Diabetes Management Policy.

Executive Director Lead	Executive Director of Nursing, Professions and Quality Operations
Policy Owner	Diabetes management group.
Policy Author	Diabetes management group.

Document Type	Policy
Document Version Number	Version 1 DRAFT
Date of Approval By PGG	29/08/2023
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Ratified By	Quality Assurance Committee
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Summary of policy

The purpose of the policy is to ensure that the diabetes care service users receiving care from SHSC mental health and learning disability services is assessed and that they receive monitoring and interventions as required.

Such assessments must be completed in line with this policy and the relevant Standard Operating Procedures (SOP) for each service/team. This will ensure that the assessment adheres to best practice, including good standards of recording on the electronic patient record.

The policy provides direction and guidance for the planning and implementation of high-quality management of diabetes care within the organisation. It sets out the expectations of interventions that should be provided by staff employed within SHSC and those which will require advice and /or intervention from other specialist services.

Underpinning this policy is the recognition that training and equipment is required at a level which can be effectively utilised by all health care practitioners.

Target audience	All staff working in clinical and managerial roles in SHSC mental health and learning disability services

Keywords	Diabetes mellitus, hypoglycaemia, type 1, and type 2 diabetes.

Storage & Version Control

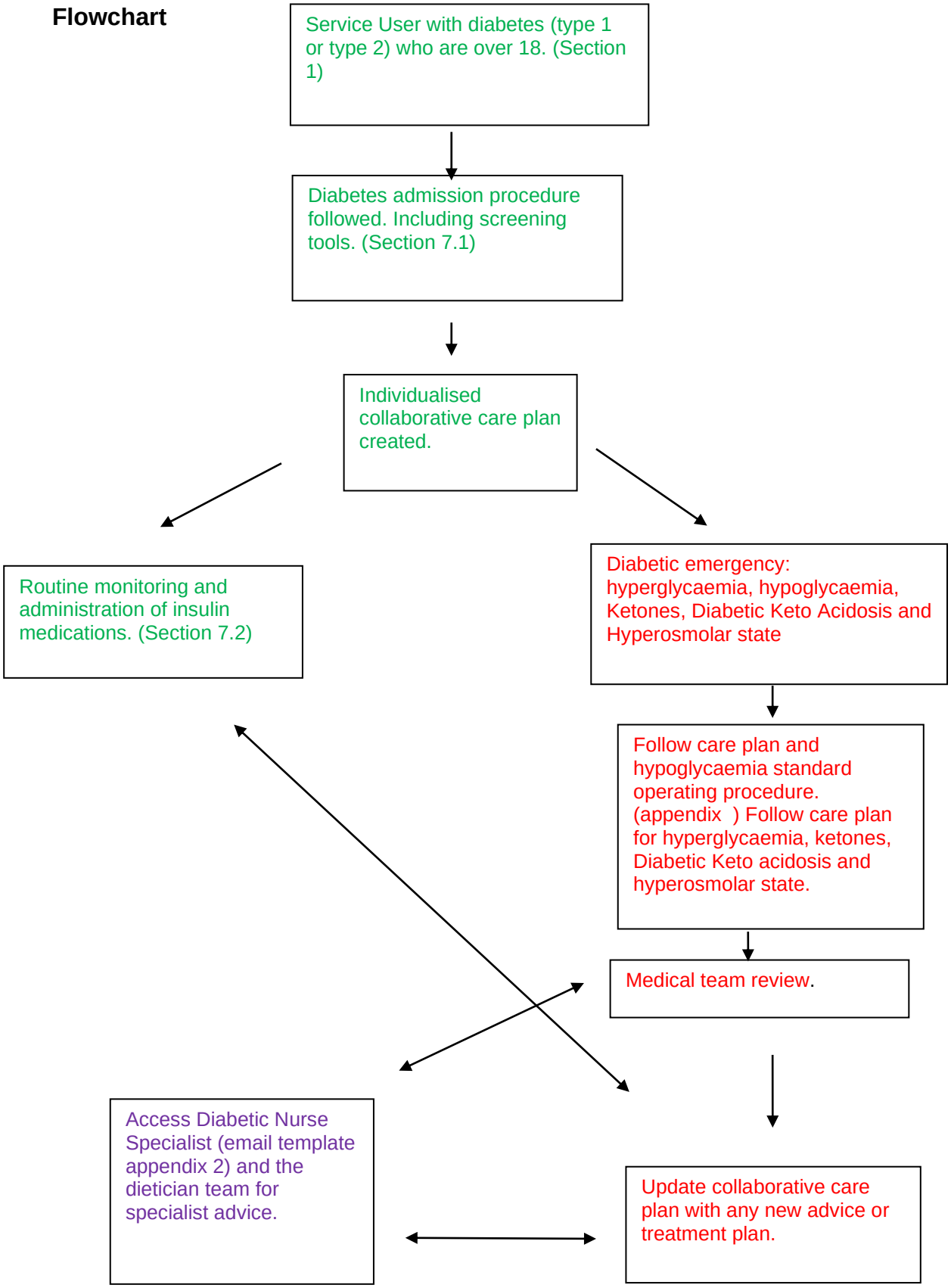
Version 1 of this policy is stored and available through the SHSC intranet/internet. Any copies of the previous policy held separately should be destroyed and replaced with this version.

Version Control and Amendment Log

Version No.	Type of Change	Date	Description of change(s)
0.1	New draft policy created	05/2023	New policy commissioned by EDG on approval of a Case for Need.
1.0	Approval and issue	MM/YYYY	Amendments made during consultation, prior to ratification.
2.0	Review / approve / issue	MM/YYYY	Early review undertaken to update the policy to in order to comply with new regulatory requirements.
2.1	Review on expiry of policy	MM/YYYY	Committee structure updated
3.0	Review / approval / issue	MM/YYYY	Full review completed as per schedule

Contents

Flowchart


Service User with diabetes (type 1 or type 2) who are over 18. (Section 1)
Diabetes admission procedure followed. Including screening tools. (Section 7.1)
Individualised collaborative care plan created.
Routine monitoring and administration of insulin medications. (Section 7.2)
Diabetic emergency: hyperglycaemia, hypoglycaemia, Ketones, Diabetic Keto Acidosis and Hyperosmolar state
Follow care plan and hypoglycaemia standard operating procedure. (appendix) Follow care plan for hyperglycaemia, ketones, Diabetic Keto acidosis and hyperosmolar state.
Medical team review.
Access Diabetic Nurse Specialist (email template appendix 2) and the dietician team for specialist advice.
Update collaborative care plan with any new advice or treatment plan.

Management of Hypoglycaemia in Adults with Diabetes Mellitus
HYPOGLYCAEMIA= Blood glucose (BG) < 4mmol/l

SYMPTOMS
Headache, trembling, sweating, blurred vision, hunger, palpitations, confusion, drowsiness, reducing conscious level and unresponsive
Use **ABCDE** approach
Patient level of consciousness must be assessed to define severity

MILD	MODERATE	SEVERE
Conscious, orientated, and able to swallow	Conscious and can swallow but confused, aggressive or uncooperative	Reduced level of consciousness/Unconscious and/or unable to swallow
Give fast acting carbohydrates One of the following: **GlucoGel 2x25g tubes** **Glucose Shot 1 x 60ml** Or **4-5 Glucose tablets**	If cooperative, follow mild guidance (see left) If NOT capable or cooperative but able to swallow give **GlucoGel** - squirt 2 tubes (25g) into left & right of mouth between teeth & cheek If unable to give either of the above, give **IM Glucagon 1mg** (Glucagon can only be given once)	**Check ABCDE** **CALL 2222 & seek medical assistance** Administer **1mg IM Glucagon** (Kept in 'hypokit' box) Note time of administration Continue to monitor patient using **ABCDE** approach **Do not leave the patient unattended**

Check capillary blood glucose after 10 minutes-if still less than 4mmol/repeat oral carbohydrate or Glucose Gel, according to consciousness as above.
SEEK MEDICL ADVICE
Check BG again after 10-15minutes If still <4
CALL 2222
Meanwhile continue to repeat treatment and monitor using **ABCDE** approach

- When blood glucose 4mmol/L or above: Give 20g of long-acting carbohydrate eg: two biscuits/slice of bread/200-300ml milk/next meal containing carbohydrate
- When patient recovers, request medical / diabetes review for cause of hypoglycaemia and increase frequency of BGs.
- Retest blood glucose after ½ hour, 1 hour, 2 hours and then as per normal regime.

- Glucagon is NOT indicated in patients with liver failure or following prolonged starvation or recurrent hypoglycaemia. These patients are likely to have poor glycogen stores and will not respond to glucagon.
- Glucagon dose should not be repeated- failure to respond implies inadequate glycogen stores.

1. Introduction

Diabetes UK states that diabetes affects approximately 4.3million people in the UK, around 8% of people with diabetes will have type 1 diabetes and around 90% having type 2 diabetes. Diabetes mellitus is a condition characterised by raised blood glucose concentration. It is caused by absolute or relative lack of the hormone insulin. This means that insulin is not being produced by the pancreas or that there is insufficient insulin or insulin action for the body's needs.

Individuals who have a diagnosis of a severe mental illness and learning disability, have an increased risk of developing type 2 diabetes, in addition their life expectancy is reduced by approximately 20 years compared to the general population. Approximately 20% of older people have a diagnosis of type 2 diabetes which then rises to 27% of those in care homes and 20% of all service users who are an inpatient on a mental health ward have a diagnosis of diabetes.

1.1 Prevention

Whilst type 1 diabetes cannot be prevented, type 2 diabetes is largely preventable through lifestyle changes. By making changes to diet, weight, and physical activity the risk of type 2 diabetes can be significantly reduced.

1.2 Type 1 diabetes

Type 1 diabetes is caused by a fault in the body's immune response system, in which the immune system mistakenly targets and kills beta cells, which are produced in the pancreas and responsible for producing insulin. This means that people who have type 1 diabetes will always require insulin therapy, and without it they are at a high risk of developing a serious complication called Diabetic Ketoacidosis (DKA). Insulin should never be stopped in patients with type 1 diabetes.

1.3 Type 2 diabetes

Type 2 diabetes is caused by both impaired insulin secretion and resistance to the action of insulin at the target cells. People with type 2 diabetes are usually managed with diet and/or oral medications. However, there are those who require insulin to help manage their type 2 diabetes as it progresses.

2. Scope

This policy is for clinicians in Sheffield Health and Social Care Trust (SHSC).

3. Purpose

The aim of these guidelines is to set standards in practice and ensure safe effective care of patients with diabetes.

This policy and related guidelines/ standard operating procedures will support clinical staff through the process required to ensure patient safety is maintained in relation to diabetes management.

4. Definitions and abbreviations

Abbreviation or Term	Definition
DKA	Diabetic ketoacidosis.
ACP	Advanced clinical practitioner
DSN	Diabetes Nurse Specialist.
BG	Blood Glucose.
PA	Physician Associate.

5. Detail of the policy

This policy covers diabetes management including:

- Admission process.
- Diabetes monitoring.
- Insulin administration.
- Insulin administration techniques.
- Storage of insulin.
- Ketones and diabetic emergencies.
- Nutritional and dysphagia management.

6. Roles and responsibilities

6.1 Senior managers/ heads of nursing/ Physical health lead nurse:

- Ensure that the policy is reviewed as per policy.
- Ensure that governance processes are followed.
- Disseminated and communicated to matrons/ ward managers and nursing staff.

6.2 Ward managers, Senior Practitioners, Matrons

- Ensure that the policy is communicated and disseminated to staff
- Ensure that staff have access to the policy.
- Ensure that staff have access to attend and complete mandatory training.
- Ensure that the related polices and standard operating procedures are available and followed by staff.

6. 3 Nursing staff and nurse associates

- Work within your role and competencies as per NMC code of conduct.
- Ensure that your knowledge and skills are up to date as per latest guidance.
- Aware and understand the diabetes management policy.
- Attend mandatory training.
- Identify when referrals to specialist services are required and complete the referral.
- Ensure that Intermediate Life Support and Basic Life Support training are in date.

6.4. Dietitians

- Support service users to ensure appropriate diet to support management of diabetes
- Support any training needs in relation to diet and diabetes

6.5 Diabetes Management Group and Physical Health Team

- The Physical Health Team and Diabetes Management Group has overall responsibility for ensuring implementation of this SOP.
- There is corporate responsibility for ensuring this SOP is supported by distribution and awareness and teaching to support implementation.
- The Physical Health Lead Nurse is responsible for updating and amending new versions of this SOP in accordance with new guidelines and recommendations.

7. Procedure

7. 1 Diabetes Prevention

Consider causes:

- After treatment, consideration should be given to whether the hypoglycaemia is likely to be prolonged, i.e., as a result of long-acting insulin or sulphonylurea therapy; in this case, patients may require transfer to the general hospital for a continuous infusion of dextrose to maintain blood glucose levels.
- Inadequate food intake (delayed/missed meal, or lack of carbohydrate / starchy food).
- Too much or poorly timed insulin or oral hyperglycaemic treatment.
- Increase activity (unlikely in inpatients).
- Faulty equipment leading to inaccurate readings.

7. 2 Inpatient services

- A HBA1C test should be completed as part of admission routine blood tests.

- When an antipsychotic medication is started education of the risks and the prevention of type 2 diabetes should be given to the service users and carers should be involved in care and should be documented on the collaborative care plan.

- Routine annual antipsychotic monitoring including clozapine checks should include diabetes screening.

- If any service users would like specific diet advice this can be sought through the dietitian team.

7. 3 Diabetes management on admission

When a service user is admitted to an inpatient ward and has a diagnosis of type 1 or type 2 diabetes:

- Contact the ward doctor/ on call doctor/ Advanced Care Practitioner /Physicians Associate and handover that the patient has a diagnosis of diabetes, so the medic can prescribe the relevant medication and complete a physical examination.

- Complete a full set of physical observations and document on the NEWS2 document.

- Complete blood glucose test and document on the blood glucose monitoring documentation (please see appendix 3 in section 12 for link to document)

- Complete a urine/ blood ketones test if above 15mmols/l

- Assess if service user is symptomatic or shows any red flag symptoms, if showing any contact, a doctor/ Advanced Care Practitioner /Physicians Associate immediately.

- Establish with the service user their diabetes plan:

- What is their diabetic history? (How long have they had it, when was it diagnosed)
- Are they under any specialists for their diabetes? (Do they see a consultant, GP, or diabetic specialist nurse?) when did they last see them?
- Do they usually manage it? How much do they usually manage their diabetes at home?
- Does the patient use any technology, do staff need some training in the technology to make sure they are caring for the patient well?
- Do they administer their own medication or insulin? If not does a district nurse or family member/ carer/ support worker?
- Do they monitor their own blood sugars? (If so, how often, if not who does?)
- If they have brought in a supply of their own, please store appropriately until the doctor/ ACP/ PA can review.
- Once medication has been prescribed, contact pharmacy to order supply.
- Complete a MUST.
- Consider if dietician referral is required for example if the service user is newly diagnosed with type 2 diabetes, do they need education around this, any carbohydrate awareness? or are they malnourished?
- Complete the smoking screening documentation and recommend referral to the Trust's QUIT Team as smoking is a major risk factor for type 2 diabetes complications.
- Document information on service user notes and care plan.
- After the admitting medic has completed their assessment, complete a diabetic care plan.
- The care plan should include a plan of if the service user is hypoglycaemic or hyperglycaemic and what steps need to be taken.
- A diabetic foot assessment should be completed as part of the admission process.
- Is the Service user up to date with appointments including the diabetic eye clinic?
- If a Service user is pre-diabetic it is important to have dietician input to help the prevention of type 2 diabetes developing.

7. 4 Monitoring

- Blood glucose monitoring is important to help to reduce diabetes complications and for monitoring treatment effects. This can be performed using both blood glucose meters and laboratory tests.

- Blood glucose monitoring frequency will depend on the type of diabetes and the treatment regime. It is individual to the service user and needs to be agreed and clearly documented within the care plan and on the service user’s notes, including the rationale for monitoring and future reviews.

- Some service users may use ‘flash glucose monitoring’ which is a sensor that is placed on the back of the upper arm and worn externally by the user, allowing for blood glucose information to be monitored using a mobile app. These readings should

be accepted unless the service user's plan requires an intervention based on blood glucose readings (such as extra insulin is Blood glucose is high), if an intervention is required the blood glucose must be checked using the traditional finger prick test.

- A blood glucose monitoring chart must be used, and readings written on the chart, this is so that trends can be identified and observed. (please see appendix D in section 12 in for link to document)

7. 5 Capillary Blood glucose monitoring

The monitoring of capillary blood glucose is an essential role in the effective management of diabetes when used in the correct manner. Blood glucose levels are to be monitored in accordance with the Service User's usual self- monitoring regime and medical management needs. It should be noted that some people with type 1 diabetes they may use a flash glucose monitor.

When monitoring the Service user's capillary glucose in clinical staff should use the ward's/ clinical area's blood glucose meter and not the patient's own device to ensure that the equipment has been calibrated.

7.6 Equipment

Staff must use a single retractable safety lancet device, which meets infection controls safe sharp standards. Service user's own lancets can be used by the service user however staff should use the ward's stocked safety lancets to help reduce the risk of needle stick injuries to staff.

7.7 Storage of glucose meter, strips, and quality control solutions

The blood glucose meter should be stored in a cool dry play below 30 degrees centigrade and not refrigerated as extremes of temperature can affect the blood glucose monitor. The meter should be kept away from direct sunlight and head in a dust free environment. Ensure that test strips and control solution are stored in their original packaging along with the expiry date. The control solution will require an 'in use' label and a disposal date for when it has been opened. Ketone strips and blood glucose monitoring strips should be kept separately to help reduce the risk of error.

7. 8 Cleaning

Blood glucose monitoring equipment should be cleaned after each use and decontaminated in-line with infection and prevention control guidance please see infection prevention control guidance if contaminated with bodily fluids or blood.

7. 9 Insulin administration

For administration of insulin please see the Medicines optimisation policy (link available in section 13)

7.10 Insulin administration technique

For administration of insulin please see the Medicines optimisation policy (link available in section 13)

7.11 Pen devices

For administration of insulin please see the Medicines optimisation policy (link available in section 13)

7. 12 Insulin pumps

- An insulin pump is a small device that holds an insulin cartridge or reservoir and delivers a constant flow of insulin to the body through a thin plastic tube inserted in the body. A pump is programmed to deliver insulin over 24 hours. Extra insulin is given by the touch of a button to cover mealtimes. Most infusion sets are worn in the abdominal area.
- Service users generally refill their insulin reservoir and change their infusion sets every 2-3 days.
- If a service user has an insulin pump, please contact the diabetic specialist nurses for advice.

7. 13 Storage of insulin

Insulin should be stored as per SHSC pharmacy guidance.

Please see the medicines optimisation policy, link available in section 13.

7.14 Hypoglycaemia

Hypoglycaemia is a condition which occurs when the blood glucose levels are lower-than-normal blood-glucose concentration of below 4 mmols/litre. This needs to be treated straight below 4 mmol/litre. This needs to be treated straight away. For service users within SHSC the guidance from the standard operating procedure on hypoglycaemia in Section 15 must be followed along with the diabetes careplan.

7.15 Hyperglycaemia

Hyperglycaemia is a condition which occurs when the blood glucose levels are too high. A blood glucose level of more than 7.0mmoll/L before a meal and above 8.5mmol/L two hours after a meal is considered as a ‘hyper’ (Diabetes UK).

The following are signs and symptoms of a patient presenting with hyperglycaemia:

- Passing more urine than usual (especially at night)
- Thirsty
- Headaches
- Tiredness
- Causes of Hyperglycaemia:

- A missed dose of medication
- Insufficient insulin
- Eaten more carbohydrate than the body and / or medication can cope with
- Stressed
- Unwell from infection

Over treating a hypoglycaemic event. Managing hyperglycaemia

If a blood glucose level is 15mmol/L or more take the following action:

- plenty of sugar-free fluids
- encourage the patient to move around / exercise / walk
- if the patient is feeling unwell seek review from doctor, physical health care practitioner.

Retest after 2 hours if the blood glucose remains above 15mmol/L take the following action:

- check urine / serum for the presence of ketones (seek review if present)
- Contact doctor/ ACP/ PA
- Assess for red flags.

If a patient has regular hyperglycaemic events, a specific treatment plan should be created to ensure consistent management and treatment.

(please see section 13 for link to document)

7. 16 Diabetic Ketoacidosis and Hyperosmolar state

For guidance on ketones, diabetic ketoacidosis and Hyperglycaemic hyperosmolar state please see appendix for guidance. Appendix E.

7.17 Eating Disorders and Diabetes

For service users who have a diagnosis of an eating disorder and diabetes, specialist advice will be required through the ward medical team, Diabetic Specialist Nurses, and the dietician team. The Royal College if psychiatrist's have some guidance for eating disorders and medical emergencies which can be found here and in the reference list: college-report-cr233---annexe-3.pdf (rcpsych.ac.uk)

7. 18 Exercise

Maintenance of physical activity and appropriate support and advice to increase physical activity levels is an important part of effective diabetes management. Physical activity can help the body to use insulin more effectively by increasing insulin sensitivity, this in turn can help people with type 2 diabetes to improve their HBA1c and in some cases can help to bring the condition into remission.

On working age adult wards there are fitness instructors available to support service users with tailored exercise programmes. Fitness instructors are well placed to support service users to increase their physical activity levels in safe and sustainable way, all service users who either have a diagnosis of type 2 diabetes or who are at risk of developing type 2 diabetes should be offered a referral to a fitness instructor to discuss support with physical activity levels. If the service users have more complex physical health needs and barriers to engagement with exercise a referral to the inpatient mental health Physiotherapy team may be appropriate. On older adult wards all service users are reviewed by the Physiotherapy team routinely and therefore do not require a specific referral however if a service user has been identified as prediabetic please make the Physiotherapy team aware so they can discuss the benefits of physical activity with the service user.

7.19 Services for further advice

For inpatient are the diabetic specialist nurses can be contacted for specific advice, there is an email proforma (appendix C) which has all the information that will be needed for advice from the diabetic nurse specialists, please email to sth.diabetesinpatient@nhs.net

The dietician team can be referred to and give specialist advice for service users with specific needs such as carbohydrate awareness, poor blood glucose control, concerns with repeated episodes of hypoglycaemia and if you are concerned for any malnutrition. For service users with a readiness to change and lose weight, as losing just small amounts of weight can improve diabetes management. Please see the nutrition and hydration policy, link available in section 13.

8 Development, Consultation and Approval

This policy was created through the 'diabetes management group' which is a group of multi-disciplinary healthcare professionals. This is a subgroup of the 'physical health management group', which this policy has been reviewed in. The policy has also been discussed and shared in the following groups for feedback:

- Nutrition and hydration group.
- Medical devices group.
- Medicines optimisation committee.
- Policy confirmation group.
- Shared with the Matron and Ward managers group.
- Education and training steering group.

9 Audit, Monitoring and Review

This section should describe how the implementation and impact of the policy will be monitored and audited. It should include timescales and frequency of audits.

If the policy is required to meet a particular standard, it must say how and when compliance with the standard will be audited.

Monitoring Compliance Template						
Minimum Requirement	Process for Monitoring	Responsible Individual/ group/committee	Frequency of Monitoring	Review of Results process (e.g. who does this?)	Responsible Individual/group/ committee for action plan development	Responsible Individual/group/ committee for action plan monitoring and implementation
Annual review	• Review of NICE guidelines and best practice. • Review of diabetes related incidents. • PH team to carry out audits on compliance.	Diabetes management group which feeds into the physical health management group.	Annually unless any specific changes.	Diabetes management group and physical health management group.	Diabetes management group.	Diabetes management group and physical health management group.

10 Implementation Plan

Action / Task	Responsible Person	Deadline	Progress update
Development of Policy	Jenny Losing Advanced clinical practitioner	June 2023	First draft version of policy completed in June 2023
Dissemination to the PHMG for comment	Jenny Losing Advanced clinical practitioner	June 2023	First draft version of policy shared, comments received and amended.
Consultation clinical services Learning needs analysis completed	Jenny Losing Advanced clinical practitioner	May/June 2023	In patient area staff required to complete training.
Dissemination to the PH Committee for comment	Jill Singleton-IPC Nurse	August 2023	First draft of policy shared. Comments received and amended.
Present case for need to Policy Governance Group (PGG)	Pene Fati Lead nurse for physical health.	July 2023	PGG agreed case for need.
Development of Diabetes training package	Hedey Bishop clinical educator/Carolyn Goldbourne lead physician associate	September 2023	In patient area staff required to complete training.
Diabetes training package shared for comments to the PHMG	Hedey Bishop clinical educator/Carolyn Goldbourne lead physician associate	September 2023	
Policy to be presented to PGG August 2023	Jenny Losing advanced clinical practitioner	August 2023	
Policy to be presented to Quality Assurance Committee	Pene Fati Lead nurse for physical health.	TBC	
Upload new policy onto intranet and remove Standard Operating Procedure (SOP)	Policy Governance Group	TBC	
Communication to all SHSC staff – News item	Pene Fati lead nurse	TBC	

on Jarvis to update staff	for physical health/Communications Team		

11 Dissemination, Storage and Archiving (Control)

This section should describe how the new policy will be disseminated. It says where the policy will be made available and to whom. This will normally be that the policy is available on the Trust's intranet and available to all staff.

It makes it plain that any previous versions must be deleted and describes the archiving and storage arrangements for the current and previous versions of the policy.

It says who is responsible for archiving and version control, and what they should do.

Version	**Date added to intranet**	**Date added to internet**	**Date of inclusion in Connect**	**Any other promotion/ dissemination (include dates)**
1.0	TBC	TBC	TBC	TBC.
2.0				
3.2				
4.0				

12 Training and Other Resource Implications

Identified training by managers should be shared with the Diabetes Management Group for discussion.

This discussion will include:

- Specific training requirements and rationale
- How many staff need training?
- How to meet training needs
- Appropriate environment and infrastructure for training
- Links with other training/policies
- Resources to help staff with physical health and wellbeing are made available on the SHSC intranet.
- Staff have access to clinicalskills.net and can access an evidence based clinical procedures resource.
- Where training needs are identified, these must be discussed with the Education, Training and Development Team and be reflected in the SHSC's Training Needs Analysis
- Training administration support staff are required to book, prepare, record, and monitor staff attendance on training.

13 Links to Other Policies, Standards (Associated Documents)

Physical Health Policy (NP 020 V7 March 2022).pdf (shsc.nhs.uk)

Physical health and resuscitation | JARVIS (shsc.nhs.uk)

Deteriorating Patient Identification and Management Policy (NP 045 V1 Feb 2022) - Ext. to Dec 22 | JARVIS (shsc.nhs.uk)

Medicines Optimisation Policy (MD 013 V11 February 2023) | JARVIS (shsc.nhs.uk)

Nutrition and Hydration Policy (NP 046 V1 February 2022) - Extension to review date April 2023 | JARVIS (shsc.nhs.uk)

Sharps Policy March (V1 NP 027 April 23).pdf (shsc.nhs.uk)

Hypoglycemia SOP (link to be added once on Jarvis)

Diabetes UK (online) Available: Diabetes UK - Know diabetes. Fight diabetes. | Diabetes UK. Accessed 20/04/22.

Joint British Diabetes societies for inpatient care and Royal College of Psychiatrist. 2017. *The management of diabetes in adults and children with psychiatric disorders in inpatient settings. First edition*. Accessed online: Management of diabetes in adults and children with psychiatric disorders in inpatient settings-August-2017.pdf

Leicestershire Partnership NHS trust. 2023. *Safe administration of insulin to adult patients in a hospital and community setting.*

NHS England accessed 2023. NHS diabetes prevention programme (NHS DPP). Accessed: NHS England » NHS Diabetes Prevention Programme (NHS DPP)

National Institute for Clinical Excellence (NG17) Type 1 Diabetes in Adults. London: NICE.

National Institute for Clinical Excellence (NG28) Type 2 Diabetes in adults: management. London: NICE.

National Institute for Clinical Excellence (PH38) Overview: Type 2 diabetes: prevention in people at high risk. London: NICE.

Royal college of psychiatrists. 2022. *Guidance on recognising and managing medical emergencies in eating disorders (replacing MARSIPAN and junior MARSIPAN).* Accessed online: college-report-cr233---annexe-3.pdf (rcpsych.ac.uk)

Tees, Esk and Wear Valleys NHS foundation trust. 2019. *Diabetes management for inpatients.*

14 Contact Details

The document should give names, job titles and contact details for any staff who may need to be contacted in the course of using the policy (sample table layout below). This should also be a list of staff who could advice regarding policy implementation.

Title	***Name***	***Phone***	***Email***
Physical Health Lead	Penelope Fati		Penelope.fati@shsc.nhs.uk
Advance Clinical Practitioner	Jennifer Losing		Jennifer.losing@shsc.nhs.uk
Lead Physician Associate	Carolyn Gouldbourne		Carolyn.Gouldbourne@shsc.nhs.uk
Clinical Educator	Hedley Bishop		Hedley.Bishop@shsc.nhs.uk
Deputy Chief Pharmacist and Medicines Safety Officer	ShrewtIMoermon		shrewti.moerman@shsc.nhs.uk

Section 15 APPENDICES

Appendix A - Equality Impact Assessment Process and Record for Written Policies

Stage 1 – **Relevance** - Is the policy potentially relevant to equality i.e. will this policy potentially impact on staff, patients or the public? This should be considered as part of the Case of Need for new policies.

NO – No further action is required – please sign and date the following statement. **I confirm that this policy does not impact on staff, patients or the public.**	***I confirm that this policy does not impact on staff, patients or the public.*** Name/Date: Jennifer Losing 30/06/2023	**YES,** Go to **Stage 2**

Stage 2 Policy Screening and Drafting Policy - Public authorities are legally required to have 'due regard' to eliminating discrimination, advancing equal opportunity and fostering good relations in relation to people who share certain 'protected characteristics' and those that do not. The following table should be used to consider this and inform changes to the policy (indicate yes/no/ don't know and note reasons). Please see the SHSC Guidance and Flow Chart.

Stage 3 – **Policy Revision** - Make amendments to the policy or identify any remedial action required and record any action planned in the policy implementation plan section

SCREENING RECORD	Does any aspect of this policy or potentially discriminate against this group?	Can equality of opportunity for this group be improved through this policy or changes to this policy?	Can this policy be amended so that it works to enhance relations between people in this group and people not in this group?
Age	**No**		
Disability	**No**		
Gender Reassignment	**No**		
Pregnancy and Maternity	**No**		

Appendix B

Review/New Policy Checklist
This checklist to be used as part of the development or review of a policy and presented to the Policy Governance Group (PGG) with the revised policy.

		Tick to confirm
	Engagement	
1.	Is the Executive Lead sighted on the development/review of the policy?	√
2.	Is the local Policy Champion member sighted on the development/review of the policy?	√
	Development and Consultation	
3.	If the policy is a new policy, has the development of the policy been approved through the Case for Need approval process?	√
4.	Is there evidence of consultation with all relevant services, partners and other relevant bodies?	√
5.	Has the policy been discussed and agreed by the local governance groups?	√
6.	Have any relevant recommendations from Internal Audit or other relevant bodies been taken into account in preparing the policy?	√
	Template Compliance	
7.	Has the version control/storage section been updated?	√
8.	Is the policy title clear and unambiguous?	√
9.	Is the policy in Arial font 12?	√
10.	Have page numbers been inserted?	√
11.	Has the policy been quality checked for spelling errors, links, accuracy?	√
	Policy Content	
12.	Is the purpose of the policy clear?	√
13.	Does the policy comply with requirements of the CQC or other relevant bodies? (where appropriate)	√
14.	Does the policy reflect changes as a result of lessons identified from incidents, complaints, near misses, etc.?	√
15.	Where appropriate, does the policy contain a list of definitions of terms used?	√
16.	Does the policy include any references to other associated policies and key documents?	√
17.	Has the EIA Form been completed (Appendix 1)?	√
	Dissemination, Implementation, Review and Audit Compliance	
18.	Does the dissemination plan identify how the policy will be implemented?	√
19.	Does the dissemination plan include the necessary training/support to ensure compliance?	√
20.	Is there a plan to i. review ii. audit compliance with the document?	√
21.	Is the review date identified, and is it appropriate and justifiable?	√

Appendix C

SHSC email template for referral to Sheffield Teaching Hospitals Diabetes Nurses

Name:
DOB:
NHS number:
Ward:
Ext number:
Type of Diabetes:

Diabetes medications and doses:

Antipsychotic medications that may impact on BG readings:

Reason for referral:

Blood Glucose profile for last five days:

	Day 1	Day 2	Day 3	Day 4	Day 5
Pre breakfast					
Pre lunch					
Pre evening meal					
Pre bed					

Any hypos? What are the times of the hypos:

Diet and fluid intake (are they eating and drinking?:

Possible date/location of discharge:

Please email to: sth.diabetesinpatient@nhs.net

Appendix D **Blood glucose monitoring chart.**

Sheffield Health and Social Care NHS foundation Trust

Diabetes Management and Monitoring Chart

Name:		Type of Diabetes (tick):			
		Type 1		Type 2	
Insight no:					
		Weight (kg):			
DOB:					

Frequency of BG monitoring(tick):	Premeals & bedtime		Twice Daily	
	For first 48hrs or if patient physically ill or diabetes unstable		Premeal or bedtime if patient and diabetes stable	
	Once daily differing time		More Frequent	
	If diabetes and patient stable and not on insulin or gliclazide		eg. If frequent hypos or hyperglycaemia	

** Please ensure BG measurements are taken PREmeal unless stated otherwise and document if patient refuses

Change of Frequency to BG monitoring:				
Date:	Premeals & bedtime	Twice Daily	Once daily differing time	More Frequent
Date:	Premeals & bedtime	Twice Daily	Once daily differing time	More Frequent
Date:	Premeals & bedtime	Twice Daily	Once daily differing time	More Frequent
Date:	Premeals & bedtime	Twice Daily	Once daily differing time	More Frequent

Insulin administration status

All patients receiving insulin must have it administered by nurse whilst an inpatient (unless under specific circumstances and discussed with medical team)

Circle who administered diabetes medication/insulin **prior** to admission:	Patient	Nurse	Other:	

If self-administering insulin in community, assess capacity and document in the patient record.Ensure patient informed of any dose changes. Refer to the Diabetes Team if there are any concerns about the patient's capacity to self-administering after discharge

Page 1

Created: March 2020 Review date: April 2023

Diabetes Management and Monitoring Chart

Name:		Type of Diabetes (tick):	
		Type 1	Type 2
Insight no:			
DOB:			
Hypoglycaemia BG <4mmol/L		Acceptable BG 6-10mmol/L in most patients	

Capillary/ urinary Ketones monitoring

Test ketones if:	a. T1DM patient unwell OR BG >17mmol/L
	b. T2DM patient unwell AND BG>12mmol/L

Date and **time MUST be documented. State if NOT premeal and document under "other:"

Blood Glucose Monitoring Chart

Date:	Before B'fast	ketone	Before Lunch	ketone	Before tea	ketone	Before bed	Other
	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:
	BG:		BG:		BG:		BG:	BG:
	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:
	BG:		BG:		BG:		BG:	BG:
	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:
	BG:		BG:		BG:		BG:	BG:
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	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:
	BG:		BG:		BG:		BG:	BG:

Diabetes Management and Monitoring Chart

Name:			Type of Diabetes (tick):			
Insight no:			Type 1		Type 2	
DOB:						

Blood Ketones monitoring

Test blood ketones if:

a. T1DM patient unwell OR BG >17mmol/L

b. T2DM patient unwell AND BG >12mmol/L

Date:								
	Time:		Time:		Time:		Time:	
	Result:		Result:		Result:		Result:	
	Time:		Time:		Time:		Time:	
	Result:		Result:		Result:		Result:	
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Diabetes Management and Monitoring Chart

Hyperglycaemia Management

Name:	
Insight no:	
DOB:	

Type of Diabetes (tick):			
Type 1		Type 2	

Patient **SEVERELY UNWELL**: if you suspect SEPSIS, MI or patient deteriorating **call 2222**

Patient **UNWELL** e.g. cold symptoms, sore throat, ear infection, UTI, skin infection

T1DM with any BG reading:	**OR**	**T2DM with BG >12mmol/L:**
•Check blood/urinary ketones		•Check blood/urinary ketones

Blood ketones >3 or urinary ketones >++ → YES → Discuss with medic immediately - Requires medical review and possible STAT insulin dose ****POSSIBLE DKA****

NO ↓

Low blood pressure or fast heart rate or weak or confused or not passing urine → YES → Discuss with medic immediately - Requires medical review **** POSSIBLE HHS ****

NO ↓

No immediate action required: continue monitoring

Patient **WELL**

T1DM	**T2DM**
BG >17mmol/L	BG >17mmol/L on 2 consecutive occasions premeal or single BG >27.8mmol/L or "HI"

Check blood/urinary ketones		
Blood/urine ketones ≤2	Blood/urine ketones ≥3	
•Ensure urgent medical review - to consider STAT dose of fast acting insulin	•Inform medic immediately as they will need to speak to medical/diabetic reg	•Inform medic immediately - to consider STAT dose of fast acting insulin
•Check BGs every 2 hours until <17mmol/L	•Check BGs every 2 hours until <17mmol/L	• Check BGs every 2 hours until <17mmol/L
•Check physical obs as per NEWS 2 frequency advice	•Check physical obs as per NEWS 2 frequency advice	•Check physical obs as per NEWS 2 frequency advice
•If NEWS increases or patient deteriorates start flowchart again and inform medic immediately	•If NEWS increases or patient deteriorates start flowchart again and inform medic immediately	•If NEWS 2 increases or patient deteriorates start flowchart again and inform medic immediately

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Diabetes Management and Monitoring Chart

Hyperglycaemia Management - Medic Advice

Name:		Type of Diabetes (tick):			
		Type 1		Type 2	
Insight no:					
DOB:					

Advice for Medical Team: Acute Hyperglycaemia

T1DM + BG >17mmol/L + blood/urine ketones ≥3/+++ and NOT **SEVERELY UNWELL** or **UNWELL** - Discuss urgently with the Diabetes SpR (Mon - Fri 9-5) or Med SpR (OOH) as may require admission to rule out DKA

T1DM + BG >17mmol/L + blood/urine ketones ≤2/++: Add up all the units of insulin given in the last 24 hours. Calculate 10% of the total dose and give as PRN S/C Humalog or Nova rapid every 2hours until BG <17mmol/L (eg. If total 44 units, give 4 units; if 59 units give 6 units)

T2DM + 2 x BGs >17mmol/L: Give 4 units of S/C Humalog/Nova rapid (or 2 units if patient's weight <60kg) every 2 hours until BG <17mmol/L

T2DM + BG >27.8mmol/L or "HI": Give 6 units of S/C Humalog/ Nova rapid (or 4 units if patient's weight <60kg) every 2 hours until BG <17mmol/L

Advice for Medical Team: Usual regime changes

If BGs have been >17mmol/L for 24 hours, or >12mmol/L for 48hours, consider increasing doses of usual insulin by 10-20% -review recent pattern of BG levels and increase preceding insulin doses(s)

Continue to titrate insulin doses every 24-48 hours as necessary

Advice for Medical Team: ALL patients

Look for cause of Hyperglycaemia: consider illness, missed / incorrect doses of hypoglycaemic agents or insulin

Consider referral to the diabetes team at STH

Diabetes Management and Monitoring Chart

Hypoglycaemia Management

Name:		Type of Diabetes (tick):		
		Type 1		Type 2	
Insight no:				
DOB:				

Management of Low BG in Patients with Diabetes

Hypoglycaemia:

a. BG <4mmol/L in patients taking glucose lowering medication e.g. insulin

b. BG <2.2mmol/L in diet-controlled patients or those without diabetes

Hypos need PROMPT action - risk of SEIZURE, COMA and DEATH

Patients should be encouraged to keep oral hypo treatments in their bedside cupboard

Treatment of Hypoglycaemia

Conscious/Able to swallow		Unconscious/Unable to swallow
Symptoms: shaking/sweating/anxious/tingling lips/palpitations/confusion		**CALL 2222**
Cooperative	Unable to cooperate	**Give IM Glucagon **(Glucagen - stored in hypobox)** 1mg (Glucagon can only be given once and should **NOT** be given if the patient is nil by mouth or there is a history of alcohol excess or malnutrition)
Fast acting carbohydrate: a. 1 bottle of Glucoshot **OR** b. 4-5 Glucotablets	a.**GlucoGel** - Apply small squirt to left & right of mouth between teeth & cheek and rub. Repeat until 2 tubes finished b. **IM Glucagon 1mg ****	** if too high risk to apply Glucoboost Gel e.g. risk of biting

After 5 minutes check BG - >4mmol/L?	
Yes - Recovered	**No - conscious**
Give starchy food e.g.bread/biscuit and increase frequency of BGs to premeal + bedtime unwil Med Review by Ward Medic	Repeat treatment, inform medic immediately, consider 2222 if persistent BGs <4mmol/L

Created: March 2020 Review date: April 2023

Diabetes Management and Monitoring Chart

Name:	
Insight no:	
DOB:	

Type of Diabetes (tick):			
Type 1		Type 2	

Daily Diabetic Foot Risk Score (DFRS) (0-3)

DFRS		
3	Ulceration/abrasion/split skin/open	URGENT REFERRAL to Podiatry/Diabetes Team within 24 hours, commence wound care plan
	Existing foot ulcer/attending foot clinic in community	
2	Hard skin/callus/dry or cracked heels/neglected feet	HIGH RISK of ulceration - refer to Podiatry
	Previous ulcer/amputation	
1	Prolonged immobility/ reduced mobility	AT RISK - relieve pressure and continue to monitor daily
0	Independently mobile with no risk factors	Low current risk

Daily Diabetic Foot Risk Score (DFRS) (0-3)

	Date:							
	Score:							
Referred: Podiatry (P), Diabetes Team (D), Tissue Viability (T)								
Initials of assessor								
	Date:							
	Score:							
Referred: Podiatry (P), Diabetes Team (D), Tissue Viability (T)								
Initials of assessor								
	Date:							
	Score:							
Referred: Podiatry (P), Diabetes Team (D), Tissue Viability (T)								
Initials of assessor								

Appendix E

Guidance:
Diabetic Ketoacidosis and Hyperosmolar state.

What are ketones?

Ketones are formed when there is not enough glucose to supply the body's fuel needs. The low glucose levels mean that fat cells are broken down in the liver to create the energy that the body needs. A by-product of this is that ketones reduce the blood pH too low, making it acidic, which causes Diabetic Keto Acidosis (DKA), which is an emergency medical situation and requires immediate medical attention.

People who have Type 1 and Type 2 diabetes are at the highest risk of developing DKA.

Causes of DKA.

Things that increase the risk of DKA:

- Having an infection such as flu or a urinary tract infection.
- Not following a treatment plan, such as missing doses of insulin.
- An injury or surgery.
- Taking certain medicines, such as steroids.
- Binge drinking.
- Using illicit drugs.
- Pregnancy.
- Having your period.

However sometimes there are no obvious trigger.

Symptoms of DKA.

Symptoms usually start over a 24- hour period, but they can happen faster.
Symptoms include:

- Needing to urinate more than usual.
- Feeling very thirsty.
- Vomiting.
- Abdominal pain.
- Having breath that smells fruity (like pear drop sweets or nail varnish)
- Deep or fast breathing.
- Feeling very tired or sleepy.
- Confusion.
- Passing out.

What to do.

If you are concerned that a service user is showing symptoms of DKA:

- Take a blood glucose test.
- If the blood glucose is above 11mmols then check for ketones.

Ketones can be checked through a ketones test via a blood test, in the same finger prick blood test way for blood glucose.
Ketones testing strips are a different colour to the normal blood glucose testing strips- please be aware and make yourself familiar in your area to what is used:

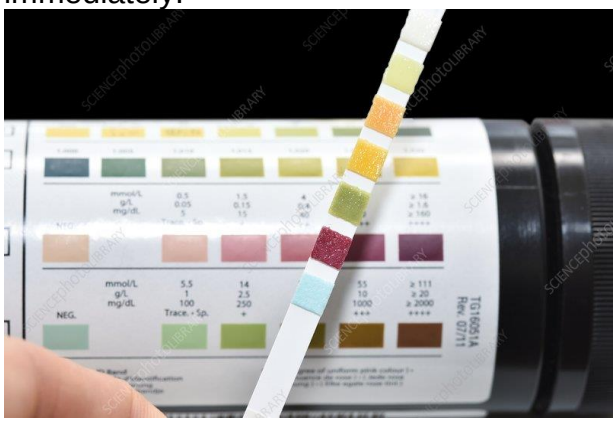
Blood Ketones values:

- Lower than 0.6mmols is normal.
- 0.6mmol- 1.5mmols means there is a slightly higher risk of DKA- repeat in 2 hours, refer to the service user's diabetes care plan, and report to ward medical team.
- 1.6mmols- 2.9mmols means that there is a high risk of DKA, and immediate medical advice is required.

- 3mmols or above means it is a medical emergency and immediate medical advice is required.

Urine Ketones values:

A result of 2+ means there is a high chance of DKA and seek medical advice immediately.



Treatment of DKA:

The treatment usually takes place in a general hospital due to the treatments not been available on a mental health ward:

- Insulin will be given.
- Intra venous (IV) fluids can be given.
- Nutrients might be given to replace any that have been lost.
- Close monitoring will be required for any further complications.
- Monitoring of the major organs will be required.

Prevention of DKA:

- Check blood sugar level as per diabetic care plan.
- Follow the treatment plan.
- Extra care to be taken if the service user is ill, ask advice from the ward medical team.
- Consider if any new medications are being prescribed as these can have an effect on blood sugar levels.

Hyperglycaemic hyperosmolar state.

Hyperglycaemic hyperosmolar state is a very rare complication of type 2 diabetes. There is a high mortality rate of 20%. It occurs in people who have type 2 diabetes and experience very high blood glucose levels (often over 40mmol/l) It can develop over a course of weeks through a combination of illness such as an infection and dehydration.

It does not usually lead to the presence of ketones in the urine due to people with Type 2 diabetes often produce insulin, therefore ketones might not be created.
It can be due to the same causes as in DKA, however stopping diabetes medication during illness, because of swallowing difficulties or nausea can contribute, but blood glucose often raises despite the usual diabetes medication because of other hormones the body produces during illness.

Symptoms often include:

- Increased urination.
- Increased thirst.
- Nausea.
- Dry skin.
- Disorientation and, in later stages, drowsiness and gradual loss of consciousness.

Prevention:

- Take diabetes medication.
- Monitor blood glucose if that is part of the monitoring (not all type 2 diabetics monitor blood glucose)
- Contact medical team for advice if Blood glucose remains high at >15mmol/l
- Drink plenty of unsweetened fluids.

Sheffield Health and Social Care NHS Foundation Trust

Appendix F

Standard Operating Procedure (SOP) for Hospital Management of Hypoglycaemia in patients with Diabetes Mellitus

Date: May 2023

Hospital: Sheffield Health and Social Care Foundation Trust

SOP Version:	Version 1
Date of Issue:	May 2023
Date for Review:	May 2024
Reference:	Diabetes Mellitus policy
Related Documents:	Physical Health Policy (NP 020 V7 March 2022).pdf (shsc.nhs.uk) Physical health and resuscitation | JARVIS (shsc.nhs.uk) Deteriorating Patient Identification and Management Policy (NP 045 V1 Feb 2022) - Ext. to Dec 22 | JARVIS (shsc.nhs.uk) Medicines Optimisation Policy (MD 013 V11 February 2023) | JARVIS (shsc.nhs.uk) Diabetes policy (link to be added once finalised)
SOP Owner:	Director of quality
SOP Author(s):	Penelope Fati (Lead Nurse in Physical Health) Carolyn Gouldbourne (Lead Physician Associate) Hedley Bishop (Clinical Educator)
SOP Reviewer(s):	Penelope Fati (Lead Nurse in Physical Health) Carolyn Gouldbourne (Lead Physician Associate) Hedley Bishop (Clinical Educator)
Groups/ People consulted:	Diabetes Management Group Physical Health Management Group (PHMG) Nutrition and hydration group. Medical devices group. Medicines optimisation committee. Policy confirmation group. Shared with the Matron and Ward managers group
Target Audience:	All Inpatient clinical and patient facing staff
Dissemination:	1. Shared and stored on the Trust's intranet - should this include date shared 2. Ward and local business meetings 3. Disseminated through ward managers and matrons verbally and via email. 4. Shared through the Physical health management group. 5. Through local area training.

Keywords	*Hypo; Hypoglycaemia; diabetes mellitus, hypo box*

Storage & Version Control

This is the first version of this standard operating procedure and will be stored and available through the SHSC intranet/internet.

Version Control and Amendment Log (Example)

Version No.	Type of Change	Date	Description of change(s)
0.1	*New draft SOP created*	May 2023	New SOP document created

Contents

Management of Hypoglycaemia in Adults with Diabetes Mellitus

HYPOGLYCAEMIA= Blood glucose (BG) < 4mmol/l

SYMPTOMS

Headache, trembling, sweating, blurred vision, hunger, palpitations, confusion, drowsiness, reducing conscious level and unresponsive

Use **ABCDE** approach

Patient level of consciousness must be assessed to define severity

MILD	MODERATE	SEVERE
Conscious, orientated, and able to swallow	Conscious and can swallow but confused, aggressive or uncooperative	Reduced level of consciousness/Unconscious and/or unable to swallow.
Give fast acting carbohydrates One of the following: **Dextrose Gel 2x25g tubes** **Glucose Shot 1 x 60ml** Or **4-5 Glucose tablets**	If cooperative, follow mild guidance (See left) If NOT capable or cooperative but able to swallow give **Dextrose Gel** - squirt 2 tubes (25g) into left & right of mouth between teeth & cheek If unable to give either of the above, give **IM Glucagon 1mg** (Glucagon can only be given once)	**Check ABCDE** **CALL 2222 & seek medical assistance** Administer **1mg IM Glucagon** (Kept in 'hypoboxes') Note time of administration Continue to monitor patient using **ABCDE** approach **Do not leave the patient unattended**

Check capillary blood glucose (CBG) after 10 minutes-if still less than 4mmol/repeat oral carbohydrate or Glucose Gel, according to consciousness as above.

SEEK MEDICAL ADVICE

Check BG again after 10-15minutes If still <4

CALL 2222

Meanwhile continue to repeat treatment and monitor using **ABCDE** approach

- When blood glucose 4mmol/L or above: Give 20g of long-acting carbohydrate eg: two biscuits/slice of bread/200-300ml milk/next meal containing carbohydrate.
- When patient recovers, request medical / diabetes review for cause of hypoglycaemia and increase frequency of BGs.
- Retest blood glucose after ½ hour, 1 hour, 2 hours and then as per normal regime.

- Glucagon is NOT indicated in patients with liver failure or following prolonged starvation or recurrent hypoglycaemia. These patients are likely to have poor glycogen stores and will not respond to glucagon.
- Glucagon dose should not be repeated- failure to respond implies inadequate glycogen stores.

1. Introduction

1.1 This document sets out standard operating procedures for the hospital management of hypoglycaemia in adults (aged 16 years) and older adults (aged 65 years or older) with diabetes mellitus (DM). It is based on the revised Joint British Diabetes Societies (JBDS) guideline 'The Hospital Management of Hypoglycaemia in Adults with Diabetes Mellitus (revised 2022) and the National Institute for Health and Clinical Excellence (NICE) guidelines for treatment of hypoglycaemia.

1.2 Hypoglycaemia is defined as a lower-than-normal blood-glucose concentration. It results from an imbalance between glucose supply, glucose utilisation, and existing insulin concentration. It can be defined as 'mild' of the episode is self-treated and 'severe' if assistance is required. For the purposes of people with diabetes any blood glucose (BG) less than **4.0 mmol/l** should be treated.

1.3 Hypoglycaemia is one of the most feared short-term complications of diabetes mellitus amongst people with diabetes and healthcare professionals. Hypoglycaemic episodes are common, particularly with Type 1 DM and may also occur in patients with Type 2 DM treated with insulin or sulphonylureas. Hypoglycaemia in Type 2 DM is more common in the elderly and those with renal impairment.

1.4 Hypoglycaemia can cause coma, hemiparesis, and seizures. If the hypoglycaemia is prolonged the neurological deficits may become permanent.

1.5 Patients with serious mental illness (SMI) die 10-20 years earlier than those without SMI, and long-term conditions such as diabetes contribute substantially to the mortality gap. Diabetes is 2 -3 times more common among people with SMI than the general population and antipsychotic medications are both obesogenic and diabetogenic. Hypoglycaemia in hospitalised patients also increases mortality.

1.6 The hospital environment presents additional obstacles to the maintenance of good glycaemic control and the avoidance of hypoglycaemia. For inpatients with diabetes, the risk of hypoglycaemia is compound by:

- Disruption to daily routine
- Pathophysiology effects of the presenting illness or condition
- Altered appetite and/ or mobility
- Alterations/ additions to medication

Therefore, the Trust need to put in place the appropriate procedures for managing diabetes and hypoglycaemia.

2. Scope

This SOP applies to all clinical staff working with inpatients in all directorates. This document is intended to provide a guide for both nursing and medical staff in all clinical areas to ensure safe and effective management of hypoglycaemia in adults and older adults.

3. Purpose and Objective:

This SOP has been written to promote consistently high standards of care across inpatients services for patients with diabetes who experiences hypoglycaemia. It is intended that this document is used in conjunction with the hypoglycaemia flowchart to ensure the safe and effective use of the trust "Hypo" boxes.

4. Definition

The Trust	Sheffield Health and Social Care NHS Foundation Trust
Diabetes Mellitus	Diabetes is a chronic condition characterised by elevated levels of blood glucose (or blood sugar). It is when your body cannot produce enough of the hormone insulin, or the insulin it produces is not effective. There are two main types of diabetes: **Type 1:** where your blood glucose level is too high because your body can't make insulin. **Type 2:** When you have type 2 diabetes the insulin your pancreas makes can't work properly, or your pancreas can't make enough insulin. This means blood glucose keeps rising.
Hypoglycemia (Hypo)	Hypoglycemia is defined as a blood glucose level that is lower than normal. For hospital inpatients, blood glucose less than 4.0 mmol/L should be treated.
Hemiparesis	Weakness of one entire side of the body
Sulphonylurea	Sulphonylurea are group of medications used in the management of type 2 diabetes e.g gliclazide

5. Responsibility

5.1 Executive Director of Nursing, Professions and Operations

The Executive Director of Nursing, Professions and Care Standards has responsibility for ensuring SOP are implemented with the Trust.

5.2 Heads of Service, Matrons, and Ward Manager

The Matron or ward manager for each clinical area will be responsible for oversight of clinical areas within their remit, working with service leads to:

- Ensure staff are familiar with the SOP content
- Ensure that staff have access to attend and complete mandatory training relevant to role
- Ensure that 'hypo boxes' are audited, reviewed, and restocked as per SOP guidance

5.3 Diabetes Management Group and Physical Health Team

The Physical Health Team and Diabetes Management Group has overall responsibility for ensuring implementation of this SOP. There is corporate responsibility for ensuring this SOP is supported by distribution and awareness and teaching to support implementation. The Physical Health Lead Nurse is responsible for updating and amending new versions of this SOP in accordance with new guidelines and recommendations.

5.4 Nursing staff and nurse associates

All NMC registrants must work withing the Nursing and Midwifery Council (NMC) Code professional standards of practice and behaviour for nurses, midwives and nursing associates and work with their own competence.

- Ensure that knowledge and skills are up to date as per latest guidance.
- Aware and understand the standard operating procedure.
- Ensure that Intermediate Life Support and Basic Life Support training are up to date.
- Ensure that the 'hypo boxes' are restocked after use.
- Check that the 'hypo boxes' are checked within the daily checking schedule.

5.5 Qualified staff

It is the responsibility of all qualified staff involved in the care and treatment of service users suspected of or having a hypoglycaemic episode whilst on trust premises to follow and implement the guidance detailed within this SOP.

5.6 Non-qualified staff

It is the responsibility of any member of staff who witnesses or is informed about hypoglycaemic episode they must escalate to any registered Nurse, Doctor, Advanced Clinical Practitioner or Physicians Associate immediately at Sheffield Health and Social Care NHS Foundation Trust or call for help via 2222 if they are concerned.

6 Procedure

This SOP sets out in a flowchart (see page 1) an approach to managing hypoglycaemia for all service users admitted to inpatient wards in SHSC.

If staff is unsure regarding the management of such patients despite referral to the SOP, then they should seek advice from the specialist diabetes team or a senior colleague.

The Diabetes specialist nurse (DSN) team can be contacted by ringing 0114 271538 or via switchboard (following transfer to STH). This is a 7-day service 9 -5pm mon-fri and 9-4 on weekends and Bank holidays at STH. Diabetes SpR on-call via switch board Mon-Fri 9-5pm. Out of hours medical advice should be via the medical SpR on-call via switchboard. Hypoglycaemic attacks ('hypos') require **PROMPT** action - risk of **SEIZURE**, **COMA,** and **DEATH.**

All patient areas should stock **'Hypo Boxes'** and **Glucagon,** as well as blood glucose testing machine (and related consumables).

6.1 Establishing the diagnosis of hypoglycaemia

- **Hypoglycaemia** = capillary blood glucose (CBG) measurement **< 4.0 mmol/l**
- CBG measurement should be performed by staff trained in the procedure.
- The following symptoms in the table overleaf may indicate a hypoglycaemic episode and should prompt blood glucose measurement as described above.

- **Signs and Symptoms of Hypoglycaemia ('Hypo')** vary between individuals and may change with age. An adult may exhibit some of the symptoms below, while others may have no symptoms.

- Symptoms may be more nebulous in the elderly

Symptoms and signs classified into 3 groups
(The list is not exhaustive and if you suspect a service user is experiencing a hypo their capillary blood glucose MUST still be checked.)

Autonomic	Neuroglycopaenic	Behavioural
Pale Sweating/clammy Hungry Tremor Restlessness Tachycardia	Headache Confusion Weakness, lethargy Glazed expression Visual/speech disturbances Seizures Reduce level of consciousness	Irritability Mood change Erratic behaviour Nausea Combative behaviour

Hypoglycaemia **must be excluded** in any person with diabetes who is acutely unwell, drowsy, unconscious, unable to co-operate, presenting with aggressive behaviour or seizures.

Some individuals especially service users with long standing Type 1 DM may lose their awareness of hypoglycaemia, which means they may not experience the autonomic 'warning symptoms' putting them at higher risk of developing severe hypoglycaemia.

6.2 Treatment of hypoglycaemia

- For the purposes of people with diabetes, any blood glucose less than **4.0mmol/L** should be treated. (This is nationally accepted as '4 is the floor' in diabetes provides a safety margin. It should not be confused with the lower level of 3.1 mmol/L used for patients without diabetes.)

- Where it is safe to do so, a blood glucose measurement should be taken to confirm hypoglycaemia. If measurement is difficult (e.g., in a patient undergoing a seizure) then treatment should not be delayed.

- Treat hypoglycaemia according to flow chart (Page 1)

- A person experiencing hypoglycaemia will require quick acting carbohydrates to return their blood glucose levels to the normal range. The quick acting carbohydrate should be followed up by giving long-acting carbohydrates either as a snack or as part of a planned meal to maintain blood glucose within the normal range (see flow chart).

- The severity of hypoglycaemia can be categorised as mild or moderate and severe. Mild and moderate hypos should receive the same treatment as there is little clinical research to suggest they are separate entities.

- **Mild or Moderate Hypoglycaemia**: service user can tolerate oral fluids

- **Severe Hypoglycaemia** Unconscious or fitting service user requires parenteral therapy (IM glucagon)

Note: *Mild hypos are not unusual and are harmless*

6.3 Technique for Dextrose Gel and Glucotab administration

- Apply small squirts of glucose gel to left and right side of mouth between teeth and gums. Rub cheeks to aid absorption. Repeat until 2 tubes used.

- Please note Glucotabs should be sucked or chewed.

6.4 Special considerations

6.4.1 Glucagon

N.B

- Should only be used once during treatment of a hypoglycaemic episode.
- Effect from glucagon will wear off after approximately 30 minutes.
- Glucagon 1mg IM may be less effective in patients prescribed sulfonylurea therapy and may take up to 15 minutes to take effect.
- Glucagon mobilises glycogen from the liver and will be less effective in those who are chronically malnourished (including those who have had a prolonged period of starvation), abuse alcohol or have severe liver disease. In this situation contact 2222 to arrange general hospital admission as IV glucose is the preferred option.
- **Note -** glucagon dose should not be repeated - failure to respond to glucagon implies inadequate glycogen stores.
- Patients that are given glucagon require a larger proportion of long-acting carbohydrate to replenish glycogen stores.

6.4.2 Sulphonylurea induced hypoglycaemia

- May be prolonged over 24-48 hours
- If BG < 3 mmol/l omit further dose until review by a medic or discussed with diabetes team

6..4.3 Insulin induced hypoglycaemia

- **DO NOT** omit next dose of insulin if type 1 diabetes
- Next dose of insulin may be omitted if type 2 diabetes and severe hypo (BG< 3mmol/L) pending medical advice or from Diabetes Team

7. Prevention of recurrent hypoglycaemia

7.1 Consider causes:

- After treatment, consideration should be given to whether the hypoglycaemia is likely to be prolonged, i.e., as a result of long-acting insulin or sulphonylurea therapy; in this case, patients may require transfer to the general hospital for a continuous infusion of dextrose to maintain blood glucose levels.

- Inadequate food intake (delayed/missed meal, or lack of carbohydrate / starchy food).
- Too much or poorly timed insulin or oral hyperglycaemic treatment.
- Increase activity (unlikely in inpatients).

7.2 Action

- Take measures to avoid hypoglycaemia in the future. The Diabetes Specialist Nurse (DSN) can be contacted to discuss this.
- Ensure appropriate access to foods.
- Review recent pattern of BG results.
- Unless the cause is easily identified and the nursing team is confident that steps can be taken to avoid future events, a medical or DSN review should be considered.
- If recurrent or severe hypos **referral to DSN is indicated**
- Please DO NOT treat isolated spikes of hyperglycaemia with 'stat' doses of rapid acting insulin. Instead maintain regular capillary blood glucose monitoring and request medical review if concern.

8.0 'HYPO BOX'

CONTENTS AND MAINTENANCE OF 'HYPO' BOX

Areas of good practice have successfully used "hypo boxes" for the management of hypoglycaemia.

A 'Hypobox' should be available in all clinical areas and must contain everything which is immediately necessary to treat a person over the age of 18 years with hypoglycaemia (as per SOP). The hypo box must be easily accessible, and all ward staff need to be orientated to its location.

Item	Number	Re-order from:	Location
Laminated copy of Hypoglycaemia algorithm	1	Laminated and stuck to outside of box	"Hypo" Box
Glucotabs pack	1 pack	Stores	"Hypo" Box
GlucoJuice	3x 60 ml bottles	Stores	"Hypo" Box
GlucoGel	2x triple pack cartons	Stores	
Glucagon 1 mg injection*	1	Pharmacy	"Hypo" Box
Record book	1	Stores	"Hypo" Box

Each clinical area will be provided with a Hypo Box and starter pack of spare consumables (as mentioned above), along with a consumables ordering form for NHS supplies (providing staff with necessary codes for purchase).

It will then be the responsibility of each clinical area to ensure that stock levels for replacement consumables for the Hypo Box are well maintained and checked on a regular basis. Checks would also include any shelf-life dates for each product.

After each use of the Hypo Box, the record book or logbook should be completed any used contents must be replenished. This is to ensure that the box is fully operational for any further use.

The contents of the Hypo box should be replenished from ward stock (see above for list of contents). Glucagon 1mg Injection if used should be replaced in ours through a non-stock e-request through pharmacy and should be completed same day.

Out of hours the process for out of hours medication ordering should be followed, it is vital that glucagon is replaced as soon as it has been used.

Again, it would be the clinical responsibility of each individual area to manage how much spare stock is required (as this may be changeable dependant on service user need).

If there is insufficient stock of any item, these would need to be reordered from NHS Supplies.

There would be an emergency stock of all listed consumables at President Park that could be dispatched. However we do not operate an out of hours service.

For any support on ordering or to discuss consumables for Hypo box please discuss with Medical Devices Safety Officer.

9 Duties

- The hypo box must be checked weekly as part of the emergency equipment checks to ensure all items are present and in date and charted in the weekly record sheet
- It is the responsibility of the ward leadership team to ensure the “hypo” box weekly check is completed. The actual responsibility of checking may be delegated via the ward leadership team.
- Any used items must be replaced immediately after a hypoglycaemic episode. Opened bottles of glucojuice must not go back into the hypo box. These must be replaced with a sealed one.
- It is the responsibility of the attending staff member to complete the record/logbook and document episode on the patient’s electronic record.
- As good practice refer patient to the Diabetes Team for assessment following a hypoglycaemic episode.
- The hypo box needs to be cleaned as per the Trust’s cleaning schedule i.e., after each use and with chlorclean if contaminated with body fluid/blood.
- For any issues related to the contents of the Hypo box please refer any queries to Medical Devices Safety Officer or Physical Health Team.

10. Education and Training

- All medical and nursing staff are required to complete **safe use of insulin - safety training** via ESR, which would be essential to this role. This training can be accessed via ESR. Any additional training issues or needs can be addressed with the Physical Health Team.

- All clinical staff would be expected to seek support from a senior staff member if they were presented with a patient with hypoglycaemia and did not feel adequately trained to manage the situation.

- The Physical Health team work with the Training Department to implement sessions to enable staff to safely treat hypoglycaemia.

- Competent clinicians are advised to cascade this training down to new and junior staff to enable competency.

11. Monitoring and Audit:

This SOP will be audited by the author as part of the governance and reporting procedures.

Monitoring Compliance Template						
Minimum Requirement	Process for Monitoring	Responsible Individual/ group/committee	Frequency of Monitoring	Review of Results process (e.g. who does this?)	Responsible Individual/group/ committee for action plan development	Responsible Individual/group/ committee for action plan monitoring and implementation
Annual review	Review.	Diabetes management group which feeds into the physical health management group.	Annually unless any specific changes.	Diabetes management group and physical health management group.	Diabetes management group.	Diabetes management group and physical health management group.

12. Appendix.

Appendix 1: Hypo box Daily Equipment checklist

If the seal is not broken and it is in date then tick to say the box is ok, if the seal is broken or out of date then please complete full check.

Date. Tick if present.	Laminated copy of hypoglycaemia algorithm. (1)	Is the seal intact and in date? If yes then do not open the box. If not complete the further checks and reorder stock.	Glucojuice (3x 60ml bottles)	GlucoGel (2x 3 pack cartons)	Glucagon 1mg injection.	Glucotabs pack (1 pack)	Record book (1)