National Policy ☐ National Procedure ☐ National Protocol ☐ National Guideline ☐
National Clinical Guideline ☑

HSE National Clinical Guideline
General Principles in the Management of Children with Diabetes Requiring Surgery

DOCUMENT GOVERNANCE [1]	
Document Owner (post holder title):	National Clinical Lead for Paediatric Diabetes
Document Owner name:	Prof Michael O Grady
Document Owner email contact: *(Generic email addresses only for the Repository)*	clinicaldesign@hse.ie
Document Commissioner(s): (Name and post holder title):	Dr Ciara Martin, National Clinical Advisor and Group lead for Children and young People
Document Approver(s): (Name and post holder title):	Dr Ciara Martin, National Clinical Advisor and Group lead for Children and young People
Lead responsibility for national implementation:	National Clinical Programme for Paediatric Diabetes
Lead responsibility for national monitoring and audit:	National Clinical Programme for Paediatric Diabetes
Development Group Name:	National Clinical Programme for Paediatric Diabetes
Development Group Chairperson:	Prof Michael O Grady
Additional headings can be inserted as required	

DOCUMENT MANAGEMENT [2]			
Date effective from:		20/09/2024	
Date set for next review:		20/09/2027	
Your Reference No: *(if applicable)*		CDI/0107/2.0/2024	
Current version no:	2	**Archived version no:**	1
Note: Original document is Version 0. First revision is Version 1. Second revision is Version 2, and so on.			
Note: HSE National 3PGs should be formally reviewed every 3 years, unless new legislative/regulatory or emerging issues/research/technology/audit etc. dictates sooner.			

VERSION CONTROL UPDATE [3]		
Version No. (most recent version first)	**Date reviewed** (most recent date first)	**Comments** (1 sentence max, if required)
V2	September 2024	Minor Edits applied to all sections.
V1	Published April 2021	(Original document) Unique identifier – Ref: CDI006/2021

Document management notes:

1. Addition of an algorithm as appendix: Child on CSII: Pre- Procedure
2. Minor modifications in spelling, some terminology updated and formatting throughout the document

PUBLICATION INFORMATION [4]
Topic:
General Principles in the Management of Children with Diabetes Requiring Surgery
National Group:
National Clinical Programme for Paediatric Diabetes
Short summary:
The aim of this guideline is to provide clear and standardised guidelines for all staff caring for paediatric patients with type 1 and 2 diabetes requiring a general anaesthetic or sedation for surgery or another procedure.
Description:
The purpose of this guideline is to improve the management of paediatric patients with diabetes who are required to fast for a procedure or surgery. This guideline is intended for healthcare professionals, particularly those in training, who are working in HSE- funded paediatric and neonatal services. It is designed to guide clinical judgement but not replace it. In individual cases a healthcare professional may, after careful consideration, decide not to follow a guideline if it is deemed to be in the best interests of the child.

PAEDIATRICS

NATIONAL CLINICAL GUIDELINE TITLE:

General Principles in the Management of Children with Diabetes Requiring Surgery

Clinical Design and Innovation
Health Service Executive

Version 2

Developed by:	National Clinical Programme for Paediatric Diabetes	Publication date:	October 2020
Document Reference Number:	CDI/0107/2.0/2024	Revision Date:	October 2023
Document Updated:	September 2024	Revision Date v2:	September 2027

Clinical Design & Innovation
Person-centred, co-ordinated care

Contents

1.0 Aim of Guideline

The aim of this guideline is to provide clear and standardised guidelines for all staff caring for paediatric patients with type 1 and 2 diabetes requiring a general anaesthetic or sedation for surgery or another procedure.

2.0 Purpose and Scope

2.1 The purpose of this guideline is to improve the management of paediatric patients with diabetes who are required to fast for a procedure or surgery.

2.2 This guideline is intended for healthcare professionals, particularly those in training, who are working in HSE-funded paediatric and neonatal services. It is designed to guide clinical judgement but not replace it.

2.3 In individual cases a healthcare professional may, after careful consideration, decide not to follow a guideline if it is deemed to be in the best interests of the child

3.0 Background and Introduction

3.1 The model of care for Paediatric Anaesthesia (2015) provides a flexible framework for paediatric peri-operative clinical governance enabling different levels of hospitals to be responsive to individual local needs.

3.2 Patients with ASA class 3 or greater should be transferred to a specialised children's facility for surgery

3.3 Children with well controlled diabetes are classified as ASA2. Surgery in regional centres on ASA class 2 children with diabetes should only be performed after close liaison between Surgical, Anaesthetic and Paediatric teams

3.4 The Paediatric Anaesthesia model recommends that any child who is anticipated to require PICU care post operatively should be transferred to a tertiary paediatric centre for surgery

3.5 Surgery (minor and major) should be performed when the diabetes is under the best possible control. If glycaemic control is poor, consider admission to hospital prior to surgery for assessment and stabilisation of diabetes.

4.0 Legislation/other related policies

- Model of Care for All Children and Young People with Type 1 Diabetes
- http://www.hse.ie/eng/about/Who/clinical/natclinprog/paediatricsandneonatology/paedsmoc.pdf
- Model of Care for Paediatric Anaesthesia

5.0 Glossary of terms and definitions

5.1 **Minor surgery** or procedures (endoscopy, adenotonsillectomy, grommet insertion, and dental procedures) are usually of 1 hour or less duration and require a brief GA (or heavy sedation). They should not have a major impact on glycaemic control and patients are usually discharged from hospital on the day of the procedure

5.2 **Major surgery** will require a more prolonged GA and is associated with greater risks of metabolic decompensation. The child is unlikely to be discharged from hospital on the day of the procedure

5.3 **BG** Blood Glucose

CSII Continuous subcutaneous insulin infusion (insulin pump)

Na Sodium

IV Intravenous

6.0 Roles and Responsibilities

This guideline should be reviewed by each hospitals local paediatric and surgical / anaesthesiology implementation group to appropriately plan implementation. This will ensure that the inpatient care of children/neonates admitted to their facility is optimised irrespective of location.

7.0 Clinical Guideline

INSULIN ADMINISTRATION SAFETY ALERT

INSULIN ERRORS CAN HAVE EXTREMELY SERIOUS CONSEQUENCES-always act on patient/family/HCP concerns re doses and recheck

- Overdoses can cause severe hypoglycaemia, seizures, coma and even death
- Under dosage can result in diabetic ketoacidosis.

Please INDEPENDENTLY DOUBLE CHECK doses at each stage-

- When making up an infusion (an insulin syringe graduated in units to measure insulin must be used)
- When infusing via a pump
- When administering via pen (pens and cartridges are SINGLE PATIENT USE ONLY)

ALWAYS CHECK PRESCRIPTION:

- Reconfirm order with the prescriber if unsure/ concerned about the insulin dose
- Avoid abbreviations; insulin should be prescribed in units
- Do not administer an unclear prescription-Prescription **MUST** be rewritten
- Only use an insulin pen or an insulin syringe graduated in units to measure insulin

Overarching Principles

7.1 The Paediatric or Paediatric Endocrinology team **must** be contacted about any child with diabetes undergoing surgery

7.2 Children with Type 1 diabetes need insulin, even if fasting, to avoid ketoacidosis. Children with other forms of diabetes may also require insulin as part of their treatment and should be managed similarly. Children with type 2 diabetes, who are not on insulin, *may* require insulin for major surgery

7.3 Diabetes technology (pumps, continuous glucose monitors (rtCGM e.g. Dexcom or isCGM e.g. Freestyle Libre) may be affected by x-ray screening and MRIs and may be hazardous with diathermy and where these are required, children with diabetes should be monitored with finger prick BG levels and insulin delivered by SC injection or infusion (see below)

7.4 Careful blood glucose monitoring is required; *at least* hourly checks are recommended in the pre, intra and post-operative periods

- ✓ If blood glucose **< 5 mmol/L**, checking every 30 minutes is advisable.
- ✓ If blood glucose **< 4 mmol/L**, checking every 15 minutes is required to ensure interventions aimed at raising blood glucose have been effective

7.5 Aim to maintain blood glucose in the range of **5-10 mmol/L** during surgical procedures in children

7.6 Ideally admit one day prior to elective surgery to ensure adequate control of blood sugars prior to performing procedure. In appropriate circumstances, it may be possible to admit early on the morning of surgery (discuss with paediatric/paediatric diabetes team first)

7.7 Inform anaesthetic team and theatre staff that child has diabetes and extra monitoring will be necessary during procedure, especially if patient on insulin pump

7.8 Ensure patient is **first** on list to avoid prolonged fasting and unstable blood glucose levels

7.9 **IV cannula to be inserted pre- or intraoperatively**

7.10 Consider if IV fluids are required (may not be necessary for all minor procedures). 5% w/v glucose/0.9% w/v sodium chloride is usual maintenance intravenous fluid used

8.0 Major Surgery

Admit to hospital the afternoon prior to surgery for major operations. Earlier admission is important if glycaemic control is poor. Operations should be scheduled **first** on list.

8.1 Day Before:

- Normal insulin doses and diet
- Check baseline urea and electrolytes (in particular to ensure normal sodium and potassium levels pre-operatively)
- Monitor sensor glucose or fingerstick blood glucose (BG) before meals and snacks and overnight
- Check for ketones in glucose >14 mmol/L. and report immediately if ketones raised (> 0.6 mmol/L) as additional short acting insulin may be required
- Ketosis or severe hyperglycaemia will necessitate correction and may delay surgery.

8.2 Day of Surgery:

- Omit usual morning insulin (short, intermediate or long acting or pre-mixed)
- Start IV maintenance fluids (5% w/v glucose/0.9% w/v sodium chloride) at 7-8 am/2 hours pre-op
- Start IV insulin (at 7-8am/2 hours pre-op) and discontinue continuous subcutaneous insulin infusion (CSII)
- Continuous low dose insulin infusion is the optimal method which ideally should be administered through a programmable infusion pump, with dose error reduction software (i.e. a 'smart-pump')
- Insulin infusions should be prepared in a syringe at a standard concentration as determined by the child's weight. For all children weighing **5kg or more** a 1 unit/1mL solution should be prepared

Note: For children weighing **less than 5kg** a more dilute concentration of 0.1unit/1mL must be prepared to ensure deliverable volumes and consultation with Paediatric Endocrinology is required at this age

- Monitor BG levels at least hourly while on IV insulin infusion

Insulin Infusion - for Children Weighing ≥ 5kg
• Dilute 50 units (0.5mL) Actrapid® to a final volume of 50mL with Sodium Chloride 0.9%w/v. [This gives a solution containing 1 unit of insulin /mL] • Connect via a Y connector to the fluids already running.

- Insulin infusion should start and be titrated as per **Table 2**. Suggested Insulin Infusion Rates for Surgical Procedures

Table 2. Insulin Infusion Titration for Surgical Procedures

	Blood Glucose Level	Insulin Infusion Dose
START DOSE	< 12mmol/l	0.025 units/kg/hr
	> 12mmol/l	0.05 units/kg/hr
BLOOD GLUCOSE LEVELS AT 1 HOUR INTERVALS	< 4 mmol/l	Stop infusion x 15 mins Ensure Dextrose in fluids Recheck BG if > 4mmol/l restart infusion at 0.01 units/kg/hr
	4 - 5.9 mmol/l	↓ 0.01units/kg/hr
	6 -7.9 mmol/l	Continue 0.025 units/kg/hr
	8 - 11.9 mmol/l	↑ 0.05 units/kg/hr
	12- 14.9 mmol/l	↑ 0.075 units/kg/hr
	>15 mmol/l	↑0.1 units/kg/hr Check for Blood Ketones

NOTE: *ISPAD recommend correcting BG < 4mmol/L with 2ml/kg Dextrose 10% and rechecking in 15mins, if still < 4mmol/L they say stop IV insulin for 15 minutes and recheck*

- Monitor BG at least hourly in theatre and until awake post-operatively for at least 4 hrs. Frequency of monitoring may be reviewed then if stable, awake and back on usual s/c insulin regimen
- Insulin infusion should not be stopped unless blood glucose is < 4 mmol/L as this will cause rebound hyperglycaemia. If blood glucose is < 4mmol/L, correct with 2ml/kg 10% dextrose IV and recheck after 15 minutes. If remains < 4 mmol/L discontinue insulin for 15 minutes and recheck. Then restart at lower rate (e.g. 0.01units/kg/hr) and monitor BG carefully
- Add potassium chloride to maintenance fluids if on infusion for > 12 hours and monitor electrolytes
- Continue IV infusion until the child is tolerating oral fluids and snacks
- There is a risk of hyponatraemia in hospitalized patients. Monitor sodium levels (minimum once daily) while on IV fluids
- Once the child is able to resume oral nutrition, resume the child's usual diabetes regimen
- Stop IV insulin infusion 30 minutes after subcutaneous insulin recommenced.

9.0 Minor Surgery

If the extent of the planned surgery is unclear, it is safer to follow the major surgery guidelines.

PATIENTS TREATED WITH TWICE OR THREE TIMES DAILY INJECTIONS (E.G. INTERMEDIATE INSULIN (INSULATARD) WITH REGULAR INSULIN (ACTRAPID) OR PREMIXED INSULIN)

9.1 Morning of surgery

- Omit usual morning fast-acting (e.g. Actrapid, Humalog) and give only usual morning intermediate acting insulin (e.g. Insulatard). (*If on premixed insulin such as Humulin M3 give only the equivalent dose of the basal component)*
- Start maintenance IV fluids (5% w/v glucose/0. 9% % w/v sodium chloride) 1-2 hours pre-operatively or 8am at the latest
- Monitor capillary blood glucose *at least* **hourly** (including in theatre)
- If blood glucose rises to **>14 mmol/L**, check for ketones and start IV insulin (at 0.05 units/kg/hr) and follow Major Surgery guideline (Section 7.2)
- *At least* hourly blood glucose until awake post-operatively for at least 4 hours
- Start oral intake or continue IV fluids depending on child's condition post op. Supplemental rapid acting insulin may be given to treat hyperglycaemia or to cover carbohydrate intake
- Dinner or evening insulin is given as usual and BG monitoring as usual (when stable).

9.2 Afternoon surgery

- Give usual dose of morning rapid/fast acting insulin (e.g. Actrapid) and 50% of the usual dose of intermediate-acting insulin (e.g. Insulatard). (If on premixed insulin such as Humulin M3 give only 50% of the equivalent dose of the basal component)
- Allow the child to eat a light breakfast
- Start maintenance I.V. fluids (5% w/v glucose/0.9% w/v sodium chloride) 2 hours prior to surgery or no later than midday
- Proceed as for morning operations.

PATIENTS TREATED WITH MULTIPLE DAILY INJECTIONS (E.G. ONCE DAILY GLARGINE AND PRE-MEAL RAPID ACTING INSULIN)

Doses of long acting insulin should be continued as normal.

9.3 Morning of surgery

- Give regular evening detemir, glargine or degludec (Tresiba) the preceding evening. If pre-operative evaluation shows a pattern of low blood glucose values in the morning, consider reducing the dose of long-acting insulin by 20-30%.
  Note: Tresiba has a very long half-life
- On the morning of the procedure, give the usual dose of long-acting insulin (**Note – ONLY if long acting insulin is usually given at this time daily)**
- Omit the rapid-acting insulin unless a modified dose is needed to correct hyperglycaemia
- Commence IV fluids (5% w/v glucose/0.9 % w/v sodium chloride) 1-2 hours pre-operatively or no later than 8am.
- Monitor BG *at least* hourly (depending on value)
- Post-op supplemental mid-morning rapid acting insulin may be given if required
- When recovered and able to resume normal feeds, afternoon/evening insulin doses should be given as usual and monitor BG as usual.

9.4 Afternoon surgery

- Give regular evening detemir, glargine or degludec the preceding evening
- On the morning of the procedure, give the usual dose of long-acting insulin (**Note – ONLY if long acting is usually given at this time daily)**
- Give dose of rapid-acting insulin with breakfast (using usual insulin to carbohydrate dose ratio)
- Commence IV fluids (5% w/v glucose/0.9% w/v sodium chloride) 1-2 hours pre-operatively or no later than midday
- Monitor BG *at least* hourly
- Proceed as for morning operations.

PATIENTS TREATED WITH CONTINUOUS SUBCUTANEOUS INSULIN INFUSION (CSII) / PUMP THERAPY

See 7.3 (pg. 5) above re specific hazards of technology use with x-ray screening, MRI or diathermy

- Inform anaesthetic team and theatre staff that child has diabetes and extra monitoring will be necessary during procedure, as patient on insulin pump
- Ensure the Consultant Anaesthetist is comfortable using basic insulin pump functions
- Bipolar electrocautery preferable to monopolar. If monopolar, ensure current pathway away from pump
- Check that subcutaneous infusion site is:
  - ✓ functioning, secure and visible to prevent dislodgement and interruption of insulin supply
  - ✓ away from the surgical field and in a non-compressible location
  - ✓ changed the day before theatre & not consisting of steel needle if using diathermy
  - ✓ **Site to be shown to Consultant Anaesthetist pre-operatively**.

9.5 Morning of surgery

- Commence IV maintenance fluids (5% w/v glucose/0.9% w/v sodium chloride) 2 hours preoperatively or 8 am at the latest
- Continue pump at basal rate peri-operatively. If hypoglycaemia (< 4mmol/L) give 2ml/kg 10% Dextrose IV and recheck after 15 minutes
- If necessary, can correct hyperglycaemia with correction bolus (pre and post-operatively)
- Monitor glucose levels *at least* hourly pre, intra and post-operatively aiming to keep between 5-10 mmol/L;
- **CGM can be used pre- and post-operatively however capillary blood glucose levels should be used intraoperatively**
- **Patients using hybrid closed loop systems need to be switched to manual mode prior to entering the operating theatre**
- Post-operatively, a meal bolus is given when patient is ready to eat carbohydrate.

9.6 Afternoon surgery

- Light breakfast with appropriate meal bolus and continue basal rate
- Fast as per anaesthetic guidelines
- Commence IV maintenance fluids (5% w/v glucose/0.9% w/v sodium chloride) 2 hrs. Pre-op or midday at the latest
- Monitor BG ***at least*** hourly
- Proceed as for morning operations.

10.0 Emergency Surgery

DKA can present as an "acute abdomen" in new presentation of diabetes and in known patients with diabetes. Acute illness may precipitate DKA.

See 7.3 (pg. 5) above re specific hazards of technology use with x-ray screening, MRI or diathermy

****See page 9 for additional specific considerations in patients on CSII (insulin pump therapy)****

10.1 Pre-operative care

- Check blood glucose, venous gas, blood / urine ketones and urea and electrolytes
- Check weight if possible.
- **If ketoacidotic (pH < 7.3 and bicarb < 18 mmol/L),** manage as per DKA guidelines and inform Anaesthetist and Paediatric/Paediatric Endocrinology Team.
- Surgery will need to be deferred until circulating volume and electrolyte deficits have been corrected.
- If not in DKA/ ketoacidotic (normal pH (> 7.3), normal bicarb (>18mmol/L)), start IV fluids and insulin management as for elective surgery
- Inform the Paediatric/ Paediatric Endocrinology team.

10.2 Post-operative care

- After surgery, start oral intake or continue IV fluids depending on the child's condition. Continue IV insulin infusion/additional short- or rapid-acting insulin until oral intake resumed and tolerated
- Hourly blood sugars should continue until oral intake re-established
- Once the child is able to eat, resume the usual diabetes regimen
- If the BG rises or the patient starts vomiting, the clinical situation needs to be reviewed (and may require blood samples for electrolytes and gases (to exclude DKA)).

10.3 Type 2 diabetes patients on medications other than insulin

- Metformin use has been associated with lactic acidosis, especially in cases of renal insufficiency and vomiting illness. Metformin should be discontinued in the peri-operative period
- All medications, other than insulin, for type 2 diabetes should be discontinued on the day of surgery (sulphonylureas, thiazolidinediones, DPP-4 inhibitors, GLP-1 analogues).

Major surgery (>2 hours duration)

- It is important to maintain hydration with IV fluids before, during, and after surgery and metformin should be withheld for 24 hours post-operatively and until normal renal function confirmed.
- Insulin may be required for major surgery in patients with type 2 diabetes who do not require it routinely – discuss with paediatrics/paediatric endocrinology

Minor surgery (<2 hours duration)

- Metformin may be discontinued on the day of surgery and restarted once oral intake resumes

11.0 Implementation Revision and Audit

- Distribution to the REO of each Regional Health Area for dissemination through line management in all acute hospitals
- Implementation through Senior Management Teams of each acute hospital and distribution to other interested parties and professional bodies
- The NCPPN Diabetes Working group has agreed that this guideline will be reviewed on a **3** yearly basis
- Regular audit of implementation and impact of this guideline through outcome and process measures is recommended to support continuous quality improvement. It is the responsibility of each unit providing care for children with diabetes and intercurrent illness to audit the unit practice regularly in order to ensure that care in being provided in line with guidelines and that any deviations are clinically justified. The audit process should be coordinated in each paediatric unit under local paediatric clinical governance and should be taken from a multidisciplinary perspective where appropriate. Where the audit identifies areas for practice improvement, it is the responsibility of each individual unit to implement changes and re-audit to support continuous quality improvement.

12.0 References

- Kapellen T, Agwu JC et al. (2022) *International Society for Paediatric and Adolescent Diabetes ISPAD Clinical Practice Consensus Guidelines,* Paediatric Diabetes; 23:1463-1477.
- Previous Children's University Hospital: Temple Street Surgical guidelines for children with Type 1 diabetes.
- Irish Medication Safety Network (2020) Best Practice Guidelines for the Safe Use of Insulin in Irish Hospitals https://imsn.ie/wp-content/uploads/2020/07/insulin-best-practice-March-2020-with-appendices.pdf

13.0 Qualifying Statement

- These guidelines have been prepared to promote and facilitate standardisation and consistency of practice.
- Clinical material offered in this guideline does not replace or remove clinical judgement or the professional care and duty necessary for each child.
- Clinical care carried out in accordance with this guideline should be provided within the context of locally available resources and expertise
- Discussing care with the child, parents/guardians and in an environment that is appropriate and which enables respectful confidential discussion

- This Guideline does not address all elements of standard practice and assumes that individual clinicians are responsible for:
    - ✓ Advising children, parents/guardians of their choices and ensure informed consent is obtained
    - ✓ Meeting all legislative requirements and maintaining standards of professional conduct
    - ✓ Applying standard precautions and additional precautions, as necessary, when delivering care
    - ✓ Documenting all care in accordance with local and mandatory requirements.

14.0 Appendices

Appendix 1: ASA Physical Status Classification System

ASA Physical Status 1 – A normal healthy patient

ASA Physical Status 2 – A patient with mild systemic disease ASA Physical Status 3 – A patient with severe systemic disease

ASA Physical Status 4 – A patient with severe systemic disease that is a constant threat to life

ASA Physical Status 5 – A moribund patient who is not expected to survive without the operation

ASA Physical Status 6 – A declared brain-dead patient whose organs are being removed for donor purposes

Appendix 2: Commonly used Insulin

Rapid acting

Rapid acting insulin analogues eg Novorapid (aspart) /Apidra (glulisine)/Humalog (lispro)/FIASP (fast acting aspart)

Fast acting

Regular human insulin e.g.

- ✓ Actrapid (regular insulin),
- ✓ Humulin S (regular insulin)
- ✓ Insuman Rapid (regular insulin)

Intermediate

- ✓ Insulatard (NPH -Neutral Protamine Hagedorn)
- ✓ Humulin I (NPH -Neutral Protamine Hagedorn)

Long acting

- ✓ Levemir Insulin (detemir)
- ✓ Lantus (glargine)
- ✓ Toujeo (longer acting lantus)
- ✓ Tresiba (degludec)
- ✓ Abasalgar

Premixed insulin

- ✓ Humulin M3 (30% regular (fast) and 70% intermediate)
- ✓ Humalog Mix 25 (25% rapid / 75% intermediate)
- ✓ Humalog Mix 50 (50% rapid / 50% intermediate)
- ✓ Novomix 30 (30% rapid and 70% intermediate)

Appendix 3 Acknowledgements

This guideline has been developed by the National Clinical Programme for Paediatrics and Neonatology Diabetes Working Group. The members of this group include medical, nursing and dietetic representatives from paediatric diabetes services. The Diabetes Working Group also wish to thank those who provided input and feedback on draft versions of this guideline throughout development, and those who provided valuable input during the consultation process and revision of the guideline including Dr Claire Mac Sweeney, Senior Specialist Anaesthesia trainee, Ms. Ciara Kirke, Clinical Lead, National Medication Safety Programme, HSE and Mr. Donal Burke, Clinical Pharmacist, CHI, Crumlin

Professor Michael O'Grady	National Clinical Lead Paediatric Diabetes, Consultant Paediatric Endocrinologist
Professor Colin Hawkes	Consultant Paediatric Endocrinologist
Professor Nuala Murphy	Consultant Paediatric Endocrinologist
Ms. Aisling Egan	Candidate ANP Paediatric Diabetes
Ms. Claire Maye	Candidate ANP Paediatric Diabetes
Dr Kate Gajewska	Health Promotion and Research Manager, Diabetes Ireland
Dr Orla Neylon	Consultant Paediatrician with Special Interest in Diabetes
Ms. Laura O'Shea	Senior Paediatric Diabetes Dietitian
Dr Vincent McDarby	Senior Paediatric Psychologist
Ms Jacqueline de Lacy	Programme Manager, National Clinical Programme for Paediatrics and Neonatology

Appendix 4 Approval Process

Sign off by National Clinical Programme for Paediatric Diabetes Working Group	**V1:** July 2020 **V2:** May 2024
Sign off by Paediatric Clinical Advisory Group, Faculty of Paediatrics, RCPI	**V1**: August 2020 **V2:** July 2024
Sign off by National Clinical Advisory Group Lead (NCAGL), HSE	**V1**: October 2020 **V2**: September 2024
Guideline Revision Dates:	**V1:** October 2023 **V2:** July 2027
Approval from National Clinical Programme for Anaesthesia (NCPA)	5th April 2024
Approval from National Clinical Programme of Surgery	19th April 2024

15.0 Child on CSII: Pre- Procedure