SWANSEA BAY UNIVERSITY HEALTH BOARD

Diabetes Adult Inpatient Management Policy

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DPDG, Medicines Management, NMB

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1.0 Introduction

1.1 Definition of Diabetes

Diabetes is an endocrine (type 1) and/or a metabolic (type 2) condition that causes a person's blood glucose (sugar) levels to become too high. There are several types of diabetes but the two most commonly known are:

- Type 1 diabetes – an autoimmune condition where the body's immune system attacks and destroys the beta cells in the pancreas that produces insulin – These are insulin dependent

- Type 2 diabetes – where the body doesn't produce enough insulin (insulin insufficiency), or the insulin produced is working inefficiently (insulin resistance) or it can be a combination of both. They may progress to having insulin therapy and are then known as insulin requiring

There are rare genetic types of diabetes e.g. monogenic diabetes. Other causes include:

- Gestational Diabetes Mellitus (GDM)
- Drug induced diabetes e.g. steroids; antipsychotic drugs e.g. olanzapine, risperidone
- Damage to the beta cells in the pancreas e.g. carcinoma of the pancreas; Pancreatectomy either total or partial including pancreatitis
- Other conditions e.g. cystic fibrosis

Type 1 diabetes accounts for approx. 8% of the population and rarer forms of diabetes occur in the remaining 2% [1]. Type 2 diabetes is more common in the UK accounting for approximately 90% of adults with diabetes. Although this is associated with older age and or being overweight or obese, this can occur at any age. Gestational diabetes may occur at any stage but usually occurs in the 2nd or 3rd trimester of pregnancy and this may or may not resolve once the pregnancy has ended. If Diabetes is diagnosed in the first trimester, the likelihood is that they may have had type 2 diabetes prior to pregnancy [2]. If gestational diabetes has resolved, these women should be screened annually as they are at a greater risk of developing type 2 diabetes later on in life [3].

1.2 Diabetes in Wales

Wales has the highest prevalence of Diabetes in the UK, approximately 8% of the population aged 17 or over which accounts for 209,015 people [4]. Diabetes care in Wales is overseen by the All Wales Diabetes Implementation Group (AWDIG) which includes representation from all seven Health Boards, the third sector, Diabetes UK and Welsh Government. The Group identifies the national priorities for diabetes each year.

1.3 Purpose and Scope of the Policy

This policy applies to all permanent, locum, agency, bank and training staff in Swansea Bay University Health Board (SBUHB), within the inpatient facilities in hospitals and within each Delivery Unit. This policy sets the standard required for inpatient diabetes management. The purpose is to inform on best practice, evidenced based management and a consistent approach in the care and management of patients admitted with diabetes within Swansea Bay University Health Board (SBUHB). This Policy should be read in conjunction with local guidance on COIN for Diabetes click here. The National Diabetes Inpatient Audit (NaDIA)[4] demonstrated up to 18% of hospital inpatients (1 in 6) in England and Wales have diabetes. By 2030 it is predicted this will rise to one in four. In-patients with diabetes have high infection rates, longer lengths of stay – one to three more days than patients without diabetes – and increased mortality (6.4% higher). Hospitals need to be safe environments for people with diabetes, free from harm and disempowerment[5].

This policy has been developed by the ThinkGlucose Implementation and Steering Group and is designed to:

- Ensure that all aspects of the management and care of in-patients with diabetes observe the latest national recommendations for patient management.
- Ensure the safety of all in-patients with diabetes from admission, throughout their hospital journey through to discharge, whilst under the care of SBUHB.
- Provide clear standards and procedures for staff to enable them to carry out their duties in the provision of in-patient diabetes care.

2.0 Duties and responsibilities

2.1 Chief Executive

The Chief Executive has ultimate accountability for ensuring there are appropriate processes in place for safe effective care for in-patients with Diabetes, but delegates this responsibility through the Executive Director of Nursing and Patient Experience and the Executive Medical Director devolves the responsibility for monitoring and compliance with this policy to the Diabetes Planning Delivery Group.

2.2 The Diabetes Planning and Delivery Group (DPDG)

The Diabetes Planning and Delivery Group leads the Health Board with Implementation of local service plans in line with the Diabetes Delivery Plan[6]. The DPDG will report progress to the All Wales Diabetes Implementation Group annually and the chair will provide assurance to the NHS Wales Chief Executive of overall national progress against the delivery plan.

2.3 Executive Medical Director and Medical Directors

The Executive Medical director and Medical Directors are responsible for ensuring that there are appropriate processes in place for safe effective care for in patients with diabetes

2.4 The Director of Nursing and Patient Experience

The Director of Nursing is responsible for ensuring that there are appropriate processes in place for the safe effective care of in patients with diabetes in SBUHB.

2.5 ThinkGlucose Steering Board (TGSB)

The ThinkGlucose Steering Board is responsible for ensuring that the Health Board upholds the principles and guidelines within this policy and that appropriate policies and procedures are developed, maintained and communicated throughout the organisation. These policies and procedures will be developed and implemented in coordination with other relevant organisation and stakeholders.

2.6 ThinkGlucose Implementation Group (TGIG)

The ThinkGlucose Implementation Group is a multidisciplinary working group that develops, implements and disseminates diabetes guidance, policy and an education program for staff in the health board.

2.7 Point of Care Testing (POCT) Assurance Group

Oversees the Training and Quality Assurance of POCT glucose/ketone meters.

2.8 Service Delivery Units (SDU)

Are responsible to ensure that staff are aware of this policy and to embed this within their units for safe effective care of patients with diabetes as inpatients. Any incident arising in diabetes management should be investigated at local level and discussed within their governance processes to take action and prevent reoccurrence and minimise risk.

2.9 Diabetes Consultants and Diabetes Specialist Nurses (DSN)

Diabetes Consultants and Diabetes Specialist Nurses from each Delivery Unit are responsible for contributing and developing diabetes services in line with this policy.

2.10 Unit Nurse Directors, Heads of Nursing, Senior Matrons, Matrons and Senior Midwifery Managers

Unit Nurse Directors, Heads of Nursing, Senior Matrons, Matrons and senior managers are responsible for ensuring compliance with this policy and these procedures should be included in the induction of staff who may be involved in the care of patients with diabetes. They should also ensure that staff have the required training and competence for providing safe effective care.

2.11 Medications Safety Officer

The Medications Safety Officer has responsibility for reviewing medication related diabetes incidents and ensuring any specific trends identified are discussed to support organisational learning and feedback and where possible identify actions to mitigate risk. The incidents must be monitored on a quarterly basis.

2.12 Ward Clinical and Departmental Managers

All ward, clinical and departmental managers are responsible for:

- Adequately disseminating and implementing this policy within their areas of responsibility
- Adequately training/inducting staff, to ensure they are competent to undertake effective diabetes care
- Implementing any required actions or additional training to address any areas of non-compliance.
- Implementing any required action as identified through Safety Learning Events.

2.13 ThinkGlucose Champions

Responsible for disseminating guidance and education to the clinical area they represent as requested by the ThinkGlucose Implementation Group.

2.14 Clinical Directors, Clinical leads, Consultants and Medical Staff

All Medical Staff should ensure they are familiar with Health board procedures and guidelines for the management of inpatients with diabetes. Senior Medical Staff are responsible for the supervision and training of doctors; they should ensure that junior medical staff are competent to undertake procedures within this policy.

2.15 Individual Employees

It is the responsibility of every registered nurse (RN), doctor, health care support worker (HCSW) and allied health care professionals (HCP) that are given responsibility of caring for a patient with diabetes is aware of this policy and complies with procedures and guidance. All staff should report any patient incidents associated with diabetes where care is compromised and policy not adhered to via Datix. Welsh Assembly Government Diabetes Delivery Plan[8] (2016) states, Health boards to ensure severe hypoglycaemia or hospital onset DKA / HHS are recorded on DATIX, investigated and reported as necessary as serious incidents. Point of care Incident Reporting - Clinical incidents or near misses must be reported via the Health Board's Datix incident reporting system and flagged as a POCT incident. The incident MUST also be reported verbally to the POCT team.

3.0 In-patient Guidelines

3.1 Admission process and priorities – ED /Assessment Unit

All patients with diabetes/suspected diagnosis of diabetes should have a HbA1c venous blood test performed with admission bloods and their capillary blood glucose tested within one hour of admission. If capillary blood glucose (CBG) >14mmols/L and they are unwell regardless of type of diabetes screening for capillary blood ketones (CBK) should be considered. Any abnormal must be communicated to the Medical Team and for any capillary blood glucose result of >27.8mmols/L a venous sample must be undertaken to check correct value.

Continue monitoring CBG as requested following Capillary Blood Glucose Monitoring Flowchart guidance or as directed by Diabetes Specialist Nurse (DSN) or Medical Staff. For management guidance refer to COIN (CID1692).

On admission to the health board all patients must be flagged with their Diabetes Status Type 1 or Type 2 or other cause of diabetes on the Myrddin or Clinical Portal System.

3.2 Diabetes In-patient ThinkGlucose Multidisciplinary Team Referral Criteria for Adults

All sites have adopted the adapted ThinkGlucose Diabetes Referral Criteria for patients with diabetes to the Nurse Diabetes Team. The referral category is prioritised as outlined on the Inpatient Diabetes Review on COIN CID1694. Please email (or print and send) these to the diabetes team promptly with additional information so that they can prioritise ward visits and if required telephone the team to discuss (details for each site on the referral form). Day of discharge referrals are not an emergency and may delay discharges. Assessment for referrals should be conducted on and during admission and prior to discharge.

The Diabetes Inpatient e-Referral Form to the Diabetes Specialist Nurses is specifically for Adult in-patients.

- Assess using the referral criteria and place the ThinkGlucose referral assessment sticker in notes to document assessment (available from the Diabetes Team).
- DSN service will assess and prioritise referrals. Non-urgent referrals may not be seen the same day.
- Referrals made after 2pm may not be seen the same day.

Consultant to Consultant referrals will continue in their usual preferred method.

3.3 Diabetes Medication Management

All diabetes medications must be administered in accordance with the Health Board Policy on Medication administration.

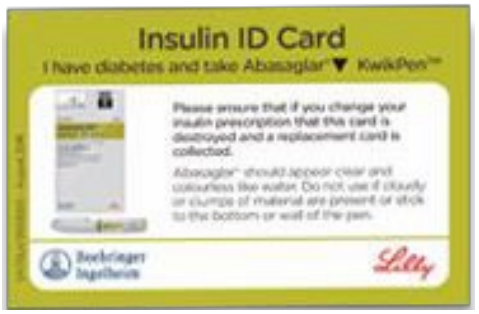
3.4 Oral Hypoglycaemic Agents

Oral hypo glycaemic agents must be prescribed using the new electronic prescribing system if in place or alternatively on the All Wales Medication Charts. Refer to COIN CID418 Inpatient Medication Administration Records. For further information and guidance refer to COIN CID1696 ThinkGlucose Teaching Aid for Anti-glycaemic Agents.

3.5 Insulin Therapies - Prescribing and administration of Insulin

For prescribing and administering insulin use the new electronic prescribing system if in place otherwise use the chart COIN CID416 Adult Insulin Administration Record insulin chart. For up to date insulin injection technique refer to FITUK recommendations click link .
Patients will be given Insulin passport cards on commencing insulin treatment, these are available from the Diabetes Team.

Examples of Insulin Passport Card



e-Learning modules

The Safe Use of Insulin eLearning module is available for staff to complete via this link: The six steps to insulin safety - DiabetesontheNet. Prescribe and administer safely and be aware of Patient Safety Alerts and ensure you have the required knowledge and competence to prescribe and administer insulin safely. Ensure you have completed the required eLearning modules on insulin and are aware of insulin types, strengths and devices and have checked the patient's insulin passport card to ensure the correct insulin is prescribed and administered. Patients are issued these by the Diabetes Team insulin manufacturers' plastic coloured cards which have a picture of the insulin/device/viral on them for easier identification.

- For further guidance refer to COIN CID1698 ThinkGlucose Insulin Teaching Aids
- For insulin management refer to COIN CID1704

3.6 Variable Rate Intravenous Insulin Infusion – VRIII

A variable rate intravenous insulin infusion (VRIII) can be used in patients with diabetes to achieve normoglycaemia in certain circumstances. Such circumstances may include: - patients who are nil by mouth, vomiting or have uncontrolled hyperglycaemia due to illness. In 2014 the Joint British Diabetes Society developed guidance to improve the standards of care for patients on VRIII[7].

Please note this guideline DOES NOT apply to patients with established Diabetic ketoacidosis (DKA) [8] or Hyperosmolar Hyperglycaemic state (HHS)[9]. In these situations, the specific separate guidelines should be applied. However, patients may revert to this protocol following the correction of these metabolic emergencies (DKA/HHS) if the usual subcutaneous treatment cannot resume at that time.

VRIII is based on a variable rate of insulin infusion to achieve normo-glycaemia targets of 6.0-10mmol/l, although 4-12mmol/l is acceptable as outside parameters. Patients receiving an intravenous insulin infusion should also have substrate (glucose) infused to prevent ketosis & hypoglycaemia[10].

- Prescribe 50 units of Actrapid insulin made up to 50mls with Sodium Chloride 0.9% infusion.
- A large bore peripheral cannula is needed, ideally in the hand. If venous access is inadequate liaise with the anaesthetic team regarding central venous cannulation.
- Separate infusions of glucose and insulin should run to a single venous cannula using anti-syphon and anti-reflux valves e.g. a Protect-A-Line 2 Extension set.

For management guidance refer to COIN CID1688 Variable Rate Intravenous Insulin Infusion (VRIII) all sites Chart is available from the Diabetes Team.

3.7 Continuous Subcutaneous Insulin Infusion (CSII) Pumps

Any adult patient admitted to hospital using an external insulin pump to manage his/her diabetes needs prompt referral to the Diabetes Specialist Nurse Team and guidance to be followed as directed in 'The Use of Continuous Subcutaneous Insulin Infusion (CSII) Pumps in Hospitalised patients' Policy & Procedure on COIN – CID1432.

3.8 Non-Insulin Injectable therapies – GLP-1 Receptor Agonist Agents

Incretin mimetics are a group of injectable drugs for treatment of diabetes. The drugs, also commonly known as glucagon-like peptide 1 (GLP-1) receptor agonists or GLP-1 analogues, are usually prescribed for patients who have not been able to manage their condition with tablets and sometimes insulin medication. These injectable and oral therapies must be prescribed on the All Wales Medication Charts NOT on the insulin chart. Refer to COIN CID418 Inpatient Medication Administration Records. Please be aware that combination of insulin and injectables e.g. Xultophy/Suliqua would be prescribed on the Adult Insulin Administration Record chart. The GLP1 receptor agonist Semaglutide is available as an oral hypoglycaemic agent (Rybelsus) and should be prescribed as per point 3.4.

3.9 Adult Inpatient Hypoglycaemia Guidelines

Hypoglycaemia is a lower than normal level of glucose. Hypoglycaemia results from an imbalance between glucose supply, glucose utilisation and current insulin levels. Hypoglycaemia should be excluded in any person with diabetes who is acutely unwell, drowsy, unconscious, unable to co-operate, presenting with aggressive behaviour or seizures. It can be defined as "mild" if the episode is self-treated and "severe" if assistance by a third party is required[10]. For the purposes of people with diabetes who are hospital in-patients, any blood glucose less than 4.0mmol/L should be treated.

The hospital environment presents additional obstacles to the maintenance of good glycaemic control and the avoidance of hypoglycaemia is essential. All patients should be assessed on admission for risk factors for potential hypoglycaemia and review management plans to prevent the incidences.

Risk Factors for Hypoglycaemia (JBDS, 2018)[10]

Medical Issues	Lifestyle
Strict glycaemic control	Increased exercise (relative to usual)
Previous history of severe hypoglycaemia	Irregular lifestyle
Long duration of type 1 diabetes	Alcohol
Duration of insulin therapy in type 2 diabetes	Increasing age
Lipo-hypertrophy at injection sites	Early pregnancy
Impaired awareness of hypoglycaemia	Breast feeding
Severe hepatic dysfunction	No or inadequate blood glucose monitoring
Impaired renal function (including those patients requiring renal replacement therapy)	Reduced carbohydrate intake
Sepsis	**Reduced Carbohydrate intake/absorption**
Inadequate treatment of previous hypoglycaemia	Food malabsorption e.g. gastroenteritis, coeliac disease
Terminal illness	Bariatric surgery involving bowel resection
Cognitive dysfunction/dementia	

Potential causes of Inpatient Hypoglycaemia (JBDS, 2018)[10]

Medical Issues	Carbohydrate intake issues
Inappropriate use of 'stat' or 'PRN' rapid/short acting insulin	Missed or delayed meals
Acute discontinuation of long term corticosteroid therapy	Less carbohydrate than normal
Recovery from acute illness/stress	Reduced appetite
Mobilization after illness	Prolonged starvation time e.g. 'Nil by Mouth'
Major amputation of a limb	Vomiting
Incorrect type of insulin or oral hypoglycaemic therapy prescribed and administered	Lack of access to usual between meal or before bed snacks
Regular insulin doses or oral hypoglycaemia therapy being given in hospital when these are not routinely taken at home	Change of the timing of the biggest meal of the day (i.e. main meal at midday rather than evening)
Change of insulin injection site	Reduced carbohydrate intake
Inadequate mixing of intermediate acting or mixed Insulins	Omitting glucose whilst on IV insulin infusion
IV insulin infusion with or without glucose infusion	
Inappropriately timed insulin or oral hypoglycaemic therapy in relation to meal or enteral feed	

Hypoglycaemia is the commonest side effect of insulin and sulfonylureas treatment and presents a major barrier to satisfactory long term glycaemic control. Metformin, pioglitazone, the DPP-4 inhibitors, SLGT-2 inhibitors and GLP-1 RA analogues prescribed without insulin or sulfonylurea therapy are unlikely to result in hypoglycaemia.

Each Clinical Area in the Health Board has an orange Hypo box to treat patients with hypoglycaemic symptoms. Patients may experience these symptoms at a level > 4.0 mmol/L if their usual blood glucose levels are higher. Staff should ensure that the hypo box is restocked after each use. These boxes should be checked daily and kept with or near other emergency items e.g. cardiac arrest trolley; sepsis box. Please check expiry date on products within the boxes and this includes the emergency glucagon (in the 'fridge).

For management guidance refer to COIN CID208 Inpatient Treatment of Hypoglycaemia in Adults with Diabetes.

Hypo Box Contents:

- 3 x Lift (Glucojuice)
- 1 x pack 20 Glucotabs
- 2 x Triple Packs Glucogel
- 1 x Glucagon IM 1mg (kept in ward fridge)
- 100mls Glucose 20% must be available for patients who are nil by mouth for rapid treatment for patients with intravenous access.

Glucose and Glucagon injection in patients with diabetes is exempt from requiring a prescription in a lifesaving emergency

If there is no Intravenous access glucagon can be administered by intramuscular injection. Glucagon is an injectable medication that is used to treat people with diabetes who are experiencing severe hypoglycaemia in an emergency. It is only used for severe hypoglycaemia when patients with diabetes is about to or has lost consciousness, or has lost the ability to swallow. Within the glucagon kit are instructions, a syringe pre-filled with a saline solution, and a vial of powdered glucagon.

- Combine glucagon and water immediately before use and discard any unused portion after injection.
- When administering glucagon, put the patient into the recovery position (on their side) to aid their breathing.
- Glucagon can be injected into the arm, thigh or buttocks at 90 degrees administer by subcutaneous or intramuscular injection intramuscularly. There is no danger of overdose with glucagon. If it is not possible to remove clothing in a timely manner, glucagon may be injected through clothing if necessary.
- Glucagon can cause vomiting so make sure the patient remains in the recovery position to prevent the chances of choking.
- If the patient does not respond within 10 minutes, intravenous glucose should be given.
- Following treatment each episode of hypoglycaemia must be documented on the Health Board Hypo sticker (available to order from oracle order number: WENHS001). This must be stuck in the patient's clinical notes to ensure medical staff review patient and the event and can recommend and advise review of medications as necessary.

3.10 Hyperglycaemia Guidelines

The evidence base for optimal glycaemic control for inpatients remains controversial, however, a pragmatic blood glucose (BG) target of between 6.0-10.0 mmol/l is generally recommended with occasional values of between 4.0-12.0 mmol/l being acceptable. However, patients with persistent hyperglycaemia and values consistently above 14.0 mmol/l should be discussed with the specialist diabetes teams as a prompt review of treatment is likely to be required.

- Two values above 14.0 mmol/l requires prompt review of treatment i.e. supervising medical team to review on next ward round
- Two values above 18.0 mmol/l needs more urgent treatment i.e. same day review by team or on call team review out of hours

For full management guidance refer to CID2512 Inpatient Treatment of Hyperglycaemia in Adults with Diabetes.

Hyperglycaemia Guidelines for patients with Cancer are available on COIN – CID4176
Hyperglycaemia Guidelines for patients on Dexamethasone are also available on COIN – CID5342
Hyperglycaemia Guidelines for patients on steroid therapy will be available on COIN (2022).

3.11 Diabetes emergencies

All Diabetes emergencies must be treated immediately and escalated for Senior Medical review. These patients must receive intensive medical and nursing support especially during the early part of admission. Medical staff must assess the patient immediately and at least hourly until stabilised with hourly monitoring and frequent blood investigations as directed by clinical guidelines for DKA, HHS, and VRIII available on COIN/Medicines/Diabetes.

3.12 Diabetic Ketoacidosis – DKA

Diabetic ketoacidosis (DKA) is an altered metabolic state characterized by ketonaemia, acidosis and hyperglycaemia. It occurs due to absolute or relative insulin deficiency, with an increase in hormonal counter regulation. The hormonal imbalance increases hepatic gluconeogenesis and glycogenolysis resulting in hyperglycaemia with osmotic diuresis, which along with vomiting leads to water and electrolyte depletion. There is enhanced lipolysis and ketone body formation resulting in metabolic acidosis. Protein breakdown, renal impairment and acidosis can result in hyperkalaemia at presentation. DKA is common with a mortality rate which is unacceptably high. The main causes of mortality in an adult with DKA include severe electrolyte abnormalities, adult respiratory distress syndrome (ARDS) and co-morbid states such as pneumonia, pancreatitis, acute myocardial infarction and cerebrovascular accident. In children and adolescents (who may be admitted on our adult wards) cerebral oedema remains the most common cause of mortality. DKA is a life threatening condition and patients must receive intensive nursing support especially during the early part of admission. Medical staff must assess the patient immediately and at least hourly during the early part of their hospital stay. In 2013 Joint British Diabetes Society developed guidance to improve the standards of care for patients with DKA[8].
Indicators of **Severe DKA** which need early **senior intervention** include Hypoxia, Hypotension, Tachycardia, reduced GCS or severe metabolic disturbances. For sever DKA clinical input from ITU and HDU will be required.

Diagnosis (presence of each of the following)

- Known Diabetes or Hyperglycaemia [blood glucose >11 mmol/l]
- Ketonaemia >3 mmol/l
- Acidosis [venous pH <7.3 and/or HCO3 <15 mmol/l]

If the patient is vomiting, clinically deteriorating or blood glucose is persistently elevated (>14.0 mmol/l) blood ketones should be checked to exclude DKA. Ensure the patient has not decompensated into DKA or HHS

Unwell Patient with Diabetes	
DKA	**HHS**
More common in Type 1 but can occur in Type 2	Type 2
Raised Glucose level **>11.0 mmol/L**	Very high Glucose level **>30.0 mmol/L**
Can occur at any age	More likely to occur in the elderly
Can develop within hours	Often precedes illness and days of dehydration
Blood ketones raised	Blood ketones may not be raised
Symptoms of DKA include:	**Symptoms of HSS include:**
Constant thirst	Excessive thirst, dry mouth
Urinating more frequently	Urinating more frequently
Dry or flushed skin	Dry or flushed skin
Nausea/vomiting	Nausea/vomiting
Drowsiness/Confusion	Drowsiness/Confusion
Finding it hard to breathe	Vision blurred/loss
Stomach pain	Fever
Blurred vision	Hallucinations
Breathe that smells of pear drops	Convulsions/coma
Ketone less than 0.6 mmol/L – Low risk DKA Readings below 0.6mmol/l are in the normal range. No additional treatment at this point.	
Ketone 0.6mmol/L to 1.5 mmol/L – Moderate risk DKA Consider additional insulin and ensure adequate hydration, Repeat ketones after 1 hour to ensure ketones are falling.	
Ketone result greater than > 3.0 mmol/L – High risk DKA High risk of DKA, investigate for DKA, give additional insulin and ensure adequate hydration (likely to need IV) Repeat after 1 hour.	

For management guidance refer to COIN CID1690 Adult Diabetes Ketoacidosis Treatment and Monitoring Chart. All Sites Chart available from the Diabetes teams. Full guidance is available using this link: JBDS_02__DKA_Guideline_amended_v2_June_2021.pdf (abcd.care).

3.13 Hyperosmolar Hyperglycaemia State – HHS[11]

This often occurs in elderly patients with type 2 diabetes (but can occur at any age), who have just about enough circulating insulin to control lipolysis and therefore do not develop more than minimal ketosis, but not enough to prevent hyperglycaemia.
Glucose rises to very high levels (often greater than 30mmol/l) resulting in an osmotic diuresis (serum osmolality= 2[Na + urea + glucose mmol/Kg =>320mosmols/L) with loss of large amounts of potassium, sodium and water.
Patients may have a high serum sodium concentration as water is lost in excess of sodium. Therefore, the principal problems are severe hyperglycaemia and severe dehydration as a consequence of osmotic diuresis.

For management guidance refer to COIN CID54 Hyperosmolar Hyperglycaemic State Protocol.

3.14 Adult Patients with Diabetes Requiring Surgery

On admission to the health board all patients must be flagged with their Diabetes Status on the Myrddin or Clinical Portal System. The Joint British Diabetes Society have guidance for the management of adults with diabetes undergoing surgery[12].

For management guidance refer to COIN CID126 Diabetes and Surgery Adult.

3.15 Diabetes and COVID

Several National Guidance have been produced during the pandemic some of which have been localized but both National and local guidance can be accessed using this link: Clinical Online Information Network | Diabetes (wales.nhs.uk). Guidance covers information on managing Diabetes and Covid at the 'front door'; Hyperglycaemia due to Dexamethasone for COVID-19 and Adjusting insulin for Hyperglycaemia in COVID-19.

3.16 Midwifery Services

Guidance has been developed specifically for women with diabetes in labour[13] and for those women with diabetes who may require steroid therapy[14]. Guidance, charts and a training film can only be accessed via the midwifery department but these are based on the Joint British Diabetes Societies for Inpatient Care Guidelines (2017) Management of glycaemic control in pregnant women with diabetes on obstetric wards and delivery units accessible using this link: JBDS_Pregnancy_final_18082017.pdf (diabetologists-abcd.org.uk).

3.17 End of Life Services

Guidance has been developed and adapted from National Guidance specifically for patients with diabetes during palliative and Managing diabetes at the End of Life. Please see following summary and full National guidance on COIN CID4120a and CID4120b.

3.18 Diabetes and Dialysis

Guidance has been developed and adapted from National Guidance specifically for patients with diabetes requiring dialysis. Managing Adults with Diabetes on the Haemodialysis and Renal Unit - Summary Guideline is available on COIN CID4346.

3.19 Blood Glucose Monitoring

United Kingdom Accreditation Service (UKAS) requires all Clinical Pathology Laboratories to guarantee that all Point of Care Testing (POCT) within the Health Board should be performed to the same

standard as required in an accredited pathology laboratory and, in doing so, ensures the safety of patients and staff.

The use of 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. Management of a patient or a therapeutic decision based on an unreliable result could be fatal.

- All staff performing POCT must be adequately trained to use the equipment [14]
- Untrained or insufficiently trained staff must not use the equipment
- Training is provided by ABMU HB Point of Care Testing team or a Nurse Educator, in conjunction with Diabetes Specialist Nurse
- Once trained, a unique barcode ID is issued to the trainee and their training date is recorded in Unipoc (Glucose meter Data management system). Three years after registration the database is checked to ensure staff have maintained proficiency, i.e. continue to measure patient and quality control samples. Provided staff have continued testing in the previous three months a further 3-month activity is authorised pending further full training
- All staff are required to update training every three years after their original training date
- Quality control checks must form part of the maintenance routine, with direct involvement of the POCT department.

For further information on governance in POCT please refer to COIN CID1918 Governance Policy for Point of Care Testing.

All inpatient monitoring of capillary blood glucose (CBG) and capillary blood ketone (CBK) MUST be documented on the appropriate monitoring charts.

- For patients on insulin treatment please use the Adult Insulin Administration Record CID416. Charts are available to order from oracle.
- For patients not on insulin treatment document readings on Blood Glucose Monitoring Chart for Non-Insulin Treated Patients CID2514. Charts are available to order from oracle.

3.20 Capillary blood glucose self-testing guidance for inpatients

Healthcare professionals working within SBUHB should always use the standardised blood glucose meter (manufactured by Abbott) to monitor and record blood glucose results on patients within secondary care. Patients who are able to self-test may be permitted to use their own glucose meter. However, the results should never be recorded in patient records or used in their clinical care. The Abbott blood glucose meters used within the Health Board are enrolled in an external quality assurance scheme to ensure quality of performance. By comparison, patients' meters are rarely quality assessed.

The patient's nurse must monitor CBG as per Health Board guidelines using Health Board approved equipment only. Refer to COIN CID1692.

Nursing, pharmacy and medical staff must not use patient's CBG monitoring equipment or use results taken by the patient to make clinical decisions. Healthcare professional staff should only act upon results measured on SBUHB glucose meters.

Patients are able to use their own glucose/ketone monitoring equipment while self-managing in hospital. However, it is recommended that patients and nurses coordinate efforts to avoid unnecessary tests.

Differences in glucose results can be seen between glucose meters from different companies. This could be due to several reasons (e.g. how the meter is calibrated, different strip methodology, limitations and interference with the method). If there is a significant difference between results or cause for concern always repeat the capillary blood glucose test using the hospital meter. The hospital meter complies with ISO15197, is checked every 24hrs with liquid quality control material and enrolled in a monthly External Quality assessment scheme to monitor its performance. If required a venous sample should be sent to the laboratory for confirmation.

If during admission, it is suspected that the patient's equipment is not accurate a replacement should be sought. Ward staff should monitor the patient's CBGs as per Health Board guidance and the results made available to the patient.

Reporting Reference Limits

- The glucose range of the FreeStyle meter is 1.1 – 27.8 mmol/L
- The meter displays <1.1 mmol/L and >27.8 mmol/L

If outside this range:
Send a venous blood sample to the laboratory immediately for confirmation when result >27.8mmol/L. Immediately invoke hyperglycaemia protocol COIN CID2512 - Inpatient Treatment of Hyperglycaemia in Adults with Diabetes.

If result <1.1mmol/L. Treat immediately as directed by Heath Board hypoglycaemia guidelines, please refer to COIN CID 208 - Guidance for the Management of Inpatients with Hypoglycaemia. The glucose action range is below 4.0mmol/L and above 14.0mmol/L.

For full management guidance and competency refer to CID 1916 Point of Care Testing – Abbott Free Style Precision Pro (FFP) Glucose Testing and POC Governance Policy CID 1918

3.21 Ketone Monitoring

Ketone interpretation

Ketones are produced from the breakdown of fat when insulin is not available for usual glucose metabolism. Patients with type 1 diabetes are prone to ketone formation as are patients with longstanding insulin treated type 2 diabetes or pancreatectomy. The presence of moderate or large amounts of ketones in the blood suggests insulin deficiency. Ketones can be cleared by the administration of additional insulin and adequate hydration.

Ketone less than 0.6 mmol/L – Low risk DKA Readings below 0.6mmol/l are in the normal range. No additional treatment at this point.
Ketone 0.6mmol/L to 1.5 mmol/L – Moderate risk DKA Consider additional insulin and ensure adequate hydration, Repeat ketones after 1 hour to ensure ketones are falling.
Ketone result greater than 3.0 mmol/L – High risk DKA High risk of DKA, investigate for DKA, give additional insulin and ensure adequate hydration (likely to need IV) Repeat after 1 hour.

Reporting Reference Limits

- The ketone range of the FreeStyle meter is 0.0 - 8.0 mmol/L.
- The meter displays > 8.0 mmol/L if outside this range.
- Normally levels of the ketone beta-hydroxybutyrate are <0.6mmol/L

NB If the patient is vomiting, clinically deteriorating or blood glucose is persistently elevated (> 14.0 mmol/l) blood ketones should be checked to exclude DKA.

For full management guidance and competency refer to CID1978 POC -A-SOP User Freestyle Precision Pro Ketone Meter.

3.22 Nutrition for patients with diabetes

Patient education

In SBUHB patient education programs are offered for both Type 1 and Type 2 patients. Type 1 patients are offered Carbohydrate Counting Course and Type 2 patients are offered 'X-PERT' (a 6 week group program) or 'An Introduction to Diabetes' (a one off group session).

For information regarding Type 2 Diabetes education and referral forms . An information video regarding X-PERT course is available ***Introducing X-PERT*** please type this web address into your browser and click enter: www.medic.video/x-pert.

Type 2 interactive online education program for patients is available on the diabetes UK website https://www.type2diabetesandme.co.uk/

Guidance on carbohydrate counting is available via Diabetes UK website https://www.diabetes.org.uk/Guide-to-diabetes/Enjoy-food/Carbohydrates-and-diabetes.

The 'Carbs Count' e-book (Diabetes UK) regarding carb counting and insulin dose adjustment for people with Type 1 diabetes can be downloaded via click link.

Pocket medic video information is available for patients with pre diabetes, Type 1, Type 2 and gestational diabetes (refer to 4.25)

Resources for Ward Based Staff

The following resources are available for ward based staff. Patient information sheet "Initial advice for Diabetes and Glucose Intolerance".

For dietary management guidance including therapeutic dietary advice, dessert choices and bedtime snacks refer to:

- COIN CID2788 Managing diabetes and food on the ward click link
- COIN CID492 Provision of Therapeutic Diets and the Nutritional Care of Adult Patients a ward manual for nursing staff
- Guidance regarding diabetes bedtime snacks is available on ThinkGlucose Resource page click link
- Guidance on managing diabetes for those on enteral nutrition will be available on COIN soon.

3.23 Foot assessment and care for patients with diabetes

Useful resources

Requesting a Podiatry Consultation

Protocol Guidance refer to COIN CID1788 Podiatry Inpatient consultation protocol.

Consultation Request form refer to COIN CID1790 Podiatry In patient Consultation Request.

Management of Diabetic Foot Ulcers

For Management of Diabetic foot ulcers refer to COIN CID70.

The Podiatry In-Patient consultation request protocol is designed to ensure Podiatry assessments, advice, signposting and treatments can be prioritised promptly. The process will support both the multidisciplinary team and patients, to work together to agree goals, at the earliest opportunity.

3.24 Discharge / Transfer process

In 2017 Joint British Diabetes Society[13] developed guidance to improve the standards of care for people with diabetes when they are admitted to hospital. Further guidance has been produced to facilitate safe discharge to improve patient flow[14] (CID3664). Both focus on ensuring a safe and timely discharge or transfer from hospital by means of effective discharge planning with particular reference to the specific needs of people with diabetes.

The initial discharge assessment will be undertaken by ward staff. This assessment will help to determine which members of the multidisciplinary team will need to be involved during the inpatient stay and in the discharge planning process. Early referral is paramount to avoid delays in discharge. Prompt referral to the Diabetes Specialist Team for involvement in the in-patient care pathway and discharge planning process should include the 'The ThinkGlucose' criteria assessment. These are evidence based criteria and when used can facilitate discharge planning and reduce length of stay.

Discharge to care of district nurses for insulin administration

- Ensure Insulin prescription chart with current prescription (New prescription Chart sent with patient for District Nurse) and scan emailed to the District Nurse spoken to and GP surgery.
- Ensure adequate supplies to continue treatment are sent with patient
- Where district nurses are administering insulin, ensure adequate supplies are provided.
- For insulins where a vial is not available an insulin pen will be supplied and the district nurse will use a needle clipper to remove the needle.
- Insulins will not be switched to accommodate this - Insulin choice will be driven by clinical need.

Discharge of patients on insulin

- At discharge from hospital, pharmacy will supply patients the insulin device they were using at admission unless changes have occurred and been effectively communicated. Pharmacy will ensure the patient has access to a seven-day supply.
- For patients new to their insulin who may require District Nurse administration a prescription of insulin and devices will be supplied. DNs should be requesting this when accepting such patients.

- This should be communicated to the hospital pharmacy team by the ward nurses. Pharmacy will ensure seven-day supply plus a safety backup.
- Ensure adequate supplies to continue treatment are sent with patient

Discharge of patients to Podiatry

- At discharge from hospital, ward staff must ensure the Podiatry Service is informed of patient discharge where there are any follow up requirements.

The discharge summary can be forwarded to the Podiatry & Orthotics Service email **abm.podiatryandorthotics@wales.nhs.uk** who will then action as appropriate

Discharge of patient to Orthotist

- At discharge from hospital, ward staff must ensure the Podiatry Service is informed of patient discharge where there are any follow up requirements.

The discharge summary can be forwarded to the Podiatry & Orthotics Service email: **abm.podiatryandorthotics@wales.nhs.uk** who will then action as appropriate

3.25 Nursing Care Plans

We understand that generic care plans may be in general use but the Diabetes Nurse Specialist Teams have developed nursing care plans for patients with diabetes and these are available on the Nursing Diabetes site on COIN. Refer to care plans via these links:

- CID 2726 Think Glucose Diabetes Type 1 Care Plan (V1) click link
- CID 2728 Think Glucose Diabetes Type 2 Care Plan (V1) click link

3.26 Patient Information leaflets

Patient information leaflets are available via the Diabetes Specialist Nurse Teams in each delivery Unit. TREND leaflets are endorsed by SBUHB. These are available from Diabetes Nurse Specialists and can be printed for Ward based Resource folders

Health Care professional information leaflets by TREND can be downloaded to print via http://trend-uk.org/

3.27 Pocket Medic- Patient information videos

These films have been made as part of a national plan to try to support the many people in Wales living with a long-term condition. They can be prescribed for patients to watch a short series of films as part of their treatment plan. Each film has been created by NHS healthcare professionals and people living with diabetes to help patients, carers' and families to further understand and manage their condition. The series of films are for patients with Pre- Diabetes, Diabetes Type 1, Type 2 and Gestational Diabetes.

To watch these films please type into your browser the web address below for your type of diabetes and click enter: Open your browser (Internet Explorer, Chrome, Safari etc.) and type the link into the address bar at the top – not the search box in the middle of the screen

Clinic	Singleton	Morriston	Neath Pot Talbot
Pre diabetes	**www.medic.video/a12-pre**	**www.medic.video/a13-pre**	**www.medic.video/a14-pre**
Type 1	**www.medic.video/a12-type1**	**www.medic.video/a13-type1**	**www.medic.video/a14-type1**
Type 2	**www.medic.video/a12-type2**	**www.medic.video/a13-type2**	**www.medic.video/a14-type2**
Gestational	**www.medic.video/a12-gest**	**www.medic.video/a13-gest**	**www.medic.video/a14-gest**

If you have any difficulties accessing the films or have any feedback or comments please email the team at PocketMedic: patient@pocketmedic.org.

4.0 Training and Education

All practitioners must operate within the Policies, Protocols and Guidelines of SBUHB. All Staff must have received approved training, documented supervised practice and achieved competency for skills required for safe practice within Diabetes care management. The onus is on individuals to ensure that their knowledge and skills are maintained, both from a theoretical and practical perspective and comply with their Professional Code of Conduct. Nurses must comply with Nursing Midwifery Council Code of Conduct 22.3[15]. Medical Staff must comply with GMC Good Medical Practice Domain 1: Knowledge, skills and performance [16]. HCSWs must comply with Code of Conduct for Health Care Support Workers in Wales [17].

4.1 Training Requirements

Care professionals if registered with the Health and Care Professions Council must comply with their guidance[1].

- Procedures and guidance including this policy, are included in the induction programs for junior doctors, registered nurses and healthcare support workers
- Procedures and guidance, including this policy, are included in local induction in all relevant areas
- All staff responsible for care of patients with diabetes must undertake ThinkGlucose face to face training available on induction, followed up by the Cambridge Diabetes e-Learning modules (CDEP) essential for their role and must undertake the required competencies and be deemed competent by their line manager.
- All delegated tasks and duties of HCSWs allocated by a RN must have awareness of their accountability in delegation, and that they are within the HCSW scope of competence, making sure that they fully understand their instructions as defined in NMC 11.1[15]. Ward, clinical and departmental managers will ensure that any additional training that may be identified and required is complied with i.e. Point of Care glucose/ketone testing

4.2 Diabetes e-Learning and training matrix

Diabetes e-Learning modules are free to access from the Cambridge Diabetes Education Program (CDEP). On completion of these modules a certificate of competency can be downloaded and used as evidence to the practitioner's professional portfolio of learning and for qualified registrants this can be used as non-participatory learning towards their revalidation.

- Staff may self-register for modules essential for their role using their name and email address. Using your browser search using www.cdep.org.uk, type in WALES for password.

The training matrix are recommended modules based on level of education needed but all modules at all levels are free to access. Please see embedded training recommendations:

Recommendec

4.3 Training and Competency in Capillary Blood Glucose Monitoring

All staff in SBUHB using a blood glucose meter must have attended ThinkGlucose and POCT training as a prerequisite to blood glucose meter testing. Point of Care Testing should only be performed by staff whose training and competence has been established and documented.

- Staff must be competent to interpret the results, or refer the results immediately to their registered healthcare professional i.e. Health Care Support Worker (HCSW), if delegated to undertake the test. Local clinical guidelines must be followed at all times
- During training, all staff should complete a practice session to the satisfaction of the trainer along with a competency assessment questionnaire
- Certificates of competence to use POCT equipment will only be issued on successful completion of training
- The competency of individuals undertaking POCT must be assessed by the trainer before staff can be authorised to conduct patient testing. This will be carried out under supervision by a ward based mentor until observed competency obtained
- Refresher/Update meter training will be required in the event of a break in service, any change in instrumentation/procedure/protocol or if poor quality performance is evidenced. Staff may access refresher glucose meter training at any time they feel they need to update their knowledge and skills for competency
- Following 2 years of practice the operator is required to complete a self-assessment using the Abbott eLearning module accessed via the ESR/OLM NHS learning website
- It is the responsibility of the user to ensure that they are trained and competent to use the device and that their training is kept up to date
- Following the initial training staff will be provided with their own individual barcode to access and use the glucose meter. This barcode identifies the operator who has performed the test and is electronically stored together with the patient ID and result
- All training will be formally documented and the records maintained by the POCT team. The POCT team should be approached for advice on all aspects of training
  Never share your BARCODE or use another member of Staff's barcode

Observed Competency

- All staff that attend initial training will be activated to use the glucose meter for 3 years following an observed competency and completion of assessment questions. After 3 years every operator activity will be checked to ensure they have continued to use the meter, if they have not remained active in the previous three months their barcode will be deactivated. However, if the operator has remained active they can continue testing, however they should update their training within 3 years of initial training
- When working in a low usage area, competency can be maintained if the operator runs monthly quality control samples.
- When staff are deactivated the following will apply to become re-activated:

Inactive 3-4 months and a regular user	Refresher or eLearning session not required to complete observed competency.
Inactive 4-6 months and regular user	Refresher or eLearning session and complete observed competency.
Inactive for longer than 6	Full training and observed competency

4.4 Training and Competency in Capillary Blood Ketone Monitoring

Capillary blood ketone (CBK) testing is carried out on the same meter as CBG. All staff in SBUHB using a glucose/ketone meter for blood ketone measurements must have attended ThinkGlucose and POCT training as a prerequisite to blood glucose ketone testing. Within SBUHB Registered Nursing Staff working in areas designated for managing patients with diabetes only are able to perform this test. The staff undertaking CBK testing must have a comprehensive understanding of diabetes management with identified and documented training and competence.

All staff performing POCT must be adequately trained to use the equipment[13].

- Untrained or insufficiently trained staff must not use the equipment.
- Training is provided by ABMU HB Point of Care Testing team or a Nurse Educator, in conjunction with Diabetes Specialist Nurse
- Once trained, the unique operator barcode ID will be activated for ketone testing. Certification is evaluated annually to ensure each individual is maintaining proficiency
- Quality control checks must form part of the maintenance routine, with direct involvement of the POCT department

Competency & Interpretation

- Staff must be competent to interpret the results and act on them and seek medical advice as required for abnormal results.
- Local clinical guidelines should be followed at all times.
- During training, all staff should complete a practice session to the satisfaction of the trainer along with a competency assessment questionnaire.
- Certificates of competence to use POCT equipment will only be issued on successful completion of training.

4.5 Other Educational Resources and Training

- Six steps to insulin safety can be obtained using the following link: https://diabetesonthenet.com/cpd-modules/the-six-steps-to-insulin-safety/
- A series of short films are available from the pocket medic team using the following link: http://medic.video/hypo-hyper or via scanning the QR link
- Information on injection technique from the Forum for Injection Technique (FIT UK Recommendations can be accessed using this link: http://howis.wales.nhs.uk/sites3/docopen.cfm?orgid=743&id=455283
- Film explaining safe use of insulin can be accessed from this link: http://abm.cymru.nhs.uk/intranet/bulletin.php?bulletin_id=14077
- Diabetes UK: http://www.diabetes.org.uk/
- TREND UK for patient information leaflets: http://www.diabetes.org.uk/

Appendix 1

Teaching Alerts Insulin Safety Alerts

- Patient Safety Alert PSA004 Ensuring the safe administration of Insulin click link
- Patient Safety Alert PSA005 Minimising the risk of medication errors with high strength, fixed combination and biosimilar insulin products click link
- Safer Insulin Prescribing (KTT20) (2017 updated 2019) Overview | Safer insulin prescribing | Advice | NICE
- NHSI NHS/PSA/W/2016/011 Risk of severe harm and death due to withdrawing insulin from pen devices NHS England » Patent safety alert: Risk of severe harm and death due to withdrawing insulin from pen devices associated video NHS England » Patent safety alert: Risk of severe harm and death due to withdrawing insulin from pen devices.

Other Resources available:

- Internal documents via COIN / Medicine / Diabetes and Think Glucose Folders Need direct link
- Guidance on Diabetes for South Asian population is available via SAHF Resources & Policies — South Asian Health Foundation (sahf.org.uk)
- Guidance on Diabetes and Ramadan is available via the IDF Guidelines (idf.org)
- ThinkGlucose intranet page and further resources Swansea Bay University Health Board | ThinkGlucose (wales.nhs.uk)

References

1. **Diabetes – NHS** (July 2019) accessed from https://www.nhs.uk/conditions/diabetes/ 23/01/2020
2. Stats Wales (2016) **Illnesses by gender and year accessed from Diabetes Delivery Plan for Wales 2016-2020. The best standard of care for everyone with diabetes** (2016) https://gov.wales/sites/default/files/publications/2018-12/diabetes-delivery-plan-2016-to-2020.pdf.
3. **Overview of Gestational Diabetes.** NHS (August 2019) Gestational diabetes - NHS (www.nhs.uk) accessed on 22/12/2021
4. Diabetes UK (2020**) Diabetes in Wales** accessed from: Diabetes in Wales | Diabetes UK on 22/12/2021
5. Watts E. Rayman G. (2017) **Diabetes UK Making hospitals safe for people with diabetes** accessed from Making Hospitals safe for people with diabetes_FINAL (002).pdf on 22/12/2021
6. ABMUHB. (2016) **Diabetes Annual Report**
7. NaDIA (2016) National Diabetes Inpatient Audit - NHS Digital
8. Welsh Government (2016) NHS **Wales Diabetes Delivery Plan for Wales 2016-2020. The best standard of care for everyone with diabetes accessible** from: Introduction from Cabinet Secretary for Health, Wellbeing and Sport (gov.wales)
9. **Joint British Diabetes Societies for Inpatient Care** (JBDS-IP) (2014) The use of variable rate intravenous insulin infusion (VRIII) in medical inpatients. UK: 71610 VRIII guideline_Layout 1 (diabetes.org.uk)
10. **Joint British Diabetes Societies for Inpatient Care** (JBDS-IP) (2022) Hospital Management of Hypoglycaemia in Adults with Diabetes Mellitus (Revised ed) UK accessed from: JBDS_01_HypoGuideline__March_2022.pdf (abcd.care) 19/07/2022
11. **Joint British Diabetes Societies for Inpatient Care (JBDS-IP) (2021)** The management of diabetic ketoacidosis (DKA) in adults. UK: JBDS-02-DKA-Guideline.pdf (diabetestimes.co.uk)
12. **Joint British Diabetes Societies Guidelines for Inpatient Care (JBDS-IP) (2015)** Management of adults with diabetes undergoing surgery and elective procedures: Improving standards 82134 Peri-op 2nd edition surgical guidelines_Layout 1 (diabetologists-abcd.org.uk)

13. **Centre for Perioperative Care (March 2021).** Guideline for Perioperative Care for People with Diabetes Mellitus Undergoing Elective and Emergency Surgery CPOC_Diabetes_Surgery_Guideline_March_2021.pdf (abcd.care)
14. **Wales, NHS.** WHC (2017) 034 Policy on the Management of Point of Care Testing (POCT). What, When and How? policy-on-the-management-of-point-of-care-testing-poct.-what-when-and-how.pdf (gov.wales)
15. **Joint British Diabetes Societies for Inpatient Care (JBDS-IP) (2017)** Discharge planning for people with diabetes. UK: JBDS_Discharge_Planning amendment for RCN 16.11.179.17.pdf (diabetes.org.uk)
16. **Nursing Midwifery Council (NMC) (2015)** The Code - Professional standards of practice and behavior for nurses and Midwives nmc-code.pdf
17. **General Medical Council (GMC) (2013 updated in 2014)** Good Medical Practice. UK accessed on 23rd December 2021 from: Good medical practice (gmc-uk.org)
18. **Welsh Assembly Government Code of Conduct for Healthcare Support Workers in Wales** accessed on 23rd December 2021 from: e2871 NLIAH NHS HSW Booklet ENG (wales.nhs.uk)
19. **Health and Care Professions Council** (HCPC) (2017) Guidance. UK: The Health and Care Professions Council (HCPC) | (hcpc-uk.org)
20. **Joint British Diabetes Societies for Inpatient Care (JBDS-IP) (2021).** Self-management of diabetes in hospital. UK: JBDS self management updated Aug 2021.pdf (amazonaws.com)