

CareSens Dual: Training for Healthcare Professionals



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

- CareSens Dual meter
- 10 CareSens PRO strips (glucose)
- 2 KetoSens Strips (ketone)
- Quick / QC guide
- User manual & Strip insert



Ensure using only CareSens PRO and KetoSens strips with the CareSens Dual Meter





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

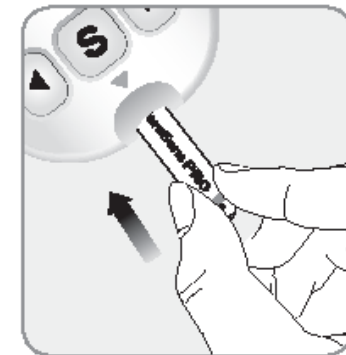
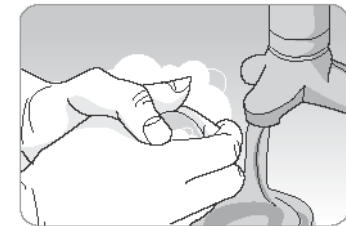
Storage

- 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



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



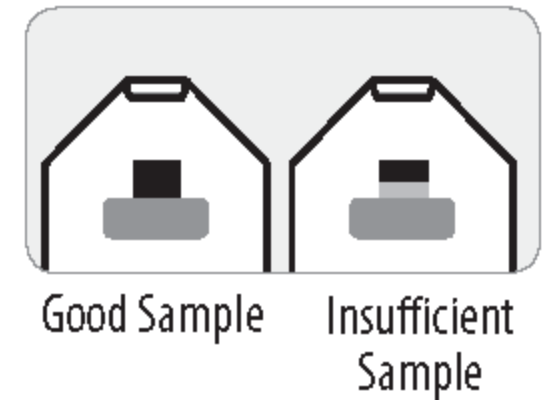
Patient Testing (...1)

- 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



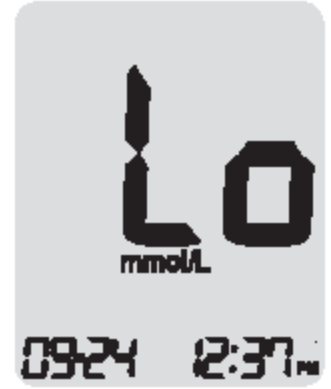
Patient Testing (...2)

- 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 glucose reading more than 33.3mmol/l
- Lo indicates glucose 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

	<p>A used test strip was inserted. > Repeat the test with a new strip.</p>		<p>This error message may appear when the wrong blood glucose test strip is used instead of CareSens Pro or KetoSens test strip. > Repeat the test with a CareSens Pro or KetoSens test strip.</p>
	<p>The blood or control solution sample was applied before the flashing blood symbol appeared. > Repeat the test with a new test strip and wait until the flashing blood symbol appears before applying the blood or control solution sample.</p>		<p>There is a problem with the meter. > Do not use the meter. Contact your authorised Spirit Healthcare representative.</p>
	<p>The temperature during the test was above or below the operating range. > Move to an area where the temperature is within the operating range for the blood glucose test (5-45 degrees C) or the operating range for a blood ketone test (15-30 degrees C) and repeat the test after the meter and test strips have reached a temperature within the operating range.</p>		<p>There is a problem with Bluetooth communication. > Contact your authorised Spirit Healthcare representative.</p>
	<p>The blood sample has abnormally high viscosity or insufficient volume. > Repeat the test with a new test strip.</p>		<p>An electronic error occurred during the test. > Repeat the test with a new test strip. If the error message persists, contact your authorised Spirit Healthcare representative.</p>

Internal Quality Control (IQC)

IQC

- Compare the result obtained with a control solution test to the range on the pack of strips.
- Test CareSens Dual machines only with CareSens Pro (glucose) and KetoSens (ketone) control solution
- Control solution must be supplied by Spirit Healthcare



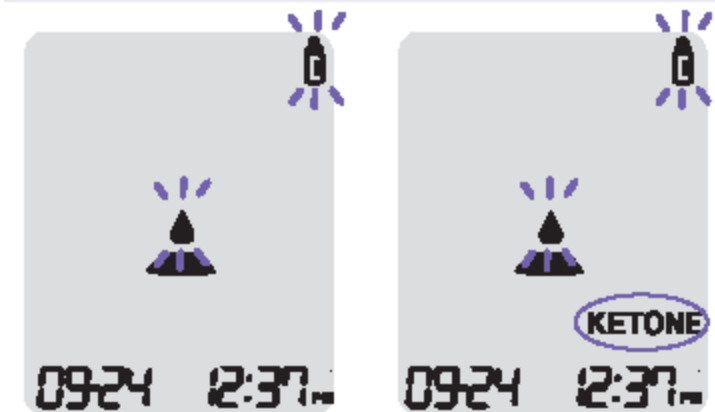
Internal Quality Control (IQC)

IMPORTANT

Ensure CareSens Dual meter is in “Control Solution Test” mode when doing a QC test

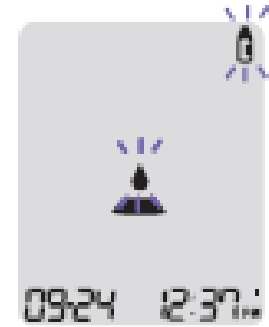
After inserting strip, press and hold right arrow button for 3 seconds.

A control solution symbol will appear in the top right corner of the screen.

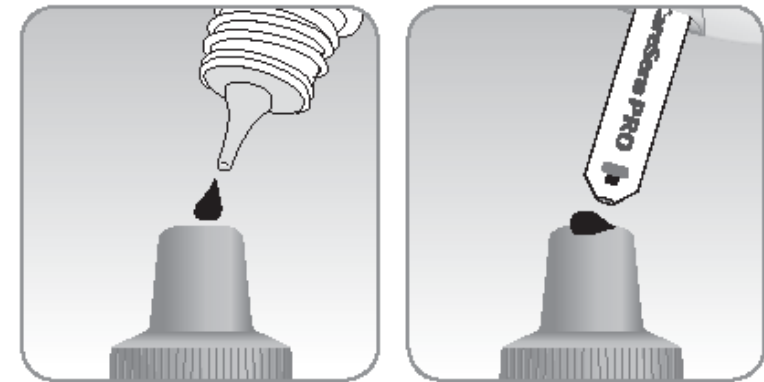


Internal Quality Control (...1)

- Test your device **Daily** with control solution
- Follow patient testing procedure except use control solution rather than blood
- Ensure meter is in Control Solution Test Mode
- 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)



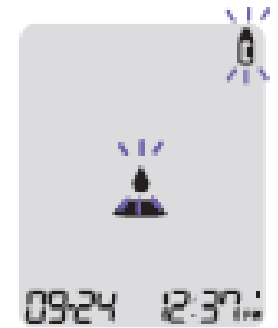
Press and hold the ► button for 3 seconds to activate the Control Solution Test Mode. This will also flag the control solution test result.



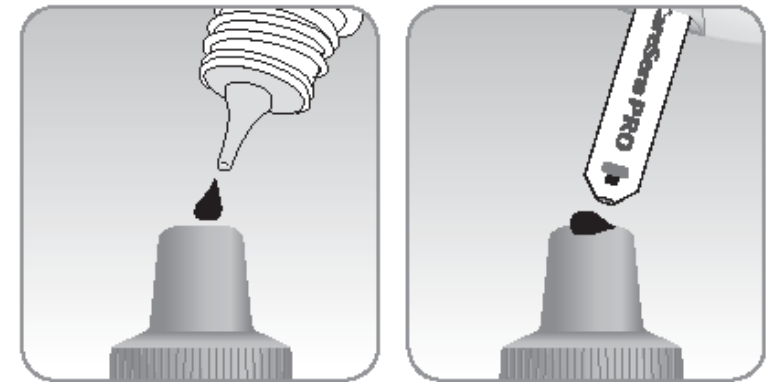
Internal Quality Control (...2)

- Squeeze 2-3 drops of control solution on vial top
- Hold meter/strip to this sample for testing
- Ensure a result is shown – if not retest.

- Compare reading against ranges on the current strip pot
- Use CareSens PRO solution for CareSens PRO Strips &
- KetoSens Control Solution for Ketones strips



Press and hold the ► button for 3 seconds to activate the Control Solution Test Mode. This will also flag the control solution test result.



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
- The test should be carried out in “Control Solution Test” Mode
- Unlike QC the user does not know the expected result.
- All participants return results to QPoint who collate data and report findings.

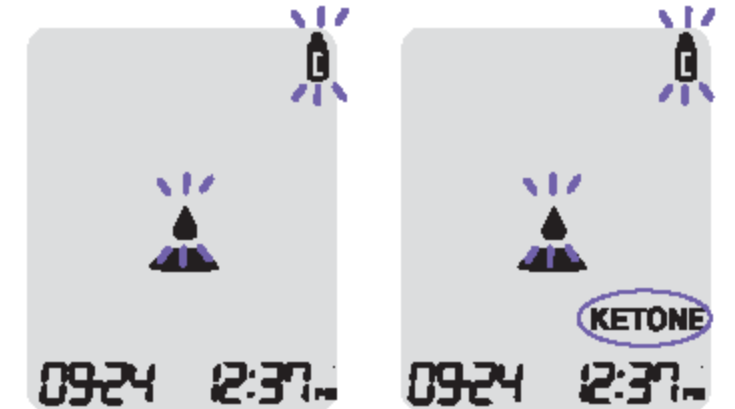
QPoint External Quality Assurance (EQA)

IMPORTANT

Ensure CareSens Dual meter is in “Control Solution Test” mode when doing a EQA test

After inserting strip, press and hold right arrow button for 3 seconds.

A control solution symbol will appear in the top right corner of the screen.



External Quality Assurance – QPoint

Registration

- All meters must be registered with QPoint prior to first use
- Following training and receipt of new CareSens Dual meter:
 - Advise Spirit Healthcare on CS@spirit-healthcare.co.uk of
 - New Dual 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.qpoint@nhs.net 27168F

PMID 27168F
Diabetic Retinal Screening

Circulation Date 1/12/2013
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.

Prepare your CareSens N meter
Cut sachet across neck of bottle
shape, invert sachet and drip
solution on to pad of cleaning/gloved
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
Fax - 01252 335395
Post - tear off slip and post it to us
Circulation Ref 2014/1

Please print clearly

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

Glucose Result _____ (mmol/L)
Test Strip Lot # _____
Strip Lot Exp. Date _____
Meter Serial # _____
Date Of Test _____
Test Performed By _____

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
- 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 Test meter in Control Solution Test Mode
- Ensure result is for correct distribution
- Ensure result entered into QPoint system is correct
- Return result to QPoint – online at www.nhsqpoint.org.uk
- Results provided back to meter holder



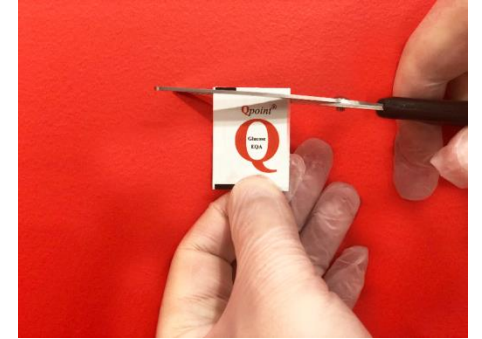
QPoint External Quality Assurance (...2)

- Check strip is within expiry date
- 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
- Ensure meter is in Control Solution Test Mode
- 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)

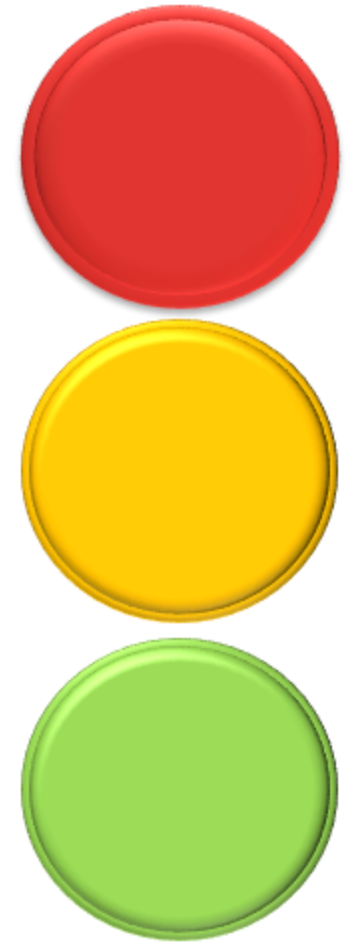
- Hold sachet so Q appears correct way up & cut across top to make an opening half way down the neck of the bottle shape
- Invert sachet and hold above test strip vial
- Gently squeeze sachet to deposit a drop of test solution onto the clean/dry vial top
- Then apply tip of strip to sample (as if it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



QPoint EQA Results Explained

Red

- Ensure meter was in Control Solution Test Mode
 - Test meter with CareSens PRO control solution and compare results against ranges on the relevant pot of CareSens PRO 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 in Control Solution Test Mode and tested with Internal Quality Control Solution



Health & Safety

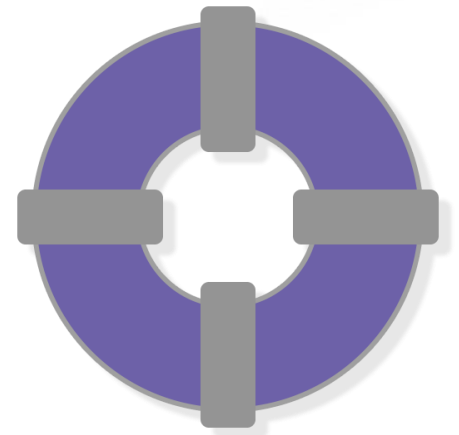
- Allow service user to sit for 2-3 minutes before taking a blood sample
- Ensure hand is steady and that finger is held firmly before puncturing
- Use safety Lancet (e.g. Sterilance II)
- All blood samples must be treated as bio-hazardous
 - Gloves must be worn at all times when carrying out tests
- 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



Why do we test for ketones

CareSens™ Dual
Blood Glucose Monitoring System
Blood β -Ketone Monitoring System

SPIR!T[®]
HEALTHCARE



Who is at higher risk?

For people who have type one diabetes:

- Missing their insulin
- If they are unwell
- If they use an insulin pump
- Children and young people
- If they are pregnant



If they have type 2 diabetes and use insulin they may also be at risk of developing ketones.



What are ketones?

Ketones are acidic chemicals made when the body starts breaking down fat for energy as there is not enough insulin in the body to deal with the carbohydrates. We can make small amounts of ketones when we are trying to lose weight

When someone has diabetes their ketone levels can rise when their blood glucose levels rise. This is because they will not have enough insulin for their body to use energy from the starchy food that they eat.

How does someone feel when they have ketones?

Ketones can make someone feel:

- Unwell
- Thirsty
- Like they need to pass urine frequently
- Tired and drowsy
- Pain in their stomach
- Sick or even cause them to be sick



What to do?

- Check blood sugar and ketone levels if the patient has symptoms of Diabetic Ketoacidosis (DKA)
- Encourage the patient to get help as soon as possible if they are in the yellow or red result area in the chart on the next slide
- Remind them of sick day rules – what they will need to do to prevent their ketones from rising. Check their blood sugar regularly and Ketone level so they can spot an increase quickly

Blood Ketone Level

What you should do

Below
0.6
mmol/L

Readings below 0.6mmol/L are in the normal range. Follow a healthcare professional's advice before someone makes any changes to their diabetes medication programme.

Between
0.6-1.5
mmol/L

This range alongside a blood glucose reading of over 13mmol/L suggests a risk of a problem developing . It is best to follow a healthcare professional's advice.

More than
1.5
mmol/L

A reading of over 1.5mmol/L alongside a blood glucose reading of over 13mmol/L suggests someone may be at high risk of developing diabetic ketoacidosis (DKA)

Sick Day Rules for patients

- Don't Panic
- Keep taking prescribed diabetes medication
- Check their blood glucose more often
- Stay hydrated
- Check for ketones
- Keep eating or drinking

REMEMBER

Trying to prevent ketones is best for someone's health. When someone has their check-ups with a doctor, nurse or diabetes specialist they should always ask about what to do when they are not feeling well.

Remind them to NEVER stop taking their insulin



- Agree a personal plan with their diabetes team
- Follow it well to help them manage their blood glucose and ketone levels
- Act quickly
- If someone is ever unsure, they should call their diabetes team for advice

REFERENCES

1. Diabetic Ketoacidosis section, NHS Choices, accessed from;
www.nhs.uk/conditions/diabetic-ketoacidosis/pages/introduction.aspx
2. A.Soni et al (2015) Patient Advice for Management of type 2 diabetes mellitus during illness, available
<http://www.wales.nhs.uk/sitesplus/documents/866/Sick%20day%rules.pdf>
3. Diabetes and being ill, Diabetes UK, accessed from;
<http://www.diabetes.org.uk/guide-to-diabetes/life-with-diabetes/illness>

Points of Contact

NHS Contacts

- **Pharmacy Team: (to be inserted)**
 - **to order test strips**
 - *PIP Code required for CareSens PRO strip order is 403 4930.*
 - *PIP Code required for KetoSens strip order is 403 4948*

Spirit Healthcare Ltd

- **Customer Services:**
 - **0800 881 5423, 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 CareSens Dual User Manual: <http://www.spirit-health.co.uk/wp-content/uploads/2019/04/CareSens-Dual-User-Manual.pdf>

Link to CareSens Pro Strip Information: <http://www.spirit-health.co.uk/wp-content/uploads/2019/10/Strip-Insert-CareSens-PRO-Test-Strips.pdf>

Link to KetoSens Strip Information: <http://www.spirit-health.co.uk/wp-content/uploads/2019/10/KetoSens-Strip-Insert.pdf>

Questions?

?????