also the caregiver treating the patient, critical value notification documentation is not necessary.
  - If the testing personnel is not able to provide treatment, the critical value must be communicated to the physician and documented via department protocol (ex. utilizing the “Critical Result Notification” form).
  - This includes patient care areas (i.e. NICU) that have an approved treatment protocol dictating appropriate treatment based on the glucose value. In these

instances, documentation of the protocol utilization will be visible within the patient’s chart in lieu of documentation of communication to the provider.

f. High Glucose Results

1. Critically high values for children and non-pregnant adults (>500 mg/dL) will not report on the glucose meter because the value is above the reportable range. All values >500 must be confirmed by an alternative method to obtain value (i.e. sample sent to main lab, performed on another analyzer such as blood gas instrument).
2. For critical high values that are available from the meter (> 250mg/dL for infants under 1 month and pregnant women):
  - If the testing personnel is also the caregiver treating the patient or the physician is present at the time of testing, critical value notification documentation is not necessary.
  - If the testing personnel is not able to provide treatment, the critical value must be communicated to the physician and documented utilizing the “Critical Result Notification” form located in AdHoc.
    - a. Training on AdHoc documentation is found on the Infonet.

g. Computer (LIS) Downtime

1. Meters are still usable during downtimes.
2. If wireless transmission of results fails, dock meters after patient testing.
3. The end users are required to use the downtime forms for POC testing. **Results will not display in the patient’s EMR until the system is available.**
4. Results are stored in the meter and can be retrieved through the menu mode. To view previous results:
  - Press Menu key.
  - Press Data Review.
  - Meter will display *Scan or Enter Operator ID*.
  - Meter will display Data Review: Select one of the options:
    - a. Patient by OperID.
    - b. Patient by PatID.
    - c. All Patient
  - Results will be displayed in chronological order from most recent to oldest.

h. **Central PA (UPMC Carlisle, Memorial, Lititz and Hanover):**

Reference (Normal) Range:	Critical Range:
70 – 99 mg/dL	Adult: $\leq 50$ or $\geq 400$ mg/dL
0-21 days: 40 – 60 mg/dL 22 days – 2 years: 60 – 105 mg/dL	Newborn: See NICU/SCN Hypoglycemia Guidelines policy Child: $\leq 60$ or $\geq 300$ mg/dL

- i. Results display on the meter as a numeric value. Once the meter returns to the main menu or is powered off, the result information will interface with the EMR.
- j. The POC meters have a limited range in which values can be reported, this is called the reportable range. When the result is out of the reportable range (display will show

- < or > signs) a true value can only be obtained by sending a sample to the laboratory. The UPMC meters have a reportable range of 20 to 500 mg/dL.
- k. Critical Values require immediate repeat testing to confirm result. Both results must be accepted and displayed in the patient's chart. Do not use a procedure error code for the initial critical value.
    - Unexpected results should be confirmed with a laboratory specimen.
    - Do not delay hypoglycemic treatment during repeat testing.
  - l. Low Glucose Results
    1. If a result <70 mg/dL is obtained on an adult patient, the RN will initiate the Hypoglycemia Treatment standing order set.
    2. Any result < 50 mg/dL is considered a critical value and must be repeated with the glucose meter. If the value is <50 mg/dL, the provider will be notified.
      - If the two critical results are inconsistent, repeat a third time for confirmation or send a sample to the main lab for confirmation.
  - m. High Glucose Results
    1. Any result >400 mg/dL is considered a critical value and must be repeated on the glucometer. If the repeat value is >400 mg/dL, the provider will be notified.
      - If the two critical results are inconsistent, repeat a third time for confirmation or send a sample to the main lab for confirmation.
    2. If the testing personnel is also the caregiver treating the patient or the physician is present at the time of testing, critical value notification documentation is not necessary.
    3. If the testing personnel is not able to provide treatment, the critical value must be communicated to the physician and documented in the EHR.
  - n. Computer (LIS) Downtime
    1. Meters are still usable during downtimes.
    2. If wireless transmission of results fails, dock meters after patient testing.
    3. **Results will not display in the patient's EMR until the system is available.**
    4. Results are stored in the meter and can be retrieved through the menu mode. To view previous results:
      - Press Menu key.
      - Press Data Review.
      - Meter will display *Scan or Enter Operator ID*.
      - Meter will display Data Review: Select one of the options:
        - a. Patient by OperID.
        - b. Patient by PatID.
        - c. All Patient
      - Results will be displayed in chronological order from most recent to oldest.

#### **XIV. LIMITATIONS OF THE PROCEDURE**

- a. For patients who meet the following criteria, glucose testing using a capillary specimen (finger stick) on the FSPP **cannot be performed**. Glucose testing must be performed in the laboratory. Use of venous or arterial specimens on the FSPP meter is an acceptable alternative in these cases. However, these specimens can only be tested

- if your facility permits use of venous or arterial specimens on the FSPP meter and you have been trained and deemed competent in those procedures.
1. hematocrit <15%
  2. hematocrit >65%
  3. hyperglycemic-hyperosmolar state (with or without ketosis)
  4. severe dehydration
  5. hypotension
  6. shock
  7. poor perfusion (only venous whole blood can be used, no finger sticks)
  8. undergoing IV infusion of high-dose ascorbic acid
  9. undergoing xylose absorption testing
- b. Use only fresh *whole* blood.
- c. Use strips between environmental temperatures 59°F and 104°F (15°C and 40°C).
- d. An error message will appear, and testing will be disabled if the temperature is outside the operating range.
- e. Caution is advised in the interpretation of neonate glucose values below 50 mg/dL.
- f. Glucose results may be higher than expected if:
1. Hematocrit is  $\leq$ 15%.
  2. Serum or Plasma is used instead of whole blood.
  3. Venous blood tested in arterial/capillary mode.
- g. Glucose results may be lower than expected if:
1. Hematocrit is >65%.
  2. Hyperglycemic-hyperosmolar state (with or without ketosis).
  3. Severe dehydration, hypotension, or shock.
  4. Water or alcohol remains on the puncture site.
  5. Venous or arterial whole blood samples are not tested within 30 minutes after collection.
  6. Arterial or capillary blood tested in venous mode.

## **XV. TRAINING AND COMPETENCY OF TESTING PERSONNEL**

- a. Assessed during orientation and annually thereafter.
- b. Evaluated by Nursing Education and/or POC department.
- c. Initial Training
  1. Access to the Abbott FreeStyle Precision Pro meter is obtained by attending an initial training class at a UPMC facility. Each operator must have successful completion of Learning course and quality control testing.
    - The patient ID may be entered as 44444444444444 for training or scanned using training barcode.
- d. Annual Competency is evaluated annually and includes:
  - Review of quality control record indicating the operator has had a successful quality control test in the last 12 months.
  - Completion of UPMC Abbott FreeStyle Precision Pro Learning which includes a quiz to assess problem solving skills.

**XVI. TROUBLESHOOTING**

- a. Equipment Failure
1. Meters that are inoperable, are to be returned to the laboratory, anytime, any shift. The reason for returning instrument must be provided.
  2. If available, a replacement meter will be issued.

<b>Display Reading</b>	<b>Cause</b>	<b>Remediation</b>
Screen blank	No power	Verify proper battery installation or replace battery
Low Battery	Battery getting low	Replace battery
Last upload incomplete	Error during last dock	Redock the meter
Operator ID is not on the list	Expired operator ID	First dock the meter, If still receiving the error message, contact POC department
Strip error-wet or damaged	The strip is compromised	Remove strip, open a new strip and start again. Press 1 to continue with a new strip or 2 to return to main menu
Numerical error code	Multiple	Contact POC department
Date/Time	Dysfunction of the meter	Redock the meter
displayed in the bottom left corner	Wireless connectivity not working	Dock the meter to transmit all patient results until the issue is resolved.

- b. If the problem cannot be resolved, contact POC department.

**XVII. INSTRUMENT MAINTENANCE / CLEANING**

- a. Exterior Meter Cleaning and Disinfecting
1. Cleaning the exterior surface of the FreeStyle Precision Pro meter daily, or whenever it is visibly dirty, is recommended. Cleaning is the physical removal of organic soil from the meter surfaces. Keeping the meter clean helps ensure that it is working properly and that no dirt gets in the device. Cleaning allows for successful, subsequent disinfection.
    - For cleaning, wipe all outside surfaces of the meter thoroughly, taking care to avoid the strip port opening and the data port connector, until they are visibly clean.
      - a. Note: Squeeze disinfection wipe to remove excess solution before wiping the meter.
    - Discard the wipe used in appropriate waste container.
  2. Disinfection of the meter should be accomplished after use with each patient. Disinfection is a process that destroys pathogens, such as viruses and other microorganisms on the meter surfaces. Disinfecting the meter helps ensure that no infection is passed on when the user or others come in contact with the meter. The meter should be cleaned prior to disinfection with a separate bleach wipe.

- IFU recommends cleaning and disinfection following use on patients – which at a minimum should be daily and as needed if soiled.
- For disinfection, wipe all outside surfaces of the meter thoroughly, taking care to avoid the strip port opening and the data port connector, until they are wet to pre-clean the meter.
  - a. Note: Squeeze disinfection wipe to remove excess solution before wiping the meter.
- Allow the meter surfaces to remain wet for the duration indicated for specific bleach wipe used. Allow the meter to air dry completely before use or before docking the meter.
- Once disinfection is completed, remove gloves, dispose of used gloves and wipe in appropriate waste container, and wash hands thoroughly with soap and water before proceeding to the next patient.

#### **XVIII. QUALITY ASSURANCE ACTIVITIES**

- a. Testing results that have incorrect or generic STAT patient ID entered or scanned will be followed up and an effort to identify patient will be completed by:
  - 1. Notifying the unit and/or testing operator for follow up
  - 2. Replacing patient wristbands with identified defects
  - 3. Removing wristbands on patients from other facilities or visit occurrences.

#### **XIX. POLICIES REFERENCED WITHIN THIS POLICY**

HS-NA0422 Lippincott's Online Nursing Procedures and Skills Manual

HS-NA0424 Carbohydrate Counting and Insulin Dosing

HS-FM0250 Identification Badges (IDs)

HS-IC0615 Hand Hygiene

UPMC PINNACLE NURSING MANAGEMENT GUIDELINE Neonatal Intensive Care Unit/Special Care Nursery: NICU/SCN Hypoglycemia Guidelines

UPMC PINNACLE Bedside Glucose Monitoring BN 10.25

eRecord Reminders and Best Practices – documenting critical values

eRecord Guide: Ad Hoc Charting

eRecord Guide: Documenting a Hypoglycemic Event

**XX. REFERENCES**

- a. *FreeStyle Precision Pro Blood Glucose and B-Ketone Metering System Configuration Guide. (2011)* Alameda, California.
- b. Abbott Diabetes Care Inc. (2009). *FreeStyle Precision Pro Operator's Manual for Healthcare Professionals*. Alameda, California.
- c. BD (2007). *Successful Specimen Collection: Fingersticks*. VS7688-1

**SIGNED:** Joel Yuhas, FACHE  
EVP/UPMC and President, UPMC Hospitals/HSD

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Executive Staff: February 1, 2024

**PRECEDE:** January 27, 2023

**SPONSOR:** Senior Director, Laboratory Service Center

**\* With respect to UPMC business units described in the Scope section, this policy is intended to replace individual business unit policies covering the same subject matter. In-Scope business unit policies covering the same subject matter should be pulled from all manuals.**