

# Capillary Blood Glucose Monitoring using the Nova blood glucose meter (StatStrip or Xpress)

## Site Applicability

All VCH and PHC sites

## Practice Level

Profession	Setting	Basic Competency	Advanced Competency (requiring additional education)
RN, RPN, NP, RD, RT	All PHC, VCH sites	Successfully complete online learning module ( <a href="#">PHC</a> , <a href="#">VCH</a> ) and a competency skill demonstration with a certified user	
LPN	All PHC, VCH sites	Successfully complete online learning module ( <a href="#">PHC</a> , <a href="#">VCH</a> ) and a competency skill demonstration with a certified user	Infants (less than 1 year old)

## Requirements

After initial certification, to maintain your competency you must:

- Perform three patient tests in a 365 day period
- Complete one low (level 1) and one high (level 3) quality control test in a 365 day period
- Successfully complete the Learning Hub quiz annually ([PHC](#), [VCH](#))

Glucose Meter Quality Control Testing (QC) is required once every 24 hours by testing of the low and high control solutions.

## Need to Know

- These devices may be used for neonates, children and adults.
- The measurement range of the Nova StatStrip and Xpress glucose meters is 0.6 to 33.3 mmol/L
- When the meter is not in use place it into the Docking/Charging station to charge it, and to allow it to connect to the network for updates.
- Either capillary, arterial or venous blood are tested through the meter test strip.
- Capillary samples in patients with impaired peripheral circulation, shock, severe dehydration or hypotension may not be accurate. In these situations, venous or arterial samples may be required.
- The Quality Assurance program is managed by Laboratory.

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## Reference Ranges (Blood Glucose)

	Normal Range Random Glucose (mmol/L)	Critical LOW Results (mmol/L)	Critical HIGH Results (mmol/L)	Non Numerical Results (mmol/L)
<b>Neonate</b> (0 to less than 28 days)	2.7 to 7	Less than 2	Greater than 20	Less than 0.6, meter displays – <b>LO</b>
<b>Pediatric</b> (Greater than or equal to 28 days to less than 17 Years)	4.0 to 7	Less than 2.6	Greater than 25	Greater than 33.3, meter displays - <b>HI</b>
<b>Adult</b> (Greater than or equal to 17 Years)	4.0 to 11	Less than 2.6	Greater than 25	

### Hypoglycemia

- Adults- Refer to the [Hypoglycemia, Management in Adults protocol](#)
- Neonates/Pediatrics- Refer to site-specific protocols

### Hyperglycemia (Critical High)

- Confirm by repeating test with a new test strip
- Report to most responsible provider for further interventions and follow-up (Consult provider to determine if serum blood glucose result is warranted prior to treatment based on glucometer value)
- Document results and actions taken in the patient's medical record
- Long Term Care/Assisted Living: When reviewing with MRP incorporate resident wishes and goals of care

### Control Testing (QC- Quality Control)

- QC needs to be performed:
  - Once every 24 hours with high and low control solutions,
  - Upon opening a new vial of test strips or QC solution,
  - If the meter was dropped, or
  - If a patient's glucose results are inconsistent with their clinical presentation.
- Meter will not allow patient testing until QC test is done.
- For meters that are not used on a regular basis, daily checking is not necessary; however, the Quality Control Tests must be performed before you perform a patient test.

## Equipment and Supplies

Nova Stat Strip or Nova Xpress Glucose Meters



Nova Stat

Nova Xpress

### Tote Box containing: (stored flat)

- Alcohol swabs
- 2X2 gauze or tissue
- Lancets
- Gloves

### Control Solutions

- There are two levels of Glucose QC that must be performed as part of a QC test:
  - Level 1 (Low)
  - Level 3 (High)
- Control solutions expire 90 days (3 months after opening).
- Write the date opened and discard date on the vial.

### Test Strips

The expiration date is printed on the vial of test strips. Once opened test strips are stable at room temperature for up to 180 days (6 months). Write the date opened and discard date on the vial, and keep vial tightly closed when not in use

Write discard date and open date on bottle when opened.

### Patient-Owned Meter

Patients who wish to use their own meter may do so with an order from their Most Responsible Prescriber. Accuracy testing of the patient-owned meter is required. Please, refer to the [VCH-PHC Regional Laboratory Point of Care Testing Clinical Standard and Policy](#) for glucometer accuracy requirements.

## Procedure

For Nova Xpress meter (VCH Community, Dogwood Lodge, George Pearson Centre and PHC Arrest Carts): see [Appendix A](#)

### To perform a QC (Nova StatStrip Glucose Meter)

1. From Home screen press LOGIN
2. Staff, enter Employee-ID, Non-Employees see [Operator ID](#)
3. From Patient Test screen press the QC key
4. Barcode scan or enter test strip lot number then press Accept



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5. Barcode scan or manually enter QC control test solution number (1- LO 3-HI) then press Accept
6. Insert test strip into meter
7. Discard one drop of QC control solution to avoid contamination
8. Place a drop from QC bottle to end of test strip, when enough sample has been drawn into strip the meter will sound an audible beep and results will appear within 6 seconds.
  - a. **Note:** The test strip must fill completely upon touching the QC droplet, do not add a second QC drop to the test strip, discard the test strip and repeat the test with a new test strip
9. Result is displayed with either PASS or FAIL
10. Remove the strip manually or use the ejector button on the back of the meter to eject the strip directly into an appropriate disposal
11. To accept the result press Accept key
  - a. **Note** acceptable control assay ranges are printed on the Glucose Control Solutions via label
12. Repeat QC test with either test solution 1 or 3

### Capillary Blood Glucose

**Note:** A heel puncture is performed on an infants from 0-6 months, and may also be performed on infants 6 -12 months. Please, follow site-specific procedures for this population: [VCH PHC](#)

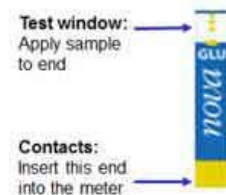
1. Select and prepare the finger puncture site.
  - a. Middle and ring fingers are the preferred site.
    - Index finger may be used as an alternative site.
    - Do not use the thumb or fifth finger.
  - b. Clean the finger with soap and water or alcohol or according to site protocol, and ensure that the finger is clean and dry.
2. Prepare the disposable lancet used by your site.
3. Puncture prepared site
  - a. Gently squeeze puncture site until a sufficient droplet of blood has formed .
  - b. Wipe away first drop with a cotton ball or gauze.
  - c. Apply the second drop to the front edge of the test strip.
    - Keep the meter as level as possible to avoid having blood drip into the test strip port of the glucose meter.
4. Follow steps for [collecting sample](#).

Apply firm pressure to puncture site with clean dry gauze or cotton ball, between 60 to 90 seconds.

## To perform a capillary blood glucose test (Nova StatStrip Glucose Meter)

For Nova Xpress Glucose Meter see [here](#)

1. Confirm patient identity using a minimum of 2 unique identifiers
2. Power up the unit
3. Enter [Operator ID](#) then press Accept key
4. From the Patient Test screen, press the Accept soft key
5. Enter or barcode scan the test strip lot number, then press Accept
6. When the Patient ID screen appears, enter "0" to proceed
  - a. **Note:** Results are not linked to a specific patient identifier
7. Insert the test strip into the meter
8. Follow procedure for performing a [capillary blood glucose](#)
9. Ensure the first drop of blood is wiped away
10. Touch the end of the test strip to the blood drop until the well of the test strip is full and the meter beeps, the test results will appear in 6 seconds
11. Remove the strip manually or use the ejector button on the back of the meter to eject the strip directly into the regular garbage
12. To accept the result press the Accept soft key
  - a. **Note:** a single up arrow displays for an abnormal high result, and 2 up arrows for a critically high value. A single down arrow displays for abnormal low result and 2 down arrows for a critical low value.
13. Record results per site specific documentation practices
14. When patient testing complete, clean and disinfect the StatStrip glucose meter using approved germicidal wipes prior to testing on a new patient.



## Review Patient Results (Nova StatStrip)

**Note:** The recall result meter function may be used by clinicians, but the results are not linked to a specific patient identifier

1. From the **Patient Test** screen, press the **Review** key
2. The **Review Result** screen displays
3. Select how to sort the results by pressing ID, Time/Date, or Type
4. Select the results you want to review
5. Press the **Page Down** or **Page Up** keys to scroll through the stores results
6. Press the **View** key to view the selected result
7. Press the **Previous** key to view the previous result
8. Press the **Next** key to view the next result

## **Cleaning and Disinfecting**

Accelerated Hydrogen Peroxide wipes (e.g. Accel) and surface disinfectant wipes (e.g. CaviWipes) are approved for use on this equipment.

Meters are to be cleaned and disinfected before and after using this equipment. Clean the docking station and tote box weekly.

### **1. Clean the Meter (first wipe)**

- Remove a fresh germicidal wipe from the canister. Wipe the external surface of the meter thoroughly with a fresh wipe.

### **2. Disinfect the Meter (second wipe)**

- Immediately following cleaning, using a new, fresh wipe, thoroughly wipe the surface of the meter (top, bottom, left, and right sides) a minimum of 3 times horizontally followed by 3 times vertically avoiding the bar code scanner and electrical connector.
- Gently wipe the surface area of the test strip port making sure that no fluid enters the port.

### **3. Observe Surface Contact Time**

- Allow meter to air dry for contact time listed on germicidal wipes (1 to 3 minutes).

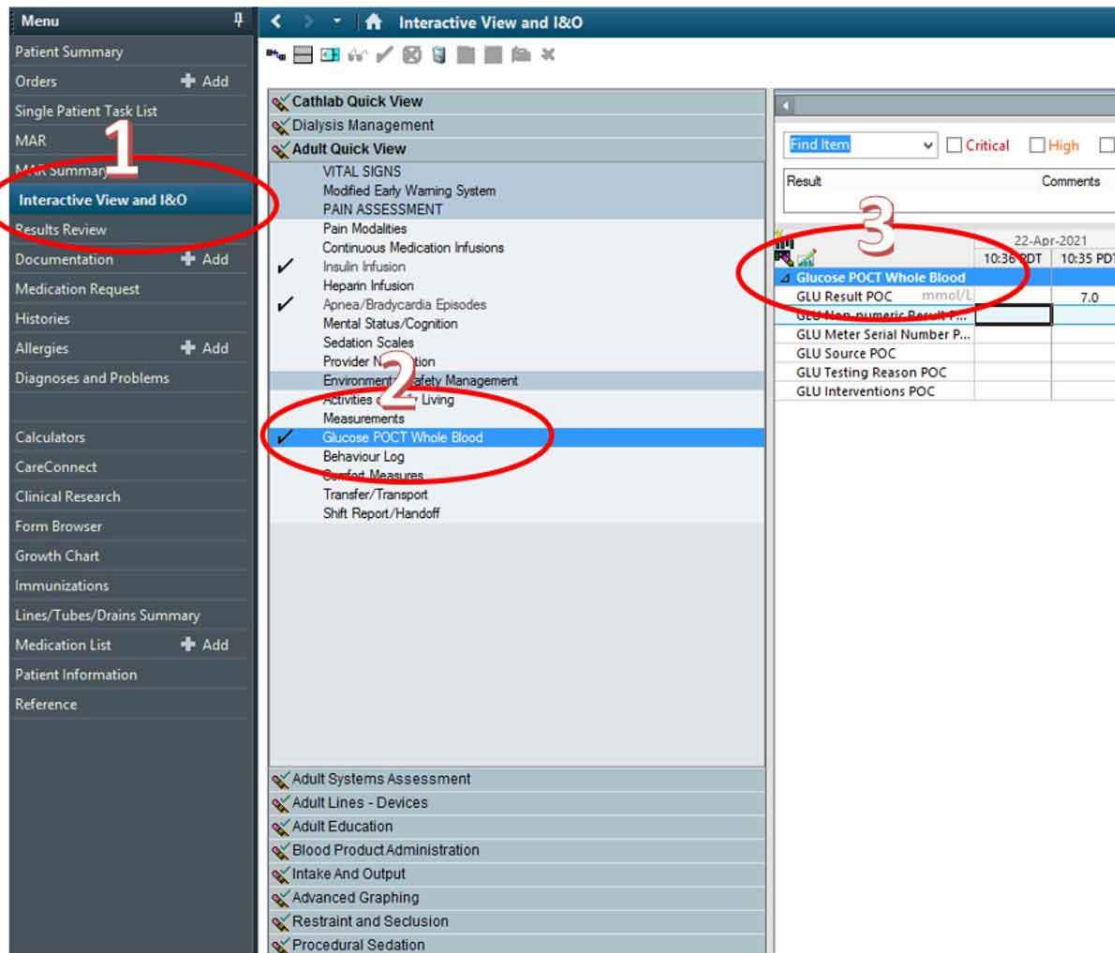
## **Documentation**

### ***Non-Cerner sites***

Document the date/time and actions taken in the client/resident's health record as per program

### ***Cerner sites***

Document in the iView section of the Electronic Health Record



## Related Documents

- [VCH Point of Care Laboratory Testing \(QRG, Troubleshooting\)](#)
- [PHC Point of Care Laboratory Testing \(QRG, Troubleshooting\)](#)
- [VCH Capillary Blood Samples Collection Procedure](#)

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## References

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## Appendix A

### Nova Xpress Glucose Meter - To perform a QC

1. Insert a test strip to turn meter on and begin sample analysis
2. Flashing blood drop appears, this signifies it is time to add sample to strip
3. Press either left or right arrow to scroll and show the control levels  
(Controls will be displayed as "C1" "C2" "C3" noting control levels 1, 2 and 3 respectively.
4. Scroll to the desired level the proceed with adding control level to the strip
5. Discard one drop of QC control solution to avoid contamination
6. Place a drop from QC bottle to end of test strip, when enough sample has been drawn into strip the meter will sound an audible beep and results will appear within 6 seconds.
  - a. **Note:** The test strip must fill completely upon touching the QC droplet, do not add a second QC drop to the test strip, discard the test strip and repeat the test with a new test strip
7. Result shows with date of analysis and QC level
8. Record on QC chart
9. Remove strip from meter and discard
10. Repeat QC test with either test solution 1 or 3



### Xpress Glucose Meter- To perform a capillary blood glucose test

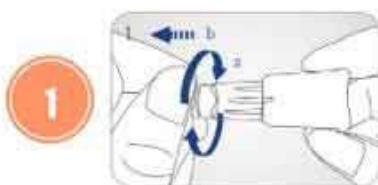
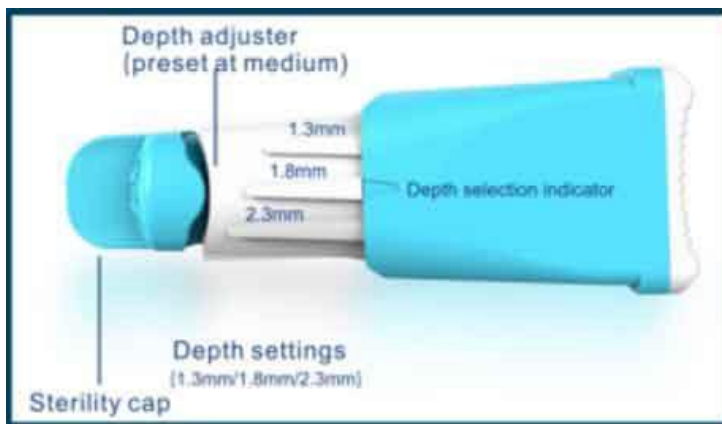
1. Confirm patient identity using a minimum of 2 unique identifiers
2. Insert a test-strip to turn the meter on and begin analysis
3. Follow procedure for performing a [capillary blood glucose](#)
4. Wipe away the first drop of blood, use the second drop for the testing sample.
  - a. **Note:** Results are not linked to a specific patient identifier
5. Touch the end of the test strip to the blood drop until the well of the test strip is full and the meter beeps, the test results will appear in 6 seconds
6. Remove the strip manually or use the ejector button on the back of the meter to eject the strip for disposal.
7. Record results per site specific documentation practices
8. When patient testing is completed the glucose meter should be cleaned and disinfected after use prior to testing with a new patient see [cleaning and disinfecting](#)



## Appendix B: Using the Domrex Sterile Lancet

Prepare the disposable, single use lancet

1. Twist the sterility cap and then pull straight out
2. Adjust the lancet to the appropriate depth setting by rotating the white top
  - a. Shallow (1.3 mm) for sensitive skin, shortest indicator
  - b. Medium (1.8 mm) for normal skin, middle indicator
  - c. Deep (2.3 mm) for callused skin, longest indicator
3. Place the lancet body firmly against the puncture site to activate the device
4. Dispose of the used lancet into a sharps container



*"It is important to completely twist the cap at 360° before removing it and DO NOT apply force to pull it out."*



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## Appendix C: Troubleshooting

Message Display	Cause	Action
Analysis Error	The test strip was removed or lost electrical contact with the meter before completing the test	Insert a new test strip and repeat the test
Analysis Error and Flow Error	Insufficient sample	Repeat testing using a NEW test strip. If error continues to happen, then use an alternative method for confirmation
	Sample was applied incorrectly	
	Meter and/or strip was quickly pulled away from patient while obtaining blood drop	
	Meter and/or strip was not in proper contact with blood drop	
Battery Low	Battery Low	Replace the battery or place the meter into the docking station

### If a QC Test fails

#### 1.) *Is there a problem with the test strips?*

Consider using new test strips and/or QC Solutions

#### 2.) *Was the QC performed correctly?*

Repeat the QC steps

#### 3.) *Is a patient test required urgently?*

Use another meter if available or request a lab sample be taken

## Appendix D: Operator ID

Access to the Nova StatStrip glucometer will be provisioned by the lab once the education and competency requirements have been successfully completed

VCH/PHC Staff	Enter Employee ID
Students	Enter "202023" until Mar 31, 2024 After this date contact your school for your Operator ID
Physicians	88 + College ID or 88 + MSP #
Contracted employees (e.g. agency nurses)	88 + College ID

<b>First Released Date:</b>	05 MAY 2021	
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<b>Last Reviewed:</b>	05 MAY 2021	
<b>Next Review By:</b>	05 MAY 2024	
<b>Approved By:</b> <i>(committee or position)</i>	PHC	VCH
	<b>Endorsed by:</b> PHC Professional Practice Standards Committee	<b>Endorsed By:</b> (Regional SharePoint 2nd Reading) Health Authority Profession Specific Advisory Council Chairs (HAPSAC) Health Authority & Area Specific Interprofessional Advisory Council Chairs (HAIAC) Operations Directors Professional Practice Directors  <b>Final Sign Off:</b> Vice President, Professional Practice & Chief Clinical Information Officer, VCH
<b>Owners:</b> <i>(optional)</i>	PHC	VCH
	<b>Developer Lead(s):</b> Practice Consultant-Clinical Informatics, Professional Practice and Nursing, PHC	<b>Developer Lead(s):</b> Regional Practice Initiatives Lead, Professional Practice Admin Regional, VCH  <b>Developer Member(s):</b> Regional Clinical Educator, VCH

## Revision/Updates

Initial Release Date: May 05, 2021

March 31, 2022 – Minor Update on Appendix D – Changed Student Passcode to 202022.

May 1, 2023 – Minor Update on Appendix D – Changed Student Passcode to 202023.

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