1. Introduction

- This document sets out the University Hospitals of Leicester (UHL) guidelines for managing adult in-patients with diabetes who are receiving enteral nutrition (EN).
- EN is commonly used in patients who are malnourished or at risk of malnutrition and have an inadequate or unsafe oral intake (NICE, 2017). The largest group of people with diabetes using enteral nutrition are people admitted with stroke, but this is also used for post-surgical management and, less frequently, for gastroenterological conditions (JBDS, 2024).
- Managing glycaemic control in people with diabetes receiving enteral feed can be challenging.
- This guideline is based on the JBDS 2024 guideline for the 'Glycaemic management during enteral feeding for people with diabetes in hospital and guidelines produced by the 'Think Glucose' programme.
- This guideline aims to concentrate solely on control of blood glucose during enteral feeding. Basic principles may be extrapolated, with the input of local diabetes teams, into other clinical situations such as parenteral feeding.

2. Summary of Recommendations

1. **Review by Diabetes Inpatient Team (DIT) and Dietitian/Nutrition Team**
    - Diabetes patients receiving enteral feed should be reviewed by a DIT and dietitian/nutrition team to determine a suitable treatment regimen.
    - Regular review, frequent glucose testing, and prompt changes to the regimen are necessary if glucose targets are not being achieved.

2. **Subcutaneous Basal Insulin for Type 1 Diabetes**
    - People with type 1 diabetes should always continue subcutaneous basal insulin.

3. **Blood Glucose Targets**
    - Target capillary blood glucose (CBG) levels of 6-12 mmol/L during enteral feeding.

4. **Medication Administration**
    - Metformin and insulin are the only two recommended treatment options to optimise glucose control during enteral feeding.
    - Liquid metformin may be administered via an enteral feeding tube in Type 2 diabetes, if not contra-indicated.
    - Crushing oral tablet medications is not recommended.

5. **Blood Glucose Checks**
    - Check capillary blood glucose before starting the feed, every 4-6 hours during the feed, and within 2 hours after stopping the feed for all feeding regimens.

6. **Hyperglycaemia Management**
    - If glucose levels are above the target range, test ketones and consider insulin correction doses.

7. **Hypoglycaemia Risk Management**
    - Hypoglycaemia risk is high if the feed is unexpectedly stopped for longer than 30 minutes and insulin is administered.
    - Treatment should include 15-20g of rapid-acting carbohydrates given via an appropriate route.
    - Treatment to be administered via enteral feed tube (do not administer via the dedicated PN line). Consider intravenous rescue therapy for hypoglycaemia in patients unconscious or nil by mouth. See figure 1. Refer to trust policy on Hypoglycaemia.

8. **Escalation of Care**
    - In case of hypoglycaemia or recurrent hyperglycaemia and discharge home on feed, involve the diabetes in-reach team immediately.

2.1 Commencing enteral feeding in a person with diabetes or elevated blood glucose:

1. People with diabetes should be referred to the Diabetes In-Reach Team at the earliest opportunity, preferably prior to feed commencement.

2. Local guidelines should be adhered to for the setting up of syringe pumps, giving sets, intravenous access, skin bundles and intravenous insulin infusions.

3. See Figure 1 (page 3) for a visual summary of recommendations for management of blood glucose during enteral feeding for Type 1 (or other insulin deficiency syndromes) and Type 2 diabetes.

4. Identifying people at higher risk of clinically significant glucose variability or harm when feed is being planned.

Table:1

Identifying high-risk patients for glycaemic variability and harm on enteral feeds	
Factors that predict glucose variability during the feed	**Actions for high-risk individuals**
• T1DM • Known insulin deficiency (e.g. total pancreatectomy) • High HbA1c • High glucose variability prior to feeding • Hypoglycaemia prior to feeding • High NEWS score • Patient at high risk for removing enteral feeding tubes • Patient on steroid therapy	• Frequent glucose monitoring, minimum 4 hourly • Avoid starting first feed late in day. • Involve DIT in feed and insulin planning. • Use multiple short feeds for early control. • Consider short-term VRIII for initial 24-48 hours.

2.2 Insulin Requirement During Enteral Feeding

Step 1: Optimise Basal Insulin Requirement

- People with type 1 diabetes or insulin deficiency (e.g., total pancreatectomy) must always continue their subcutaneous basal insulin to prevent diabetic ketoacidosis (DKA).
- If insulin requirements increase during feed breaks or exceed 1 unit/hour, refer to DIT to review basal insulin needs.
- If basal insulin was used before admission but not prescribed now, reduce the usual basal dose by 20% (for patients at risk of hypoglycaemia) and start it alongside VRIII. Assess VRIII rates with basal insulin before completing Step 2.
- If the patient needs basal insulin but wasn't on it before admission, refer them to DIT for assessment and transition.

Step 2: Calculate the Total Feed Dose (TFD) of Insulin Required Using VRIII

- The TFD is the insulin needed specifically for the enteral feed and is part of the total daily dose (TDD).
- To calculate the TFD, add up the insulin used on the VRIII to cover the feed.
- The TDD is the total insulin needed over 24 hours, including basal insulin.

Step 3: Decide the Subcutaneous Insulin Regimen and Divide the Total Feed Dose Accordingly (See Figure 2 and Table 1)

- **Bolus (for bolus element of basal bolus, or bolus only regimens)**
  - TFD should be split as either 4 hourly rapid-acting analogue insulin or 6 hourly soluble quick-acting insulin doses from the start of the feed.
- **Premixed/Isophane**
  - Administer premixed/isophane insulin at the start and halfway through feed if feed duration >16 hours.
  - If two doses are needed, split the total daily dose 50/50 or consider giving 60% at the start of the feed and 40% at the midpoint if glucose levels spike.
- **Long-Acting Analogue Insulin Only (for patients not already on basal insulin)**
  - The TFD should be given in one dose at the start of the feed.

2.3 Target Blood Glucose

•Fasting/Pre-feed: 6-10 mmol/L
•Feeding: 6-12 mmol/L

Follow the above target ranges unless otherwise specified by the Diabetes Inpatient Team. If capillary blood glucose is 12 mmol/L on two consecutive occasions or there is evidence of ketonemia/ketonuria, investigate for DKA and inform the DIT or on-call medical team.

2.4 Choice of Feed Regimen for People with Diabetes

Recommendations

1. **Standard Feed Preparations**
    - Use currently available standard feed preparations as recommended by the local dietitian or nutrition team.
    - Diabetes-specific feeds are not widely used due to limited clinical experience and evidence.
    - Feed regimens should be tailored to the patient's needs.

2. **Common Feeding Regimens**
    - **Single Feed Regimen**
        - Commonly used in UK hospitals: 20-hour feed with a 4-hour break.
        - **Advantages:** Familiar routine for ward teams, provides a break for the gastrointestinal tract.
        - **Disadvantages:** Difficult to match with insulin regimens, higher risk of unintentional disruptions (e.g., showers, procedures, tube issues).
        - Requires careful review at 36-48 hours to determine continuation.
    - **Continuous 24-Hour Feed Regimen**
        - Used in high-dependency and intensive care units.
        - **Advantages:** Provides a continuous glycaemic load, potentially easier to match with insulin regimens.
        - **Disadvantages:** Frequent interruptions on general wards, risk of hypoglycaemia if not monitored closely.
        - Requires high clinical supervision and safeguards to prevent hypoglycaemia.
    - **Multiple Short Feed Regimen**
        - Involves multiple short feeds (or bolus feeding) within a 24-hour period.
        - Examples include 3 feeds of 4 hours each, 2 feeds of 6 hours each, or bolus feeds.
        - **Advantages:** Potentially matches better with the pharmacodynamics of subcutaneous insulins. May provide more stable blood glucose levels.
        - **Disadvantages:** Requires more nursing time for administration. Timing of insulin administration is crucial to avoid hyperglycaemia or hypoglycaemia.
        - Frequent glucose checks are necessary, especially when establishing the feed.

2.5 Choice of Agent to Achieve Glycaemic Control

1. **Short-Term VRIII**
    - May be used in the first 24-48 hours to establish insulin requirements or optimise glucose control. See section 2.6.
    - If capillary blood glucose is persistently >12 mmol/L, review and optimize the treatment regimen promptly.
2. **Metformin**

- Continue metformin if not contraindicated; can be given as a liquid preparation via the enteral feeding tube.
- Avoid administering metformin during feed breaks.
- Consider starting metformin in patients with type 2 diabetes and persistent glucose >12 mmol/L if no contraindications.

3. **Insulin**
   - If metformin is contraindicated or if the patient requires insulin, commence or optimise subcutaneous insulin.
   - For those initially treated with metformin, if glucose levels remain >12 mmol/L, start an insulin regimen alongside metformin.
   - PRN rapid-acting insulin can be used to correct glucose levels >12 mmol/L, but caution is needed when given <4 hours before a feed break.

2.6 Variable Rate Intravenous Insulin Infusion (VRIII)

- Used for reactive management of elevated glucose
- **Subcutaneous insulin** should be used at the **earliest** opportunity for hyperglycaemia management.
- Out-of-hours enteral feeding regimens: While the use of a VRIII can be helpful in establishing insulin requirements, enteral feeding is often used for long periods. General wards should aim however to discontinue VRIII and commence a long-term treatment regimen (liquid metformin and/or subcutaneous insulin) as soon as the clinical situation allows and will be more acceptable to patients.
- Fluids- VRIII should always be prescribed with substrate (Glucose containing) fluids to reduce the risk of hypoglycaemia. Where enteral feed provides the substrate, use of IV Dextrose can be limited to feed breaks.
- Seek dietetic guidance if unsure about the feed composition or duration.
- NOTE: If a patient with known type 1 diabetes or known insulin deficiency is nil by mouth and no enteral feed is prescribed or the feed is stopped for longer than two hours, a VRIII may be required if PRN rapid acting insulin is ineffective at correcting suboptimal glucose control, or the fasting state is deemed to be an increased risk for contributing to ketosis.

Transition from VRIII

- Titration of enteral feed may take 3-4 days.
- High dependency/intensive care units may continue with intravenous insulin due to closer monitoring.
- General wards should aim to discontinue VRIII and start a long-term treatment regimen as soon as clinically possible.
- Use of liquid metformin and/or subcutaneous insulin is effective and more acceptable to patients.
- Use VRIII data to help calculate the required insulin dose.
- Consider total feed dose minus 20%.
- Adjust for higher requirements at the start of the feed or lower requirements overnight.

2.7 Titration of Insulin Dose

- Adjust subcutaneous insulin dose as feed rate and volume increase.
- Typical titrations are by 10-20%, but some patients may need larger adjustments.
- Involve the Diabetes Inpatient Team (DIT) early in patient care.

2.8 Monitoring

- Blood glucose should be checked frequently and at relevant times.
- The dietetic and diabetes team should review glucose control at 36-48 hours.
- Adjustments to the feed/insulin combination should be made if glucose levels are not within 6-12 mmol/L, unless otherwise specified by DIT.
- Calculate carbohydrate content (total and per hour) to inform insulin dosing
- In patients on continuous glucose monitoring using sensors, capillary glucose monitoring will still be required for the duration of feeding in addition to their sensor technology to adjust feed rates/ insulin doses.
- Monitoring frequency depends on the type of feeding (continuous, intermittent, or bolus).
- Be cautious of hypoglycaemia, especially during fasting periods or feed interruptions, and monitor hourly if on VRIII.

Feed type	**CBG monitoring frequency**
Continuous Feeding	Pre-feed and every 4 hours with rapid-acting insulin, or every 4-6 hours with soluble or basal insulin.
Intermittent Feeding	Pre-feed, every 4 hours with analogue insulin, every 4-6 hours with soluble insulin, at the end of the feed, 2 hours post-feed, and every 4 hours during long intervals between feeds.
Bolus Feeding	Pre-feed, 2 hours post-feed, and every 4 hours during long intervals between feeds.

2.9 Practice Points

- If insulin levels are consistently higher at specific times during feeding, insulin doses should reflect this pattern.
    - For instance, if insulin levels are higher during the first 4 hours of feeding and lower during the last 4 hours, the insulin doses should be adjusted accordingly - larger at the beginning of the feed and lower towards the end.
- If the feed is interrupted and any feed related insulin is still active there will be an increased risk of hypoglycaemia. Increase glucose monitoring and consider IV dextrose to replace the lost carbohydrate until the feed can be restarted.
- Additional feed-specific insulin (rapid, NPH, or mixed) may be prescribed on top of normal basal insulin.
- Prescribe feed-related insulin doses based on the feed timing, not specific times of day (e.g., at the start of the feed).

- Ensure any PRN insulin prescribed is the same brand as the quick/rapid-acting insulin used during the feed.
- If no quick/rapid-acting insulin is prescribed during the feed, prescribe PRN insulin per Trust policy with a comment: give with caution if to be given within 4 hours of the feed finishing.
- Do not administer feed-related insulin doses if the feed is interrupted unexpectedly.
- Monitor blood glucose hourly if feed is stopped unexpectedly.
- Consider IV glucose to replace lost carbohydrate and prevent hypoglycaemia.
- When feed is recommenced, ensure the correct feed related insulin dose is given, which may not be the same dose that was missed.
- Refer to the DIT or on-call medical team if the feed is withheld for a prolonged period.
- Any hypoglycaemia episodes should trigger a review of insulin dose and timing.

2.9.1. Examples

Example 1

Calculating the basal-bolus insulin dose for a patient with Type 1/ insulin-deficient diabetes receiving enteral feeding:

1. **Current Treatment**: The patient is on a variable rate insulin infusion (VRIII) and takes 20 units of Tresiba once daily.
2. **Insulin Requirements**: During feeds, the patient needs between 1.5 to 3 units of insulin per hour, totalling 50 units over the feeding period.
3. **Feed Details**:
    - Carbohydrate content: 184.5 grams
    - Infusion rate: 75 ml per hour
    - Duration: 20 hours per day
    - Feed break: 2pm to 6pm
4. **Steps to Calculate Insulin Dose**:
    - **Step 1**: Continue the usual Tresiba dose.
    - **Step 2**: Calculate the total feed-related insulin dose by reducing the VRIII total by 20%. So, 50 units - 20% = 40 units.
    - **Step 3**: Determine the bolus insulin regimen:
    - **For Analogue Insulin (Novorapid)**: 8 units at the start, then at 4, 8, 12, and 16 hours into the feed.
    - **For Soluble Insulin (Humulin S)**: 13 units at the start, then at 6 and 12 hours into the feed.
    - **Hourly Dose**: The rapid-acting insulin dose per hour is 40 units divided by 20 hours, which equals 2 units per hour.

This approach ensures the patient receives the right amount of insulin to manage their blood sugar levels effectively during enteral feeding.

Example 2:

Calculating isophane/pre-mixed (biphasic) insulin dose for patient with Type 2 diabetes

receiving enteral feeding using VRIII

1. **Current Treatment**: The patient is on a variable rate insulin infusion (VRIII) and does not need regular basal insulin.
2. **Insulin Requirements**: During feeding, the patient needs between 1.5 to 3 units of insulin per hour, totalling 50 units over the feeding period.
3. **Feed Details**:
    - Carbohydrate content: 184.5 grams
    - Infusion rate: 75 ml per hour
    - Duration: 20 hours per day
    - Feed break: 2pm to 6pm

4. **Steps to Calculate Insulin Dose**:
    - **Step 1**: No regular basal insulin is required.
    - **Step 2**: Calculate the total feed-related insulin dose by reducing the VRIII total by 20%. So, 50 units - 20% = 40 units.

    - **Step 3**: Determine the insulin regimen:
        - **For Isophane Insulin (Humulin I)**: 24 units at the start of the feed and 16 units 10 hours into the feed.
        - **For Pre-Mixed Insulin (Novomix30)**: 24 units at the start of the feed and 16 units 10 hours into the feed.

2.9.2 Treating hypoglycaemia

Hypoglycaemia should be confirmed using a capillary blood glucose (CBG) measurement of <4.0mmol/l, performed by staff trained in the procedure. Hypoglycaemia should be treated as per UHL hypoglycaemia protocol (*Trust ref: B41/2011).*

Treatment to be administered via enteral feed tube **(do not administer via the dedicated PN line):**

- Give 15-20g quick acting CHO:
    - 60ml Gluco juice®
    - 50-70ml Fortijuice®
    - 3-4 heaped teaspoons sugar dissolved in water.

- Check CBG every 15 minutes and repeat above up to 3 times if CBG remains <4.0mmol/l.

If CBG remains <4.0mmol/l after 45 minutes, then consider iv glucose infusion

- When CBG >4.0mmol/l and patient recovered give long-acting CHO. Some examples are:
    - restart feed.
    - if bolus feeding give additional bolus – amount required to give 15-20g CHO (read nutritional information and calculate amount required to give 15-20g carbohydrate).
    - 10% IV glucose infusion 100ml/hr
- Do not omit usual insulin injection if due. However, consideration will have to be given as

to which insulin dose was active at the time of the hypoglycaemic episode and so a review of their insulin regimen is likely to be required.

Treatment to be administered intravenously:

A rapid supply of carbohydrate (sugar) should be provided as the initial treatment of hypoglycaemia in patients unable to take quick acting carbohydrate orally (patients who are unconscious or nil by mouth).

- In this situation a stat dose of iv glucose is usually given over 10-15 mins and the guideline recommends the use of 75ml 20% glucose given over 10-15mins (infusion rate of 300ml/hr **stopped after 15 mins**)
- If 20% glucose is not available, then 10% glucose can be given: 150ml 10% glucose given over 10-15 mins (infusion rate 600ml/hr **stopped after 15mins**)

2.9.3. Treating hyperglycaemia

If CBG persistently >12 mmol/l - increase insulin doses by 2 - 4 units or 10-20% per dosage adjustment. Liaise with the **Inpatient DSN team** for advice.
For more information, please see the Hyperglycaemia in Adult Inpatients with Diabetes – including Decision Support Tool UHL Guideline (*Trust ref: B27/2019*)

2.10.1 Stopping the enteral feed

- Do not discontinue basal insulin in patients with type 1 diabetes or insulin deficiency due to risk of DKA.
- Review and prescribe diabetes management regimen as per local policy before stopping enteral feeding.

2.10.2 Discharge with a new insulin regimen and enteral feeding

- Early insulin education: Start new-to-insulin education early during admission.
- Post-discharge follow-up: Plan diabetes-related follow-up as per local guidelines.
- Self-management preparation: Encourage self-administration of insulin before discharge if the patient will manage their diabetes independently.
- Feed & insulin timing: Align feed and insulin schedules for safe home management (e.g., avoid insulin during sleep).

3. Education and Training

All clinical staff working in any location within UHL would be expected to seek support from a senior peer or member of the diabetes team if they if they were presented with a patient on EN or PN with diabetes and they did not feel adequately trained to manage the situation.

To help raise awareness of the guideline, comms will be sent out.

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Implementation of this guidance in appropriate areas	Case note reviews, Datix incident Reporting, Audit	Inpatient Lead Diabetes	Continuous	Report to the Diabetes Inpatient Safety Committee

5. Equality Analysis Assessment

1. The Trust recognises the diversity of the staff and local community it serves. Our aim therefore is to provide a safe environment free from discrimination, harassment and victimisation and treat all individuals fairly with dignity and respect and, as far as is reasonably possible, according to their needs.

2. As part of its development, an Equality Analysis on this policy have been undertaken and its impact on equality have been reviewed and no detriment was identified.

OR if 5.2 above does not apply seek wording from The Head of Equality on equality@uhl-tr.nhs.uk

6. EDI Statement

We are fully committed to being an inclusive employer and oppose all forms of unlawful or unfair discrimination, bullying, harassment and victimisation.
It is our legal and moral duty to provide equity in employment and service delivery to all and to prevent and act upon any forms of discrimination to all people of protected characteristic: Age, Disability (physical, mental and long-term health conditions), Sex, Gender reassignment, Marriage and Civil Partnership, Sexual orientation, Pregnancy and Maternity, Race (including nationality, ethnicity and colour), Religion or Belief, and beyond.
We are also committed to the principles in respect of social deprivation and health inequalities.

Our aim is to create an environment where all staff are able to contribute, develop and progress based on their ability, competence and performance. We recognise that some staff may require specific initiatives and/or assistance to progress and develop within the organisation.
We are also committed to delivering services that ensure our patients are cared for, comfortable and as far as possible meet their individual needs.

7. Supporting references (maximum of 3)

Glycaemic management during enteral feeding for people with diabetes in hospital A guideline from the Joint British Diabetes Societies for Inpatient Care(JBDS-IP) group. April 2024National Institution of Clinical Excellence (2017) https://abcd.care/sites/default/files/resources/JBDS_05_Enteral_Feeding%20_Guideline_April_2024.pdf

Nutrition support for adults: oral nutrition support, enteral tube feeding and parenteral nutrition. [online] available from https://www.nice.org.uk/guidance/cg32 [04 July 2019]

Guideline for Commencing out of Hours Enteral Tube Feeding (Nasogastric) in Adult Inpatients (Trust ref: B55/2006)

8. Key Words

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) Sheena Thayyil (Consultant)/ Sowmya Setty (Consultant) /Aileen case	Executive Lead: Andrew Furlong (Medical Director)
Details of Changes made during review:	

9. Referral guidelines for the Diabetes Specialist Team

Electronic referrals to Diabetes Specialist Nurses are made via ICE (patient will be seen within 24hours of receiving referral, as long as this falls within normal working hours)
The Diabetes Specialist Nurses may also be contacted via the 'Diabetes Nurse Helpline' on x 14919
Referral to the on-call Diabetes SpR may be made via the LRI switchboard. Both available Mon-Fri (9am-5pm). There is no out of hours diabetes on-call team. Diabetes referral criteria are detailed on ICE

Appendix A

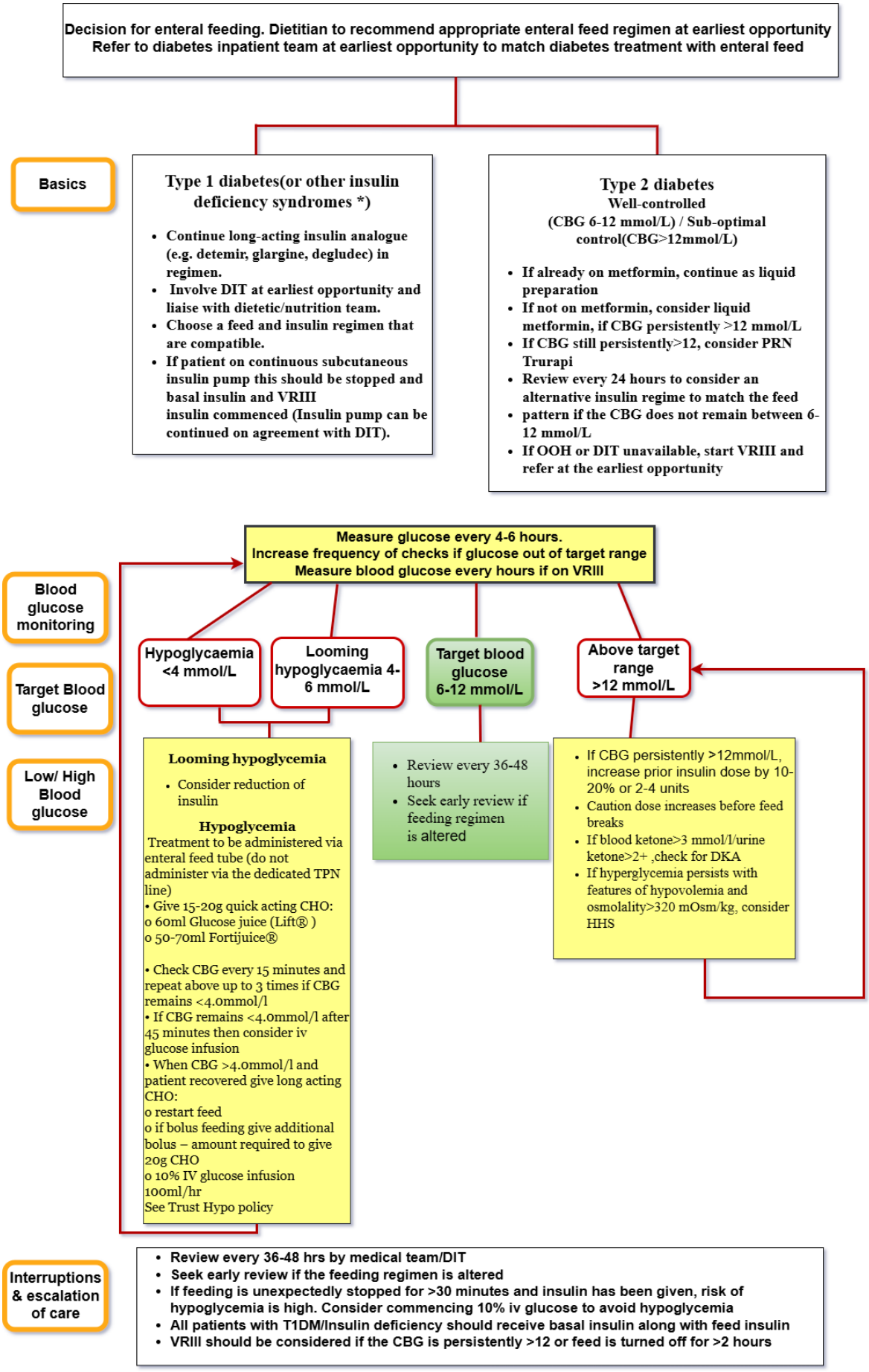
Table 1: Feed regimens matched with insulins

Feed regimen	Advantages	Disadvantages	Commonly insulin regimens for people with Type 1 or insulin deficient diabetes	Commonly insulin regimens for people with type 2 diabetes or likely to have some endogenous insulin production
Single feed with one break (for example 20-hour feed with 4-hour break	A commonly used regimen. The ward team will be familiar with using this regimen. Interventions may be planned for when the feed is stopped.	Difficult to match insulin regimen with carbohydrate due to varying insulin sensitivity throughout the feed Greater risk of unintentional disruptions May be disruptive for patients due to overnight insulin requirements or interventions and prolonged periods of time attached to the feed.	**VRIII** may be used in the initial period of feeding to stabilise glucose and estimate insulin requirements while feeding regimen is established. With all regimens the intravenous insulin infusion should not be discontinued for at least 30 to 60 minutes after the administration of the subcutaneous dose given in association with the feed. **Basal bolus insulin** continue usual **long-acting** insulin with either 4 hourly rapid acting analogue insulin doses from start of the feed or 6 hourly soluble quick acting insulin doses from start of the feed. No feed specific regular rapid acting insulin doses should be prescribed within 4 hours of the feed ending or 6 hours of the feed ending for quick acting soluble insulin.	**Intermediate basal insulin** administration of isophane (NPH) insulin at the start of the feed, with a further dose likely to be required at the midpoint of the feed if feed duration is ≥16 hours with either a 50/50 dose split or where glucose levels spike after start of the feed, consider 60% of the required total feed dose (TFD) administered at start of the feed and 40% at the mid point dose **Pre-mixed biphasic (30/70) insulin** at start and halfway through feed if feed duration >16 hours. Where two doses required, take TFD and divide with either a 50/50 dose split or where glucose levels spike after start of the feed, consider 60% of the required total daily dose administered at start of the feed and 40% at the mid point dose
Continuous 24-hours feed	The glycaemic effect of the feed is more predictable (although the blood glucose may still vary due to insulin sensitivity over 24 hours).	Ward teams need to be aware of the risk of hypoglycaemia if the feed is stopped. Can be difficult to adequately supervise if staffing numbers are low. May be disruptive for patients or lead to overnight insulin requirements or interventions	**VRIII** may be used in the initial period of feeding to stabilise glucose and estimate insulin requirements while feeding regimen is established. With all regimens the intravenous insulin infusion should not be discontinued for at least 30 to 60 minutes after the administration of the subcutaneous dose given in association with the feed **Basal bolus insulin** continue usual **long-acting** insulin with either 4 hourly rapid acting analogue insulin doses from start of the feed or 6 hourly soluble quick acting insulin doses from start of the feed.	**Long-acting analogue insulin** at the start of the feed **Pre-mixed biphasic (30/70) insulin** at start and halfway through feed if >16 hours. Where two doses required, take TFD and divide with either a 50/50 dose split or where glucose levels spike after start of the feed, you can give 60% of the required total daily dose administered at start of the feed and 40% at the mid point dose
Multiple short feeds. (for example, 3 feeds of 4 hours)	A more flexible regimen where the feed rate can be adjusted to match the capillary glucose. More closely matches the pattern of normal eating and may therefore better support patients self-administration and management.	The regimen requires more intervention by the ward team. It is important that the timing of the insulin is matched with the feed times.	**Basal bolus insulin** Continue usual basal insulin with either 4 hourly rapid acting analogue insulin doses from start of the feed or 6 hourly soluble quick acting insulin doses from start of the feed.	**Bolus insulin only** For bolus feeds given over 4-6 hours, a single doses of soluble human insulin, administered 20 minutes prior to the start of the bolus feed can be given. For bolus feeds given as a bolus or over < 4 hours an analogue insulin, administered 0-15 minutes prior to administration of the feed can be given to cover the carbohydrate content. This would not be used for any patient with basal insulin requirements.

Appendix B – Glycaemic Management during enteral feeding: Safety Checklist

Category	Checklist Item	Completed
Review by Diabetes Inpatient Team	People with diabetes receiving enteral feed should be reviewed by Diabetes Inpatient Team (DIT) before starting the feed. Summary Figure overleaf.	
Continue Basal Insulin	Continue basal insulin for people with type 1 diabetes or other insulin-deficient conditions. This should NEVER be omitted.	
Monitor Blood Glucose	Maintain target capillary blood glucose (CBG) levels between 6-12 mmol/L, unless otherwise specified by DIT	
Frequent Glucose Testing	Test blood glucose pre-feed, every 4-6 hours during feeding, and at least every 2 hours during feed breaks. Monitor hourly if on VRIII.	
Hypoglycaemia Treatment	Treat glucose levels below 4.0 mmol/L immediately with 15-20g of rapid-acting carbohydrate via an appropriate route. *See UHL Hypoglycaemia Policy.*	
Preventative Carbohydrate	After hypoglycaemia resolution, consider preventative carbohydrates (e.g. restart feed/ IV glucose/ oral carbohydrate where appropriate) to avoid recurrence. Review insulin.	
Hyperglycaemia Management	Test ketones if glucose levels are above the target range and consider rapid-acting insulin correction doses. *See UHL Hyperglycaemia Decision Support Tool.*	
Feed Stopped Unexpectedly	I. If the feed stops unexpectedly, withhold 'feed-related' subcutaneous insulin. Inform doctors and increase glucose testing frequency.	
	II. If feed-specific insulin was administered but feed stopped for longer than 30 minutes, administer IV glucose to prevent hypoglycemia until the feed restarts.	
	III. If feed is stopped for longer periods (> 2hours) in Type 1 diabetes or other insulin deficiency conditions when NBM, there is risk of ketosis. VRIII may be needed. See policy.	
Escalate Care	Involve the DIT immediately in cases of hypoglycaemia, or recurrent hyperglycaemia or changes to the feed or planned to discharge on feed.	
Feed Stoppage Protocol	Ensure the patient's diabetes management regimen has been reviewed and prescribed in line with local policy BEFORE the enteral feed is stopped. Involve DIT if unsure or new to insulin.	
Local Guidelines	Adhere to Trust guidelines for feed times, insulin times, setting up syringe pumps, giving sets, intravenous access, and insulin infusions.	

Figure 1: Summary of recommendations for management of blood glucose during enteral feeding for Type 1 diabetes or other insulin deficiency syndromes * and Type 2 diabetes based on the JBDS-IP guidelines.



Previous Title: Out of Hours Enterally and Parenterally Fed Patients with Diabetes UHL Guideline
V3 Title: Glycaemic Management during Enteral Feeding for adult with Diabetes in Hospital
Approving Board: Clinical Policy and Guideline Committee Approval Date: 06/03/2025 Trust Ref: B6/2020
Review Date: March 2030

Figure 2: Calculating the total feed dose (TFD) using the data from a stable day of VRIII use