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# **TEE2+ Blood Glucose Meter: Training for Healthcare Professionals**

HEA3904JUL21



# Introduction

## What will be covered in these slides?

- Training on blood glucose meter for Healthcare professionals
- Overview of meter
- Correct Testing Procedures
- Error messages
- Internal Quality Control and External Quality Assurance

## Then

- Assessment
- Certificate of attendance

# Packaging

- TEE2+ blood glucose meter
- 10 TEE2 blood glucose strips
- Quick / QC guide
- User manual & strip insert

**Ensure using only TEE2 strips with the TEE2+ Meter**







**Over 90% of  
inaccuracies result  
from incorrect use of  
blood glucose  
meters**



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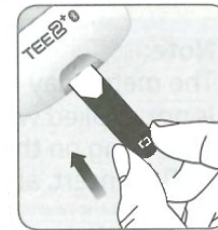
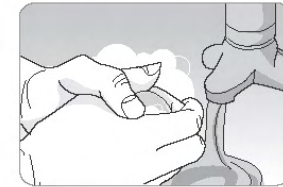
# Storage

- Store strips at room temperature (4-30 °C)
  - DO NOT freeze or store in fridge.
- Store strips in original container with lid closed.
  - Close vial tightly after taking out test strip and use strip immediately.
- Do not expose meter or strips to direct sunlight, heat or humidity
- Keep the meter cool and in a well ventilated place



# Precautions

- Do not drop meter – if you do, order a new one
- Handle strips on edges only with clean & dry hands
- Do not let dirt, dust, blood or water enter the meter strip port
- Avoid contamination – wash & dry hands before handling
- Keep away from sources of electromagnetic radiation especially when measuring
  - e.g. microwave, MRI, Mobile Phone
- Do not force strip into meter. Gentle push or use new strip.
- Do not expose meter or strips to direct sunlight, heat or humidity



# Cleaning

- Clean daily and after each use (Blood or control solution)
- Use a soft cloth or tissue to wipe meter exterior
  - Alcohol may be used if required with caution not to let liquid enter the strip port
- Do not let dirt, dust, blood or water enter the meter strip port
  - If you think it may have order a new meter



# Patient Testing (...1)

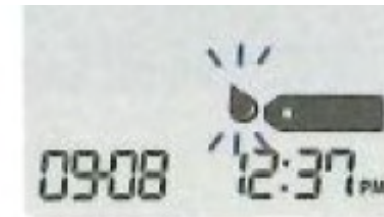
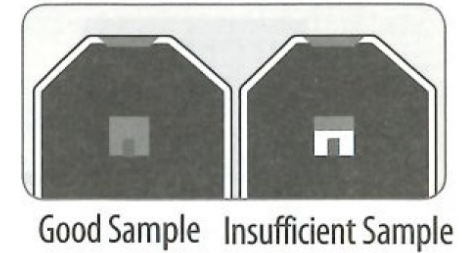
- Get Prepared
  - Blood glucose meter, safety lancet, gloves
- Ensure:
  - ✓ Meter / Strips have had time to get to room temperature
  - ✓ Testing at room temperature (ideal 18-28 °C)
  - ✓ Strips are taken from original container and used immediately
  - ✓ Strips are within expiry date on box
- Wash/dry your hands & sample site with soap and warm water
- Put on clean gloves
- Push test strip into meter gently until beeps. Do not bend strip.
  - Square end in, contact bars facing upwards





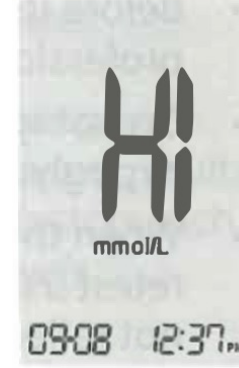
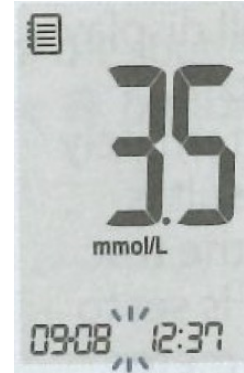
# Patient Testing (...2)

- Press unused safety lancet into side of finger and press button
  - sample needs to be at least 0.4µl
- With blood insertion flashing symbol on screen,
  - ✓ Hold meter vertically, and
  - ✓ Touch sample to pointed end of strip,
  - ✓ Continue touching until beeps.
- Only apply sample once
- Ensure blood sample fills window – if not use new strip
- Test result appears in less than 5 seconds when countdown finishes
- Remove used strip from port
- Meter will turn off after 3 seconds





# Patient Testing (...3)

- Record result as required
- Hi indicates reading more than 33.3mmol/l
- Lo indicates reading less than 1.1mmol/l
- Discuss results with patient as appropriate
- Dispose of test strip, gloves etc. into clinical waste
- Dispose of used lancet in clinical sharps bin
- Clean device after use



# Error Messages

Er 1	<p>A used test strip was inserted.</p> <p>&gt; Repeat the test with a new test strip.</p>	Er 5	<p>This error message may appear when the wrong blood glucose test strip is used instead of TEE2 blood glucose test strip.</p> <p>&gt; Repeat the test with a TEE2 test strip.</p>
Er 2	<p>The blood or control solution sample was applied before the  symbol appeared.</p> <p>&gt; Repeat the test with a new test strip and wait until the  symbol appears before applying the blood or control solution sample.</p>	Er 6	<p>There is a problem with the meter.</p> <p>&gt; Do not use the meter. Contact the Spirit Healthcare 24/7 Freephone Support Line at 0800 881 5423 or go to <a href="http://www.spirit-healthcare.co.uk">www.spirit-healthcare.co.uk</a>.</p>
Er 3	<p>The temperature during the test was above or below the operating range.</p> <p>&gt; Move to an area where the temperature is within the operating range (5–50°C) and repeat the test after the meter and test strips have reached a temperature within the operating range.</p>	Er 7	<p>There is a problem with Bluetooth communication</p> <p>&gt; Contact the Spirit Healthcare 24/7 Freephone Support Line at 0800 881 5423 or go to <a href="http://www.spirit-healthcare.co.uk">www.spirit-healthcare.co.uk</a>.</p>
Er 4	<p>The blood sample has abnormally high viscosity or insufficient volume.</p> <p>&gt; Repeat the test after inserting a new test strip.</p>	Er 8	<p>An electronic error occurred during the test.</p> <p>&gt; Repeat the test with a new test strip. If the error message persists, contact the Spirit Healthcare 24/7 Freephone Support Line at 0800 881 5423 or go to <a href="http://www.spirit-healthcare.co.uk">www.spirit-healthcare.co.uk</a>.</p>

# Internal Quality Control (IQC)

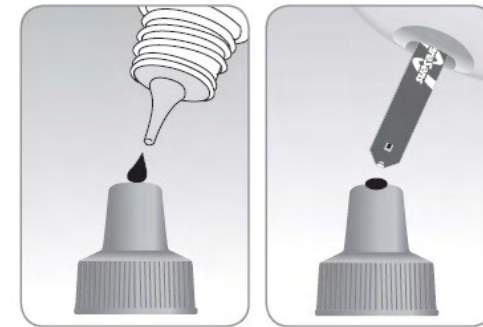
## IQC

- Compare the result obtained with a control solution test to the range on the pack of strips.
- TEE2+ machines test using only TEE2 control solution
- Control solution must be supplied by Spirit Healthcare



# Internal Quality Control (...1)

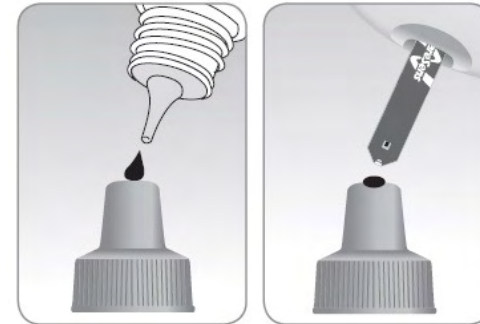
- Test your device **Daily** with control solution
- Follow patient testing procedure except use control solution rather than blood
- Wipe vial top clean with a cloth then ensure dry
- Make sure strips, meters and control solution are at room temperature (20-25 °C) before testing
- Ensure control solution is within date (expiry on box)
  - Discard once expired
- Shake control solution bottle well, discard first few drops, wipe bottle tip clean and then dry.
- Close control solution bottle tightly; store at room temp (8-30 °C)





# Internal Quality Control (...2)

- Squeeze 2-3 drops of control solution on vial top
- Hold meter/strip to this sample for testing
- Ensure meter shows test result – if not retest.
- Compare reading against ranges on the current strip pot
- Use TEE2 control solution for TEE2 strips with TEE2+ meter



# QPoint External Quality Assurance (EQA)

## EQA

- Testing using a sample supplied by an independent third party.
- EQA material is tested the same as a patient sample.
- Unlike QC the user does not know the expected result.
- All participants return results to QPoint who collate data and report findings.

# External Quality Assurance – QPoint

## Registration

- All meters must be registered with QPoint prior to first use
- Following training and receipt of new TEE2+ meter:
  - Advise Spirit Healthcare on [CS@spirit-healthcare.co.uk](mailto:CS@spirit-healthcare.co.uk) of
    - ✓ New TEE2+ meter serial number,
    - ✓ Your workplace full address and
    - ✓ Your workplace contact details and;
    - ✓ If appropriate previous meter serial number
  - Spirit Healthcare will register your new meter with QPoint

# QPoint External Quality Assurance

Example QPoint letter & sample packs



**Qpoint** Surrey Pathology Services **NHS** Page 1 of 2  
Glucose Quality Assessment Scheme  
Tel: 01252 335395 Fax: 01252 335395 Email: office.sps@nhs.net 27168F

PMID 27168F  
Diabetic Retinal Screening

Circulation Ref 2013/12 Lot# 2013.12.A  
Meter Serial #  
Your Result 27.0 mmol/L  
Other Meters (average) 23.8 mmol/L  
Total No. of Results 160

**Green**  
Good result

51  
0908 2:37  
TEES 9

Prepare your Careless II meter:  
Cut sachet across neck of bottle  
shape. Insert sachet and drip  
solution on to past of cleavageless  
finger. Test as if blood.  
Enter results on line or on reply slip  
and return promptly.

Please sign and date on the reverse where indicated

HCP Closing Date 22/1/2014  
Return Results by: 22/1/2014 Sample PMID 2  
Online - [www.nhsqpoint.org.uk](http://www.nhsqpoint.org.uk)  
Fax - 01252 335395  
Post - tear off slip and post it to us  
Circulation Ref 2014/1  
Please print clearly  
Glucose Result (mmol/L)  
Test Strip Lot #  
Strip Lot Exp. Date  
Meter Serial #  
Date Of Test  
Test Performed By

Forward To:  
Qpoint EQAS  
Surrey Pathology Services  
Aldershot Centre for Health  
Hospital Hill  
Aldershot  
Hants  
GU11 1AY

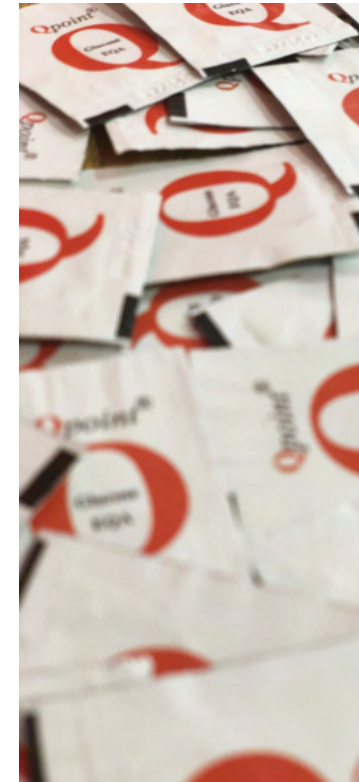
Comments

These results are confidential but may be shared with relevant third parties as stated in the participants manual. © Qpoint 2013

- Return QPoint sample results via:
  - [www.nhsqpoint.org.uk](http://www.nhsqpoint.org.uk)
- For help call QPoint direct on:
  - 01252 335396
- Spirit are not able to assist with this part of the process

# QPoint External Quality Assurance (...1)

- A monthly sample will be sent by QPoint to registered meter holder
- When arrives complete test immediately
- If sample is damaged or does not arrive within first week of month please contact QPoint
- Ensure result is for correct distribution
- Ensure result entered into QPoint system is correct
- Return result to QPoint – online at [www.nhsqpoint.org.uk](http://www.nhsqpoint.org.uk)
- Results provided back to meter holder





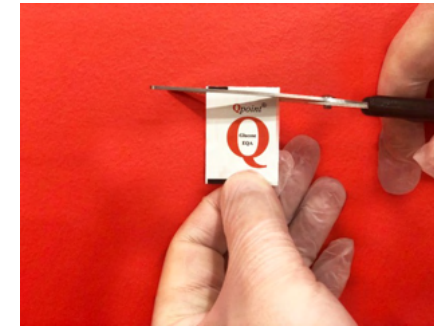
# QPoint External Quality Assurance (...2)

- Check strip is within expiry dates
- Remove sachet from report sheet
- Mix the small amount by squeezing the outside of the sachet so that the sample can be felt moving about inside
- Make sure strips, meters and control solution are at room temperature (20-25 °C) before testing
- Clean meter prior to use as per daily checks
- Wash hands and prepare as if about to test a blood sample but use QPoint solution rather than blood



# QPoint External Quality Assurance (...3)

- Hold sachet so Q appears correct way up & cut across top to make an opening half way down the neck of the bottle shape
- Invert sachet and hold above clean & dry top of test strip vial
- Gently squeeze sachet to deposit a drop of test solution onto the vial top
- Then apply tip of strip to sample (as if it were blood in normal procedure) bringing strip to sample vertically
- Avoid contamination of small sample volume.
  - Avoid dirty scissors, use clean and dry gloves
- Make a note of sample result on tear off slip
- Check correct distribution and submit to QPoint



# QPoint EQA Results Explained

## Red

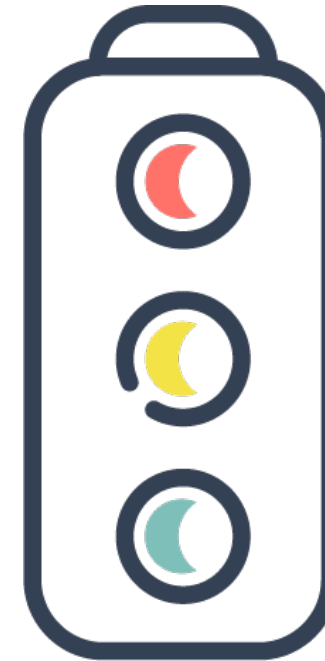
- Test meter with TEE2 control solution and compare results against ranges on the relevant pot of TEE2 strips
- If results in range continue use. If not, contact Spirit for a replacement

## Yellow

- Test with control solution as above for Red.

## Green

- Safe to continue using
- Spirit will replace meters after **3 x Red Alerts** or if meter reads out of range on strip vial when tested with Internal Quality Control Solution



# Health & Safety

- Allow service user to sit for 2-3 minutes before taking a blood sample
- Ensure hand is steady and that finger is held firmly before puncturing
- Use safety Lancet (e.g. Sterilance II)
- All blood samples must be treated as bio-hazardous
  - ✓ Gloves must be worn at all times when carrying out tests
- Dispose of sharps and contaminated materials appropriately
  - ✓ Sharps – e.g. safety lancets - disposed in sharps bins
  - ✓ Gloves, swabs, used cotton wool, waste container and tests to go into orange clinical waste



# Points of Contact

## NHS Contacts

- Pharmacy Team: (to be inserted)
  - to order test strips
  - PIP Code required for TEE2 strip order is 386 3792.

## Spirit Healthcare Ltd

- Customer Services:
  - 0800 881 5423, [cs@spirit-healthcare.co.uk](mailto:cs@spirit-healthcare.co.uk)
  - For advice or to order Control Solution



# Conclusion



- 90% of inaccuracies result from incorrect use of meters
- Use in accordance with local policies
- Refresh yourself with this training at least annually
  - Full details in instructions for use - user manual, strip insert
- Daily Internal Quality Control
- Monthly External Quality assurance by QPoint

Link to online TEE2+ User Manual: <http://www.spirit-health.co.uk/wp-content/uploads/2019/08/TEe2-PLUS-Manual-1.pdf>

Link to TEE2 Test Strip information: [http://www.spirit-health.co.uk/wp-content/uploads/2019/10/TEE2-N-ISO-Strip-Insert-CE-EN-Spirit\\_170726.pdf](http://www.spirit-health.co.uk/wp-content/uploads/2019/10/TEE2-N-ISO-Strip-Insert-CE-EN-Spirit_170726.pdf)

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**Any Questions?**



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**www.spirit-health.com**