



The next generation in Point Of Care monitoring...

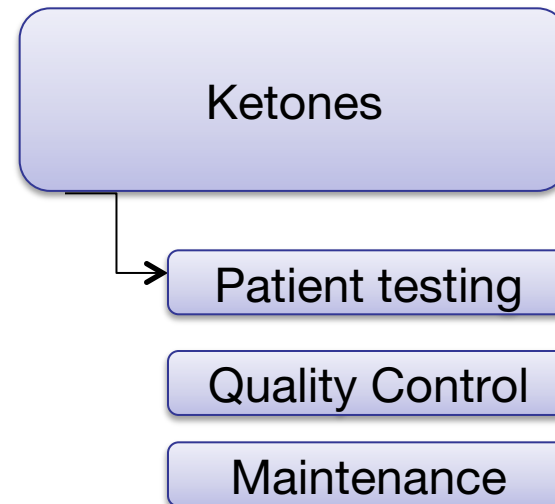
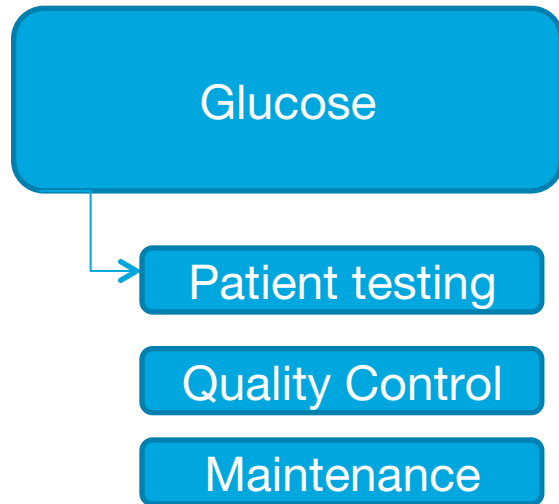
# FreeStyle Optium Neo H



The dedicated hospital blood glucose meter

The FreeStyle NeoH can perform both blood glucose and blood Ketone tests. Ensure to familiarise yourself with both modules.

Click on the module below.



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Optium Neo H

Blood Glucose and Ketone Monitoring System

# An Introduction to FreeStyle Optium NeoH

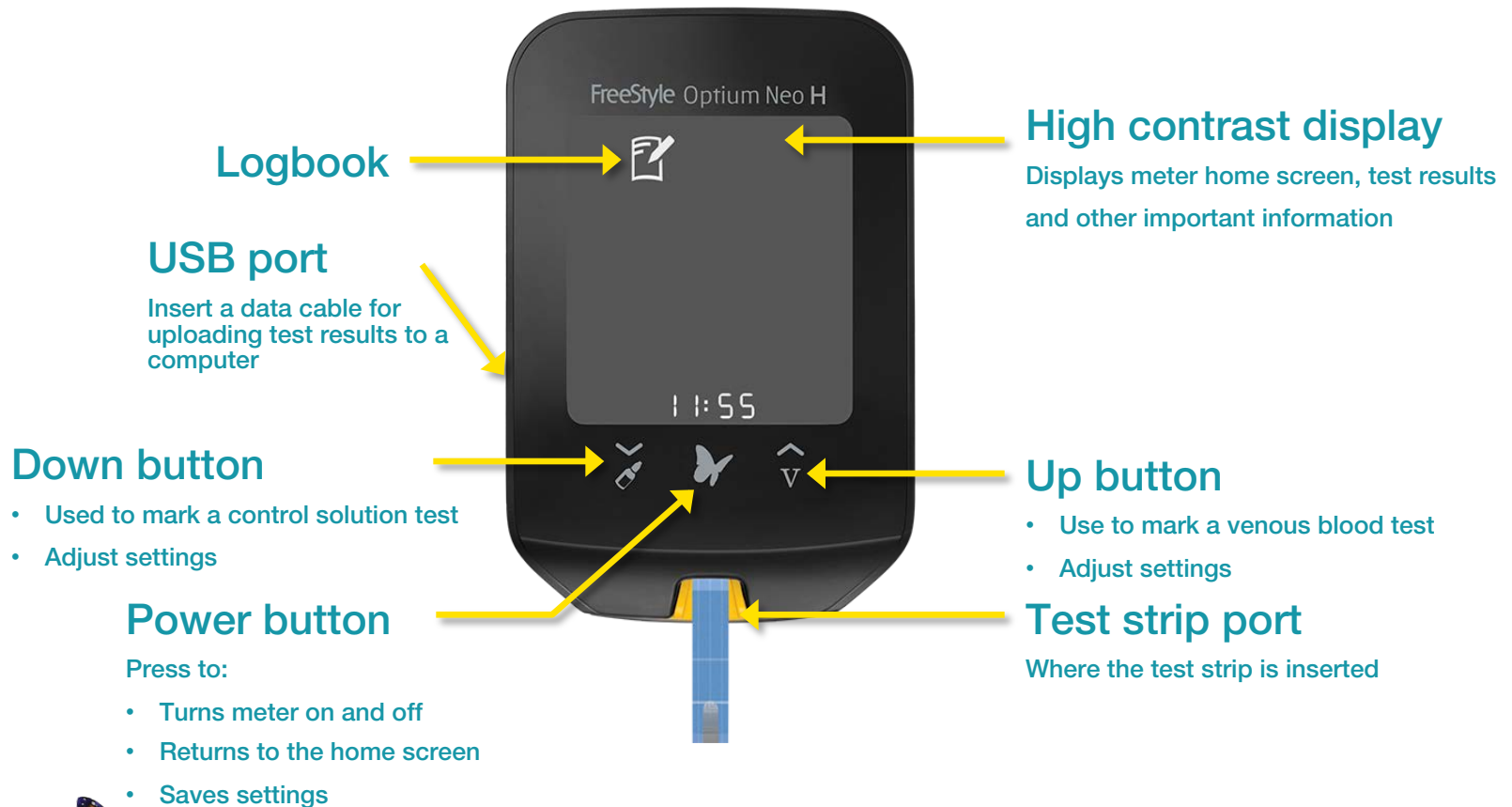


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# The FreeStyle Optium Neo H System at a Glance



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# The FreeStyle Optium Neo H Blood Glucose Test Strip

The FreeStyle Optium Neo H meter is designed to be used only with FreeStyle Optium Neo H Blood Glucose Test Strips.

- 0.6µL sample size
- 5-second result countdown
- Assay range 1.1-27.8 mmol/L
- Haematocrit range 15-65%
- Top or tip sample application
- Visual confirmation of sufficient sample
- Fill trigger ensures sufficient sample
- Sample Types – Capillary, venous, arterial & neonatal
- Each pack contains 100 individually foil wrapped test strips, calibration bar and test strip insert



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# Meter calibration

- The calibration procedure programmes the meter with the lot number, expiry date and test strip technology
- Always calibrate the meter with each new pack of test strips – failure to calibrate properly will cause incorrect results
- With the lot number facing toward you, insert the contact bars of the calibrator into the meter. The meter turns on automatically
- LOT and the lot number appear in the display window
- Check that the lot number on the meter display window matches with the number on the test strip calibrator and the last five digits on both the test strip foil packet and test strip insert
- Retain the calibration bar for the duration of that pack
- Calibration is complete
- Only use the calibrator that is packaged in the pack of test strips you are using



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## Performing a Patient Test

The FreeStyle Optium Neo H system enables easy and accurate bedside testing of blood glucose levels

### Blood glucose testing

- ▶ 5 second test time
- ▶ Small 0.6  $\mu$ L sample size
- ▶ Calibrator provides expiry check and calibrates the meter
- ▶ Control solution mark

# Patient Testing

1. Prepare the sample site:
  - i. Before you obtain a blood drop, make sure the sample site is clean, dry and warm
  - ii. Hang the arm down before lancing the sample site, to help aid blood flow
2. Open the individually foil wrapped test strip at the notch and tear down
3. Insert the test strip into the meter until it stops. This will turn the meter on.
4. Check that the LOT number of test strip you are using matches the LOT number shown on the meter display
5. The  blinks, indicating the meter is ready for you to apply a sample to the test strip
  - i. Ensure you follow organisational policy for sample collection




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# Patient testing

6. If testing glucose on venous blood press the **V** to mark the test until  appears indicating that the meter is now ready for you to apply venous blood to the test strip
7. Apply a sample with the meter in a horizontal (flat) position to avoid it entering the test strip port
8. If you are applying the sample from a syringe, apply away from the direction of the test strip port



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# Patient testing

9. Hold sample to the test strip until 3 short lines appear on the screen



10. The results will be displayed after a 5-second countdown



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# Patient testing

When the result appears on the meter screen the test is complete.

The results will be stored in the meter's memory.

Press and hold the  button to turn off the meter.




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# Summary for blood glucose testing



1. Inserts test strip,  blinks
2. Apply blood
3. Sample detected, 5 seconds countdown begins
4. Result is displayed



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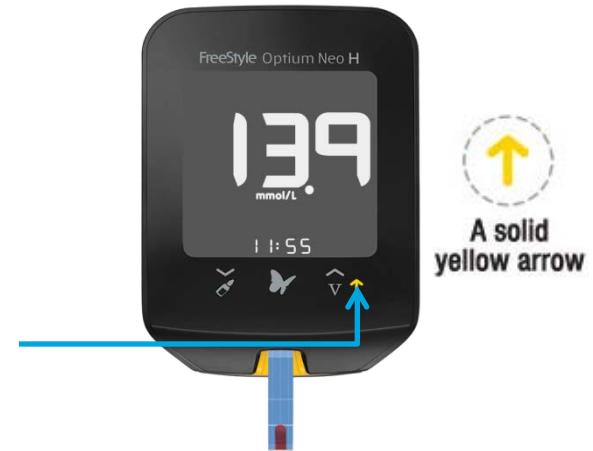
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# Out of range indicators

## High blood glucose results

- A result falling outside the range set by your organisation may require some intervention from the operator, such as repeating the test
  - The meter will display a solid yellow arrow
- For guidance on out of range results, please follow your organisational policy



## Low blood glucose results

- A result falling outside the range set by your organisation will require some intervention from the operator, such as repeating the test
  - The meter will display a solid red arrow
- For guidance on out of range results, please follow your organisational policy



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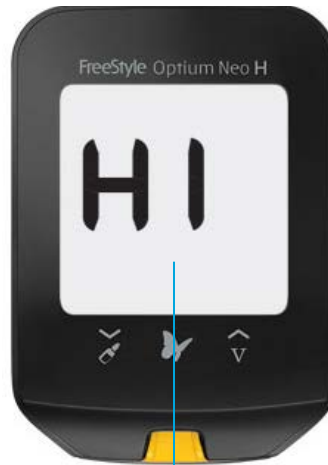
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# Display Messages



**LO**

Result is less than  
1.1 mmol/L



**HI**

Glucose result is  
above 27.8 mmol/L



**KET**

Result is higher than or  
equal to 13.3 mmol/L




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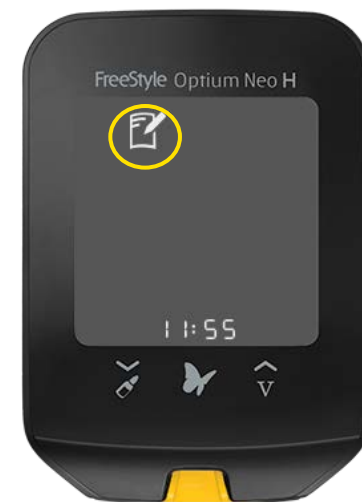
# Results & Memory


The test is complete when the result appears on the meter screen.

- The result is stored in the meter's logbook
- The meter logbook can store up to 1,000 events – including blood glucose, blood ketone, and control solution results, and other meter information
- The logbook can be accessed by going to the Home Screen and selecting 
- To recall patient results:

With the FreeStyle Optium Neo H turned on:

1. Press the  to view logbook events
2. Press  or  to scroll through log book events



While on the Home screen, press  to view logbook events



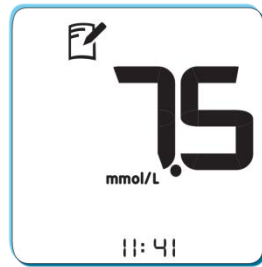
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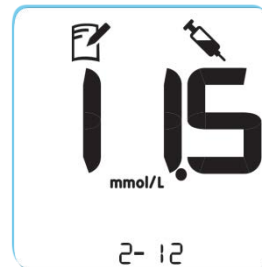
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# Logbook: View Logbook Events

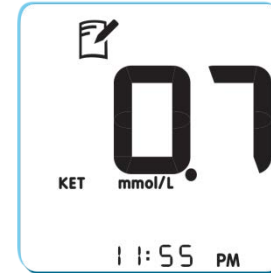
Press  to scroll through to view logbook events



Blood Glucose Result



Venous Blood Result



Blood Ketone Result

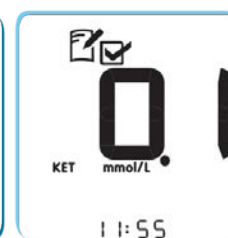
Control solution test results will alternate between 'CtL' and result



Glucose Control  
Solution Result



Ketone Control  
Solution Result



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# Logbook: View Blood Glucose Averages

1. While in the logbook, press  any time to view the 7-day average

2. Press  or  to scroll through 7-, 14- and 30-day averages. Press  to return to logbook events.



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# Error Messages

| Message | What it means  |
|---------|--|
| E1      | Temperature is too hot or too cold for the meter to work correctly   |
| E2/E9   | Meter error  |
| E3      | <ul style="list-style-type: none"><li>i. Blood drop is too small</li><li>ii. Incorrect test procedure</li><li>iii. There may be a problem with the test strip</li></ul>    |
| E4      | <ul style="list-style-type: none"><li>i. The blood glucose level may be too high to be read by the system</li><li>ii. There may be a problem with the test strip</li></ul> |
| E5      | <ul style="list-style-type: none"><li>i. Blood was applied to the test strip too soon</li></ul>  |
| E6      | <ul style="list-style-type: none"><li>i. Calibration error</li><li>ii. Test strip error</li></ul>  |
| E7      | <ul style="list-style-type: none"><li>i. Test strip may be damaged, used or the meter does not recognise it</li></ul>  |



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# Performing a Quality Control Test



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# Performing a Quality Control Test

- If QC testing is NOT performed, misleading results may lead to inappropriate treatment
- Always follow your organisational policy to avoid putting patients at risk
- The FreeStyle Optium Neo H meter may prompt when this is due
- Only use MediSense Glucose and Ketone Control Solutions and keep the meter flat to prevent excess solution running into the meter
- QC Solution is stable for 90 days following opening or until the expiry date printed on the solution bottles, whichever is sooner. Discard and do NOT use control solution past its expiry date
- Check results against the test strip insert inside the pack of test strips being used as QC ranges will vary between test strip LOTs
- It is the responsibility of all users to ensure the meter has been tested before patient use






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# Performing Quality Control (QC) Tests

1. Check that the LOT number printed on the test strip and instructions for use match
2. Open the individual foil test strip at the notch and tear down
3. Insert the test strip into the meter which will turn the meter on
4. When the  blinks press the  button until this icon appears 
5. The meter is now ready for you to apply the low level control solution to the test strip
  - i. Invert the bottle to mix the solution
  - ii. Wipe the QC nozzle with clean gauze before and after each test
  - iii. Replace the cap securely on the bottle immediately after use
7. Apply a drop of the control solution with the meter in a horizontal position to avoid it entering the test strip port



# Performing Quality Control (QC) Tests

8. Apply a drop of the control solution to the test strip until 3 short lines appear on the screen
9. The results will be displayed after a 5-second countdown
  - i. Compare the control solution results to the range printed on the blood glucose test strip insert; the results should fall within this range
  - i. The results will be stored in memory as a control solution result
  - ii. Record the result in the QC record book
10. If results are out-of-range
  - i. Repeat the test
  - ii. If the repeated result is out-of-range follow organisational policy for out-of-range results
11. Remove the test strip, repeat the procedure for high level control solution
12. Record HI and LO QC test result in the QC record book






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# Quality Control Testing Summary



1. Insert test strip,  blinks.
2. Press and hold the  until  appears.
3. The meter is now ready for the operator to apply control solution to the test strip.
4. Apply control solution.
5. Sample detected, countdown begins.
5. Result is displayed.

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# Maintenance



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# Maintenance of the meter

1. Gently clean the exterior of the FreeStyle Optium Neo H meter with a damp cloth
  - i. Acceptable cleaning solutions include mild detergent and water, 70% isopropyl alcohol or a mixture of 1 part household bleach and 9 parts water
  - ii. Do not immerse the meter in water or other liquids. Avoid getting dust, blood, control solution and any other substances in the test strip port, USB port and battery compartment
  - iii. Allow the meter to dry
2. Do not try to clean the test strip port.
3. Do not pour liquid into the test strip port or onto the buttons.
4. Do not immerse the meter in water or any other liquid.



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# Maintenance of the meter

1. Replace coin cell batteries when 'Low Battery Power' message is displayed
  1. The meter requires 2 replaceable CR2032 coin cell batteries.
  2. To change the batteries turn the meter over and slide the battery door (located on the side of the device) open, as shown.
2. Perform QC test as per organisational policy
3. Refer to troubleshooting guide in FreeStyle Optium Neo H operator's manual for error messages
4. When not in use, always store the FreeStyle Optium Neo H meter as per organisational policy



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## Blood $\beta$ -Ketone Testing with FreeStyle Optium Neo H

The FreeStyle Optium Neo H system enables easy and accurate bedside testing of blood ketone levels

### Blood ketone testing

- ▶ 10 second test time
- ▶ 1.5  $\mu$ L sample size
- ▶ Purple calibrator calibrates the meter
- ▶ Control solution mark

# An Introduction to FreeStyle Optium NeoH



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# The FreeStyle Optium Neo H System at a Glance



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# FreeStyle Optium H Blood $\beta$ -Ketone Test Strips

The FreeStyle Optium H Blood  $\beta$ -Ketone Test Strip:

- 1.5  $\mu$ L sample size
- 10-second result countdown
- Assay Range 0.0-8.0 mmol/L
- Haematocrit Range 30-60%
- Top or tip sample application
- Visual confirmation of sufficient sample
- Fill trigger ensures sufficient sample
- Sample Type – capillary (finger) and venous whole blood samples
- Each pack contains 10 individually foil wrapped test strips, calibration bar and test strip insert



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# $\beta$ -Ketone Benefits

## Clinical accuracy

- Measures  $\beta$ -hydroxybutyrate (the most significant ketone body)
- A quantitative vs. qualitative measure
- Results unaffected by many common medications

## Patient convenience/compliance

- Blood vs. urine sampling
- Foil wrapped test strips
- Test integrated within blood glucose meters



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# Meter calibration

- The calibration procedure programmes the meter with the lot number, expiry date and test strip technology
- Always calibrate the meter with each new pack of test strips – failure to calibrate properly will cause incorrect results
- With the lot number facing toward you, insert the contact bars of the calibrator into the meter. The meter turns on automatically
- LOT and the lot number appear in the display window
- Check that the lot number on the meter display window matches with the number on the test strip calibrator and the last five digits on both the test strip foil packet and test strip insert
- Retain the calibration bar for the duration of that pack
- Calibration is complete
- Only use the calibrator that is packaged in the pack of test strips you are using



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# Performing a Patient Test




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# Patient Testing

1. Prepare the sample site:
  - i. Before you obtain a blood drop, make sure the sample site is clean, dry and warm
  - ii. Hang the arm down before lancing the sample site, to help aid blood flow
2. Open the individually foil wrapped test strip at the notch and tear down
3. Insert the test strip into the meter until it stops. This will turn the meter on.
4. Check that the LOT number of test strip you are using matches the LOT number shown on the meter display
5. The  blinks, indicating the meter is ready for you to apply a sample to the test strip
  - i. Ensure you follow organisational policy for sample collection




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# Patient testing

6. If testing ketones on venous blood press the **V** to mark the test until  appears indicating that the meter is now ready for you to apply venous blood to the test strip
7. Apply a sample with the meter in a horizontal (flat) position to avoid it entering the test strip port
8. If you are applying the sample from a syringe, apply away from the direction of the test strip port



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# Patient testing

9. Hold sample to the test strip until 3 short lines appear on the screen



10. The results will be displayed after a 10-second countdown



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# Patient testing

When the result appears on the meter screen the test is complete.

The results will be stored in the meter's memory.

Press and hold the  button to turn off the meter.



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# Display Messages

| Message | Explanation             |
|---------|-------------------------|
| HI      | Result above 8.0 mmol/L |

This appears when a result is higher than 8.0 mmol/L  
This suggests very high blood ketone levels or that there may be an error with the test strip  
Repeat the test with a new test strip  
This requires immediate action as defined by your facility's policies and procedures




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# Blood Ketone Testing summary



1. Insert ketone test strip  blinks and **KET** appears
2. Apply blood
3. Sample detected, 10 seconds countdown begins
4. Result is displayed



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# Error Messages

| Message | What it means  |
|---------|--|
| E1      | Temperature is too hot or too cold for the meter to work correctly   |
| E2/E9   | Meter error  |
| E3      | <ul style="list-style-type: none"><li>i. Blood drop is too small</li><li>ii. Incorrect test procedure</li><li>iii. There may be a problem with the test strip</li></ul>    |
| E4      | <ul style="list-style-type: none"><li>i. The blood glucose level may be too high to be read by the system</li><li>ii. There may be a problem with the test strip</li></ul> |
| E5      | <ul style="list-style-type: none"><li>i. Blood was applied to the test strip too soon</li></ul>  |
| E6      | <ul style="list-style-type: none"><li>i. Calibration error</li><li>ii. Test strip error</li></ul>  |
| E7      | <ul style="list-style-type: none"><li>i. Test strip may be damaged, used or the meter does not recognise it</li></ul>  |



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# Performing a Quality Control Test



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# Performing a Quality Control Test

- If QC testing is NOT performed, misleading results may lead to inappropriate treatment
- Always follow your organisational policy to avoid putting patients at risk
- The FreeStyle Optium Neo H meter may prompt when this is due
- Only use MediSense Glucose and Ketone Control Solutions and keep the meter flat to prevent excess solution running into the meter
- QC Solution is stable for 90 days following opening or until the expiry date printed on the solution bottles, whichever is sooner. Discard and do NOT use control solution past its expiry date
- Check results against the test strip insert inside the pack of test strips being used as QC ranges will vary between test strip LOTs
- It is the responsibility of all users to ensure the meter has been tested before patient use






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# Performing Quality Control (QC) Tests

1. Check that the LOT number printed on the test strip and instructions for use match
2. Open the individual foil test strip at the notch and tear down
3. Insert the test strip into the meter which will turn the meter on
4. When the  blinks press the  button until this icon appears 
5. The meter is now ready for you to apply the low level control solution to the test strip
  - i. Invert the bottle to mix the solution
  - ii. Wipe the QC nozzle with clean gauze before and after each test
  - iii. Replace the cap securely on the bottle immediately after use
7. Apply a drop of the control solution with the meter in a horizontal position to avoid it entering the test strip port



\*KET will appear on the screen as a purple ketone test strip has been inserted



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# Performing Quality Control (QC) Tests

8. Apply a drop of the control solution to the test strip until 3 short lines appear on the screen
9. The results will be displayed after a 10-second countdown
  - i. Compare the control solution results to the range printed on the blood glucose test strip insert; the results should fall within this range
  - i. The results will be stored in memory as a control solution result
  - ii. Record the result in the QC record book
10. If results are out-of-range
  - i. Repeat the test
  - ii. If the repeated result is out-of-range follow organisational policy for out-of-range results
11. Remove the test strip, repeat the procedure for high level control solution
12. Record HI and LO QC test result in the QC record book






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# Quality Control Testing Summary



1. Insert test strip,  blinks.
2. Press and hold the  until  appears.
3. The meter is now ready for the operator to apply control solution to the test strip.
4. Apply control solution.
5. Sample detected, countdown begins.
5. Result is displayed.

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# Maintenance



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# Maintenance of the meter

1. Gently clean the exterior of the FreeStyle Optium Neo H meter with a damp cloth
  - i. Acceptable cleaning solutions include mild detergent and water, 70% isopropyl alcohol or a mixture of 1 part household bleach and 9 parts water
  - ii. Do not immerse the meter in water or other liquids. Avoid getting dust, blood, control solution and any other substances in the test strip port, USB port and battery compartment
  - iii. Allow the meter to dry
2. Do not try to clean the test strip port.
3. Do not pour liquid into the test strip port or onto the buttons.
4. Do not immerse the meter in water or any other liquid.



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# Maintenance of the meter

1. Replace coin cell batteries when 'Low Battery Power' message is displayed
  1. The meter requires 2 replaceable CR2032 coin cell batteries.
  2. To change the batteries turn the meter over and slide the battery door (located on the side of the device) open, as shown.
2. Perform QC test as per organisational policy
3. Refer to troubleshooting guide in FreeStyle Optium Neo H operator's manual for error messages
4. When not in use, always store the FreeStyle Optium Neo H meter as per organisational policy



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# Congratulations on completing this module



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