## Capillary Blood Glucose Monitoring Policy and Guideline

### Main points the document covers
- The purpose of this Policy and Guideline is to describe the framework which enables staff to perform capillary blood glucose monitoring accurately, safely and appropriately with minimal discomfort to patients.

### Who is the document aimed at?
- All Staff

### Owner
- Angela Cook, Diabetes Specialist Nursing Manager And Professional Lead

### Approval process
- **Approved by (Committee/Director):** Clinical Policies Group, Operational Quality & Safety Group
- **Approval Date:** 12.9.16
- **Initial Equality Impact Screening:** Yes
- **Full Equality Impact Assessment:** NA
- **Lead Director:** Director of Nursing and Operations

### Category
- Clinical

### Sub Category
- Diabetes

### Review date
- 01/04/2019 - Date extended to allow for additional review and consultation

### Distribution
- **Who the policy will be distributed to:** All Staff
- **Method:** Via Trust Intranet and notification to service managers

### Document Links
- **Required by CQC:** Outcome 4
- **Required by NHLSA:** No
- **Other:** None

### Amendments History

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<td>Aug 2013</td>
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<td>2</td>
<td>November 2015</td>
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1 Introduction

Capillary blood glucose monitoring should only be carried out as part of a patient’s management plan. (NICE CG66 2008) (Appendix 1)

Practitioners, patients and carers should have a clear understanding of the purpose of self monitoring and how to interpret and act on the results.

Incorrect technique, faulty or incorrect use of meters can lead to misleading results that may compromise the health and safety of the patient.

All those involved in capillary blood glucose monitoring should have a clear understanding of this clinical task in line with Medicines & Healthcare Products Regulatory Agency (2007) and the Health & Social Care Act 2008 (Regulated Activities) Regulations 2014.

2 Purpose

The purpose of this guideline is to describe the framework which enables staff to perform capillary blood glucose monitoring accurately, safely and appropriately with minimal discomfort to patients.
### Glossary /Definitions

<table>
<thead>
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<th>Explanation / Definition</th>
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<tr>
<td>COSHH</td>
<td>Control of Substances Hazardous to Health</td>
</tr>
<tr>
<td>DKA</td>
<td>Diabetic Ketoacidosis</td>
</tr>
<tr>
<td>HHS</td>
<td>Hyperosmolar hyperglycaemic state</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>is professionally accountable for the delegation of the task</td>
</tr>
<tr>
<td>Non Registered Practitioner</td>
<td>is defined as a health care assistant (HCA) or a health care support worker or carer</td>
</tr>
<tr>
<td>IQA</td>
<td>Internal Quality Assurance</td>
</tr>
<tr>
<td>MHRA</td>
<td>Medicines and health care Products Regulatory Authority</td>
</tr>
<tr>
<td>MIU</td>
<td>Minor Injuries Unit</td>
</tr>
<tr>
<td>NMC</td>
<td>Nursing and Midwifery Council</td>
</tr>
<tr>
<td>POCT</td>
<td>Point of Care Testing – Point-of-care testing (POCT) is defined as medical testing at or near the site of patient care by specially trained healthcare professionals. These are tests which can be performed at the bedside and typically involve blood and urine testing</td>
</tr>
<tr>
<td>RCN</td>
<td>Royal College of Nursing</td>
</tr>
</tbody>
</table>

### Duties

Staff who are employed by Shropshire’s Community Health NHS Trust have a responsibility to ensure that they are trained and up to date in point of care testing procedure: blood glucose meters (MHRA 2011) and NMC (2008).

In the majority of cases the relevant staff group are community nurses and health care assistants (HCA) or support workers.
5 Assessment

Informed consent should be obtained following Shropshire Community Health NHS Trust Policy for consent and in accordance with the Mental Capacity Act (2005).

Exclusions

- Patient consent declined
- Patient lacks capacity to make a decision based on the Mental Capacity Act (2005) Code of Practice
- Patient assessed as not suitable for capillary blood glucose monitoring by community nurse.
- Health care professionals (HCPs) who have not received training

6 Quality Assurance

The need for quality assurance and training in the use of blood glucose meters was identified in the hazard warning notice (HN Hazard 87 13 DOH 1987).

The notice states “use of blood glucose meters by untrained staff without adequate management supervision of the equipment and without the use of quality control procedures, can lead to misleading results, adversely affecting the treatment of patients”

All users should perform an internal quality assurance (IQA) before using the meter for the first time and under the following circumstances:

- Once every 24 hours in high use areas or when undertaking patient visits or clinics
- If the result does not agree with the clinical presentation/picture of the patient
- After the battery has been changed
- When a new packet of test strips are opened
- If the meter has been dropped or damaged

6.1 Procedure for Quality Assurance

Staff undertaking capillary blood glucose monitoring will use the meters provided by Shropshire Community Health NHS Trust (SCHT) procurement service, following completion of training. Patient’s own meters should not be used routinely if SCHT staff are performing the procedure for the patient and administering insulin or adjusting medication based on the results.

However on occasions it may be appropriate to use the patient’s own meter e.g. patients in care homes whereby insulin administration has been delegated and in these circumstances the patient’s own meter must be used. In this situation internal quality assurance must be carried out as per manufacturer’s instructions by the carer delegated to the task and a record kept in the care home with the patient’s meter. IQA solutions must be obtained from the patient’s meter manufacturer on an individual patient basis only. SCHT IQA solutions must not be supplied

Staff will also use a safe sharps device namely a single use disposable lancing device e.g. Unistik 3 Comfort
It is the responsibility of the health care professional to ensure the meter has been internally quality assured before patient use or as soon as possible after patient use if an urgent situation has arisen. See Appendix 2 on how to undertake this procedure.

6.2 Capillary Blood Glucose Monitoring

Results of monitoring are used effectively to manage diabetes. Capillary blood glucose monitoring can form a part of a patient’s diabetes management plan and self management education. NICE (2015) states that capillary blood glucose monitoring should be available if:

- the person is on insulin or
- there is evidence of hypoglycaemic episodes
- the person is on oral medication that may increase their risk of hypoglycaemia while driving or operating machinery
- the person is pregnant, or is planning to become pregnant.

In addition consider short-term blood glucose monitoring of blood glucose levels in adults with type 2 diabetes (and review treatment as necessary):

- when starting treatment with oral or intravenous corticosteroids or
- to confirm suspected hypoglycaemia

Staff performing capillary blood glucose monitoring should have a clear understanding of how to interpret and act on the results of the diagnostic test as per Diagnostic test and screening procedure policy (SCHT 2015). To ensure capillary blood glucose monitoring remains necessary and effective part of the patient’s diabetes management plan, continuous assessment of the following factors should be routinely considered:

- Self-monitoring skills
- Quality assurance of the equipment used
- The appropriate frequency of testing
- The impact on the quality of life
- Continued therapeutic benefit from capillary blood glucose monitoring once patient stabilised if on oral diabetic agents

Where staff are performing blood glucose monitoring on behalf of the patient because the patient is unable to undertake the procedure themselves independently then the nurses’ SCHT meter should be used which has been internally quality assured prior to the test or as soon as possible after in an urgent situation.

6.3 Contra-indications to Point of Care Testing

All Point of Care testing devices have limitations and this should be remembered at all times.

The following conditions can affect the accuracy of blood glucose monitoring and it may be necessary to obtain a venous sample for more accurate results (DH 1996a):

- Peripheral circulatory failure and severe dehydration e.g. diabetic ketoacidosis (DKA), hyperosmolar hyperglycaemic state (HHS), shock and hypotension. These condition cause peripheral circulatory shutdown, which can cause artificially low capillary results
- Some renal dialysis treatments (check solutions used)
- Hyperlipidaemia: a cholesterol levels above 13mmols/L may lead to artificially raised capillary blood glucose levels
- Haematocrit levels above 55% may lead to inaccurate levels if the blood glucose is more than 11mmols/L (Dougherty & Lister 2011)

6.4 Equipment
- Alcohol hand rub
- Blood Glucose Meter- Optium Neo H Meter
- Optium Neo H Test Strips & Optium Neo H beta Ketone H Strips (NB Do not use standard Freestyle Optium patient use only test strips)
- Single use, ‘safe sharp’ lancet device
- Sharps Container - correctly labelled and within 3 months of assembly
- Medisense Quality Control Test Solution
- Cotton wool/gauze
- Disposable gloves
- Disposable apron - if required following a risk assessment
- Documentation/Diary
- Detergent wipes suitable for cleaning of equipment

6.5 Calibration
Before a meter is used for the first time and with each new box of Optium Neo H or Optium Neo H Beta Ketone test strips the meter must be calibrated. This means the meter is set to ‘match’ the strips being used by coding it with the calibration strip supplied in the packet of test strips. The calibration strip programmes the meter with the lot number, expiry date and test strip technology.

Calibration Process
1. Ensure the meter is switched off
2. Locate the Calibration strip from the packet of test strips and check expiry date of both the strips and the IQA solution to be used
3. Insert the plastic calibration strip into the meter with the number facing upwards
4. The meter will turn on and should display the number written on the test strip in the meter display screen. 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.
5. This has now coded/calibrated the meter
6. Check that the number in the display screen matches the number on the calibration strip
7. If it doesn’t repeat the process above and if the problem persists do not use the meter and report the fault.
8. Once calibrated accurately remove the test strip and keep it with the box of test strips in the IQA workstation until all the strips have been used.
9. Discard the calibration strip once all the strips have been used in the appropriate waste bin.
10. On opening a new packet repeat the above process
6.6 Procedure

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify patient</td>
<td>To ensure correct patient identity</td>
</tr>
<tr>
<td>Obtain consent &amp; cooperation</td>
<td>To gain informed consent &amp; understanding</td>
</tr>
<tr>
<td>Approach patient confidently &amp; explain procedure &amp; encourage to ask questions</td>
<td>To relax patient &amp; involve patient in treatment</td>
</tr>
<tr>
<td>Ensure meter is accurate by performing quality assurance test (see appendix 2) Guidelines for Internal Quality Assurance Check for Optium Neo H Meter</td>
<td>To ensure accuracy &amp; functionality of meter</td>
</tr>
<tr>
<td>Decontaminate hands with soap and water or alcohol hand rub. Put on gloves and apron if required.</td>
<td>To reduce risk of infection</td>
</tr>
<tr>
<td>Wash patient’s hands in warm water ensuring thoroughly dry before test. Do not use alcohol wipes or hand wipes to cleanse the skin</td>
<td>To prevent contamination &amp; encourage blood flow to finger tips</td>
</tr>
<tr>
<td>Insert Optium Neo H test strip to switch meter on</td>
<td>To ensure reliable blood glucose ensure the correct date and time are presented on screen, and that there is adequate battery Check the unit of measure and ensure that it is reading in mmol/L prior to each use.</td>
</tr>
<tr>
<td>Select site for finger sample to be taken. Use side of fingers NOT TIPS, try to avoid index finger &amp; thumb. Rotate sites</td>
<td>The side of the finger is a less painful area and less likely to cause neuropathy &amp; callous formation</td>
</tr>
<tr>
<td>Prepare single use lancet device &amp; apply to selected site. Puncture side of finger with device &amp; obtain blood sample. Dispose of single use lancet device in sharps bin immediately</td>
<td>To prevent needle-stick injury &amp; obtain sample of blood</td>
</tr>
<tr>
<td>Apply blood to test strip according to manufacturer’s instructions when prompted by display screen</td>
<td>To obtain blood glucose reading</td>
</tr>
<tr>
<td>Procedure</td>
<td>Rationale</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Provide client with cotton wool/gauze. Apply pressure to puncture and monitor for excess bleeding.</td>
<td>To stop bleeding &amp; prevent cross infection</td>
</tr>
<tr>
<td>Remove gloves and apron if used and dispose of in appropriate waste to comply with SCHT waste management policy and perform hand hygiene again.</td>
<td>To prevent contamination and reduce risk of infection</td>
</tr>
<tr>
<td>Record blood glucose results on appropriate documentation</td>
<td>To provide a contemporaneous record</td>
</tr>
<tr>
<td>Inform client of result &amp; act on/report unexpected results accordingly as laid out in individual care plan</td>
<td>To involve patient in care &amp; ensure appropriate management of hyperglycaemia/hypoglycaemia</td>
</tr>
<tr>
<td>Clean device with detergent wipes after use</td>
<td>To prevent contamination and reduce risk of infection</td>
</tr>
</tbody>
</table>

**Figure 1: Insertion of test strip**

**Figure 2: Sampling technique**
6.7 Limitations

All Point of care testing (POCT) devices have limitations and this should be remembered at all times.

All results taken using POCT must be interpreted in light of the patient’s condition. If an unexpected high or low blood glucose result is obtained, a repeat test must be performed and an IQA performed to confirm meter accuracy.

Measuring Range of Optium H Strips

1.1 - 27.8 mmols/L

Results of less than 1.1mmols/L give a display as low

Results greater than 27.8mmols/L give a display as HI or error code E4

6.8 Health and Safety

Disposable gloves should be worn at all times when processing patient testing, control testing or External Quality Assurance EQA procedures.

Particular care should be taken to ensure that the lancets are disposed of in a sharps container and the used test strips are disposed of immediately into the normal waste stream.

Dispose control solution and EQA in the normal waste streams a yellow sharps bin or yellow bag for incineration as appropriately required.

Product wrappers and cotton wool should be disposed of in the appropriate waste stream.

6.9 Cleaning

The Optium Neo H meters should not require much cleaning as with correct use blood and control solutions do not enter the meter. However if the meter does get soiled it can be wiped with a damp cloth and mild soap/ detergent.

Do not immerse or place the meter in water.

Document any cleaning in the Quality Assurance Record Book /Log sheet and keep log book with the IQA workstation.
6.10 Control of Substances Hazardous to Health (COSHH) Regulations & Health & Safety

<table>
<thead>
<tr>
<th>Item</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freestyle Optium Tests Strips</td>
<td>No Risk</td>
</tr>
<tr>
<td>The reagent area of each test strips</td>
<td></td>
</tr>
<tr>
<td>contains:</td>
<td></td>
</tr>
<tr>
<td>Glucose Oxidase</td>
<td></td>
</tr>
<tr>
<td>Non-Reactive Ingredients</td>
<td></td>
</tr>
<tr>
<td>Abbott Lo and Hi Control Solutions</td>
<td>Low Risk</td>
</tr>
<tr>
<td>Glucose</td>
<td>Low Risk</td>
</tr>
<tr>
<td>Non-Reactive Ingredients</td>
<td></td>
</tr>
<tr>
<td>Do not swallow or inject the solutions.</td>
<td></td>
</tr>
<tr>
<td>PPE equipment: Gloves must be worn at all</td>
<td></td>
</tr>
<tr>
<td>times when processing control solutions</td>
<td></td>
</tr>
<tr>
<td>EQA control solution</td>
<td>Treat as a Biohazard</td>
</tr>
</tbody>
</table>

7 Adverse Incidents

Any adverse incidents regarding the Optium Neo H meters must be reported via Datix and
by the team leader /ward manager to the medical device lead/trust safety advisor for
evaluation and reporting to the MHRA as appropriate

8 Operators

The Department of Health (DH) has issued advice for Health Care Professionals entitled
‘Point of care testing- Blood Glucose Meters (DH 2011). It highlights the need for training
and quality assurance to reduce the risk of poor performance in the blood glucose
monitoring outside the laboratory environment.

Only staff that are trained are authorised to use the meters. Training is provided by,
Diabetes Think Glucose Champions and Diabetes Specialist Nurses. Refer to the NMC ‘The
Code’ 2015 and associated Trust policies, There is a competency checklist and training log
documents to support this training (Appendices 3, 4, & 7)
9 Supplies

Freestyle Optium H Test Strips & Freestyle Optium H Beta Ketone H Strips should be ordered via the Oracle procurement system:

- Freestyle Optium Neo H Glucose Test Strips pack 100 7131375
- Freestyle Optium H Ketone Test Strips pack 10 7112575

Quality Control Solution (IQA) should be ordered via the Oracle Procurement System

- Quality Control Solution (1 high, 1 low solution) 8013920

Batteries: Order via Oracle Procurement System.

- The battery used is the flat CR2032 Lithium.

Additional Optium Neo H meters for new staff/replacement equipment can be ordered by supplying the staff member’s name, team and base and the request emailed to blood.glucose@shropcom.nhs.uk. A meter will not be issued until this is completed.

Single Use ‘safe sharps’ lancets: Order via Oracle Procurement system

10 Storage

- Store test strips between 4 and 30 degrees Celsius. Keep away from direct sunlight and heat
- Store Optium Neo H meters between 10-50 degree Celsius
- Store IQA solution between 3-30 degrees Celsius
- Do not use test strips beyond their expiry date written on the foil packet and outer box
- Use test strip immediately after opening foil packet
- Do not use wet, bent or damaged test strips
- Do not use the strip if the foil packet has been punctured or torn
- The IQA solution expires 90 days after opening and the bottle labelled with the date the solution was opened and due to expire

11 Consultation

This Policy has been developed by the Diabetes Specialist Nursing Service in consultation with:

- Hitesh Patel from NHS Telford & Wrekin Medicines Management Department
- Shropshire Community Health NHS Trust Infection Prevention and Control Team
- The following Guidelines was referred to: NICE (2008) Type 2 Diabetes: The Management of Type 2 Diabetes. NICE 2008
12 Dissemination and Implementation

These guidelines will be disseminated by the following methods:

- Managers Informed via DATIX system who then confirm they have disseminated to staff as appropriate
- Staff via Team Brief
- Diabetes Think Glucose Champions via Community Diabetes Think Glucose Meetings
- Published to the staff zone of the trust website

13 Implementation

The registered nurse must complete the self-assessment competency tool for capillary blood glucose (appendix 3) and a copy kept in their NMC portfolio/training records.

A non-registered practitioner must have been assessed and signed as competent to carry out all aspects of the task using the summative assessment document (Appendix 4) (NMC 2010) if undertaking this procedure.

The non-registered practitioner must be reassessed as competent for capillary blood glucose monitoring on an annual basis by a registered nurses using the summative assessment documentation (appendix 4) and a copy of this be kept by the non-registered practitioner and the registered nurse

Training on the use of the Freestyle Neo H meter and quality assurance procedures will be available on Shropshire Community Health NHS Trust course 'Managing Diabetes with Tablets and Insulin' and will be made available by the manufacturers on contract renewal.

Managers are responsible for the competency assessment of staff once the initial training has been provided.

14 Monitoring Compliance

Compliance of this Guideline will be carried out by:

Monitoring of related Datix incident reports carried out by service managers

Following incident reporting follow up actions will be coordinated by service managers and the community Trust Safety Manager.

15 References

16 Associated Documents

This guideline may be used in conjunction with the following SCHT policies and guidelines:

- Management of Hypoglycaemia Guideline
- Prevention and Management of Needlestick Injuries: including Inoculation Incidents and Exposures to Blood Borne Viruses (BBV) Policy
- Hand Hygiene Policy
- Standard Precautions including Surgical Hand Scrub, Gowning and Gloving Policy
- Check to Protect – Safer Sharps
- Waste Management Policy
- Cleaning and Disinfection Policy
- Consent to Examination or Treatment Policy
- Incident Reporting Policy
- SCHT Policy for Management of Diagnostic and Screening Tests

17 Appendices

- Appendix 1: Patient Groups that require Capillary Blood Glucose Testing
- Appendix 2: Internal Quality Assurance (IQA)
- Appendix 3: Diabetes Management Self-Assessment Competency Framework
- Appendix 4: Summative Assessment for Non-Registered Practitioners and Registered Nurses/Practitioners
- Appendix 5: External Quality Assessment (EQA) for Community Hospitals only
- Appendix 6: Internal Quality Control (IQC) Record Sheet /log book
- Appendix 7: Certificate of Training
Appendix 1: Patient Groups that require Capillary Blood Glucose Testing

In patients with type 2 Diabetes where blood glucose levels are regarded as stable there is normally no requirement for regular capillary blood glucose testing unless the patient is on insulin. For patients with type 1 Diabetes blood glucose monitoring is always required. The table below provides some guidance on monitoring patients on specific treatment.

(Exceptions noted below)

<table>
<thead>
<tr>
<th>Type 1 Diabetes</th>
<th>Capillary blood glucose monitoring required as part of individuals management plan and prior to driving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2 Diabetes</td>
<td></td>
</tr>
<tr>
<td>Insulin treated diabetes</td>
<td>Capillary blood glucose monitoring required as part of individuals management plan. Testing will be required to adjust insulin doses where appropriate and prior to driving</td>
</tr>
<tr>
<td>Diet only controlled diabetes</td>
<td>Capillary blood glucose monitoring unnecessary</td>
</tr>
<tr>
<td>Patients taking Metformin alone</td>
<td>Capillary blood glucose monitoring unnecessary</td>
</tr>
<tr>
<td>Patients taking Sulphonylurea alone or in combination with any other anti-diabetic agent.</td>
<td>Capillary blood glucose monitoring required to identify hypoglycaemia and before driving. To test up to twice a week as part of a self-management plan to understand how food and activity affect diabetes management in order to improve diabetes management</td>
</tr>
<tr>
<td>Patients taking Repaglinide or Nateglinide alone or in combination with any other anti-diabetic agent.</td>
<td>Capillary blood glucose monitoring required to identify hypoglycaemia and prior to driving. To test up to twice a week as part of a self-management plan to understand how food and activity affect diabetes management in order to improve diabetes management</td>
</tr>
<tr>
<td>Patients taking Glitazone alone or in combination with metformin</td>
<td>Capillary blood glucose monitoring unnecessary</td>
</tr>
<tr>
<td>Patients taking a Gliptin alone or in combination with metformin</td>
<td>Capillary blood glucose monitoring unnecessary</td>
</tr>
<tr>
<td>Patient using GLP-1 agents</td>
<td>Capillary blood glucose monitoring unnecessary (do not cause hypoglycaemia)</td>
</tr>
<tr>
<td>Patient using GLP-1 agents in combination with a Sulphonylurea</td>
<td>Capillary blood glucose monitoring required to identify hypoglycaemia and prior to driving. To test up to twice a week as part of a self-management plan to understand how food and activity affect diabetes management in order to improve diabetes management</td>
</tr>
</tbody>
</table>

Continued overleaf..
Exceptions
Testing or more frequent testing may be necessary in patients where blood glucose levels are unstable. Specific guidance and counselling should be given in each individual case:

- Patients troubled by low blood glucose
- Patients who have had their medication changed or have started medication for an alternative condition e.g. steroids
- Patients who are unwell

The individual needs of each patient must be considered according to treatment regimen and level of control.
Specific needs of patient groups should also be considered e.g. terminally ill, drivers, fasting patients.
Appendix 2: Internal Quality Assurance (IQA)

The need for quality assurance and training in the use of blood glucose meters has been identified in the document Management and use of IVD point of care test devices (Medicines & Healthcare Products Regulatory Agency (MHRA) 2013).

The guidance states "only staff who training and competence has been established and recorded should be permitted to carry out POCT".

The meter must have an internal quality control check performed to establish if the meter is functioning correctly. This may be daily in high use areas such as community hospital wards.

In addition an IQC should be undertaken after an unexpected patient result, if the meter is dropped, batteries are changed or is the strips have been stored incorrectly and on opening a new packet of test strips.

Quality Assurance is an essential component of POCT and includes measures taken to ensure that results are reliable. These include:

- Correct identification of the patient
- Appropriate test selection
- Obtaining a satisfactory specimen
- Analysing and recording the results promptly and correctly
- Taking appropriate action
- Documenting all procedures and maintaining accurate records

Abbott Diabetes Care Glucose Control Solution (Lo and Hi solutions)

Lo and Hi Solutions should be stored at room temperature. They are stable until the expiry date printed on the vials or for 90 days from the vials being opened whichever comes first. The date the new control solutions are opened should be written on the vials along with the new expiry date. Replacement solutions can be ordered via the community Diabetes Specialist Nursing Service.

Abbott Diabetes Care Quality Control supply record books or the trust A4 Quality Assurance Log Sheets may be used and kept in a designated folder. Each ward or community nursing base must have a central IQA station where log books for all meters are recorded.

Log Books can be ordered via the Abbott Diabetes Representatives or staff can use the form; Appendix 6 can be used and kept in an A4 Folder clearly marked as an ‘Internal Quality Assurance Log Book’
Procedure
Once opened the quality control solutions are stable for 90 days. On opening the vials expiry date should be written on the bottle.
For legal reasons the internal quality control log book/sheets must be kept for 12 years from when they were completed. Completed log books/ folders should be returned to Records Manager for archiving.

Internal Quality Assurance: Step By Step Guide
- Remove paper insert from the Optium Neo H Strip packet and locate IQA reference range
- Check the LOT number & expiry date of test strip match
- Open the test strip by using the triangular notch in the foil
- Open the test strip immediately prior to use
- Insert the test strip into the meter
- The meter will turn on
- When the 🚄 blinks press the 🧴 button until this icon appears ✓
- The meter is now ready for you to apply the low level control solution to the test strip
- Invert the bottle to mix the solution
- Wipe the QC solution nozzle with a clean gauze/tissue before and after each test
- Replace the cap securely on the bottle immediately after use
- Apply a drop of the ‘Lo’ control solution until 3 short lines appear on the screen with the meter in a horizontal (flat) position to avoid it entering the test strip port.
- The results will be displayed after a 5-second countdown
- Compare the control solution results to the range printed on the blood glucose test strip insert; the results should fall within this
- The results will be stored in memory as a control solution result
- Record the result in the IQA log/record book
- If results are out-of-range repeat the QA test again
- If the repeated result is out-of-range follow organisational policy for out-of-range results
- Remove the test strip and repeat the above process & steps again using the ‘Hi’ control solution
- Record HI and LO QA test result in the IQA log book

Failure to adhere to the most current instructions could result in you as an individual being liable for any error in testing
Appendix 3: Diabetes Management Self-Assessment Competency Framework

Diabetes Management Self-Assessment Competency Framework for Capillary Blood Glucose Monitoring

<table>
<thead>
<tr>
<th>Name:</th>
<th>Signature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designation:</td>
<td>Date:</td>
</tr>
</tbody>
</table>

The following document is designed to:
- Allow you to assess your competence in managing your patients in line with the KSF and Skills for Health Competency Frameworks
- To identify your own educational needs
- To ensure your own competency before using a blood glucose meter

Verification of competence is undertaken by assessment against the following statements:
These statements are designed to indicate competence to use a blood glucose meter device.
Responsibility for use remains with the user, so if you are in any doubt regarding your competence to use the device, you should seek education to bring about improvement.

You must be able to answer "yes" to all the questions before considering yourself to be competent. If you are not competent, instigate learning & then repeat self-verification

A competency defines the knowledge understanding and skill required to perform a specific task (Skills for Health 2005)
Self-Assessment Competency Framework for Capillary Blood Glucose Monitoring

Please tick the boxes that best describes your current practice in each competency assessment statement

<table>
<thead>
<tr>
<th>Self-Assessment Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you answer the following questions?</td>
</tr>
<tr>
<td>Why it is essential to ensure that the patients and operators hands are clean prior to testing?</td>
</tr>
<tr>
<td>How to conduct quality control testing</td>
</tr>
<tr>
<td>How to identify the expiry date of the quality control test solution and its life once opened?</td>
</tr>
<tr>
<td>How often the QC test should be performed and where the results are recorded?</td>
</tr>
<tr>
<td>How to correctly insert a blood testing strip?</td>
</tr>
<tr>
<td>The correct way to obtain a blood drop sample and where it should be applied on the test strip</td>
</tr>
<tr>
<td>How to set the time and date on the meter?</td>
</tr>
<tr>
<td>How to identify that the batteries require changing and how to change them if required?</td>
</tr>
<tr>
<td>How to identify what action to take if the meter displays an error message</td>
</tr>
<tr>
<td>Do you know the limitations for using capillary blood glucose testing?</td>
</tr>
</tbody>
</table>

**Note:** Keep this form in your personal portfolio or training record

**Additional Information**
This competency document links with the following dimension within the NHS Knowledge and Skills Framework (2004)

**Dimensions**
- HWB6 Assessment and treatment planning
- HWB4 Enablement to address health & wellbeing
Appendix 4: Summative Assessment for & Registered Nurses/Practitioners & Non-Registered Practitioners

Summative Assessment for Non-Registered Practitioner to Capillary Blood Glucose Monitoring Competencies

Name of Non-Registered Practitioner:
Name of Diabetes Mentor:
Date Assessed:
Reassessment Date Due:

VIVA - The health care professional or non-registered practitioner must be able to:

- Describe what diabetes is, and the action insulin has on blood glucose levels. State normal blood glucose levels.
- State how to maintain and store the blood glucose meter and test strips, and to perform quality assurance test according to manufacturer’s guidelines
- Identify 3 factors that may give rise to inaccurate blood glucose readings.
- Identify correct action to take in the event of a low blood glucose reading
- Identify 4 factors that could result in low blood glucose readings
- Identify correct action to take in the event of 3 successive high blood glucose readings
- Identify 4 factors that could result in high readings
- Identify where to record blood glucose results & explain action in event of readings outside the client’s individual targets
- Describe the procedure for obtaining supplies

Observation - The health care professional or non-registered practitioner must be able to:

- Inform the patient of need for blood glucose test
- Gain patient consent
- Apply perform correct hand hygiene technique before and after the application of Personal Protective Equipment
- Prepare area for blood glucose test
- Check expiry date on test strips
- Follow manufacturer’s procedure for use of meter
- Prepare safe sharps device- single lancet for test
- Accurately perform blood test
- Demonstrate safe disposal of sharps and blood stained equipment
- Accurately record blood glucose result in district nurse documentation & cleaning of meter

1. Signature of Diabetes Mentor/Trainer: Date:
2. Signature of Diabetes Mentor/Trainer: Date:
3. Signature of Diabetes Mentor/Trainer: Date:
Appendix 5: External Quality Assessment (EQA) for Community Hospitals only

External Quality Assessment (EQA)

External Quality Control differs from internal in that the accuracy is not known until after the results have been issued. The user does not know the glucose concentration at the time of analysis and the results are assessed independently.

EQA is coordinated by the Biochemistry department at Princess Royal Hospital. An external Quality Control sample is distributed to all authorised Optium neo H users in the community hospitals on a Bi-monthly basis.

The EQA sample must be analysed (as per patient testing) on every Optium Neo H meter located on the ward or departments at the community hospitals as soon possible on receipt of the solution.

Record the serial number of each individual meter that is used and record the blood glucose results for the EQA sample and document on the form supplied by Biochemistry.

Return the result sheet to Biochemistry at the address found at the bottom of the form.

Dispose of the solution bottle in a yellow infected waste bag.

The results will be returned to the ward/team and must be reviewed by the Ward Manager/Team Leader and the results filed. Poor performance of the EQA may necessitate some staff training.
# Appendix 6: Internal Quality Assurance (IQA) Record Sheet /log book

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Test Strip Batch Number</th>
<th>Expected Quality Control solution range</th>
<th>Quality Control Results</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>7.7.2015</td>
<td>1400</td>
<td>43190</td>
<td>1.6-3.3mmols/l</td>
<td>16.7-23.2mmols/l</td>
</tr>
</tbody>
</table>


Appendix 7: Certificate of Training for all staff undertaking POCT

Staff Name:______________________________________________________________

Your trainer has explained and demonstrated the following regarding:

- Blood glucose testing equipment:
- Basic Principles of testing
- The correct use of the system (Meter, strips, control solutions, recording result)
- Described the consequences of improper use
- Provided instructions for sample collection
- Provided instructions on the documentation of results
- Described how to complete a internal control test

Please tick the boxes if you agree with the above

Your trainer has demonstrated and watched you perform and has assessed you as competent at this training session:

A test using:
- Optium Neo H meter

Please tick the boxes if you agree with the above

Name of Trainee __________________________________________________________

Signature ______________________________________________________________

Name of Trainer __________________________________________________________

Signature ______________________________________________________________

Date ______________

This is to certify that the above trainee has been assessed as competent at the time of training. It is the trainee's responsibility to ensure that he/she adheres to the instruction and training received at all times.