

SESLHD GUIDELINE COVER SHEET



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SUMMARY	This guideline will provide clinicians across SESLHD with guidance to implement best practice in regards to fasting requirements of patients undergoing procedures that require procedural sedation or general anaesthesia. This guideline supports the Agency for Clinical Innovations 'Key Principles- Preoperative fasting in NSW public hospitals'.

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Pre-Operative/Procedural Fasting for Patients Undergoing Anaesthesia

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Section 1 - Background

This guideline will provide clinicians across SESLHD with guidance to implement best practice in regards to fasting requirements of patients undergoing procedures that require procedural sedation or general anaesthesia.

The following is a guideline only and supports the Agency for Clinical Innovation's 'Key Principles – Preoperative fasting in NSW public hospitals' (ACI 2016). Individual patient circumstances and requirements should be considered by anaesthetic and procedural teams (particularly for diabetic patients and any undergoing specific colorectal procedures) with pre-operative plans being made in conjunction with patients, families and carers.

For the pre-operative fasting management of patients with Diabetes Mellitus (DM), please refer to local clinical business rules to guide best practice.

This guideline is not intended for use in non-procedural patients who are nil-by-mouth.

Section 2 - Principles

1. Pre-operative and pre-procedural fasting is necessary for all patients undergoing procedural sedation or general anaesthesia to protect the patient from possible regurgitation and aspiration of gastric contents.
2. All patients undergoing procedural sedation or general anaesthesia should fast from solids for **no less than six (6) hours**, and fast from preoperative oral fluids for **no less than two (2) hours before the induction of anaesthesia**.
3. It is important that patients are not fasted for extended lengths of time before a surgical procedure as this will increase the surgical stress response, increasing the catabolic state associated with starvation, increases insulin resistance, increases risk of hypoglycaemia in diabetic patients and is uncomfortable for patients.
4. Patients who are fasted from preoperative oral fluids for extended periods pre-operatively become dehydrated, making it difficult to gain IV access, increase the intraoperative fluid requirements and increase the risk of sodium overload. It also increases pre-operative thirst, hunger, anxiety and nausea.
5. A pre-operative fluid diet does not provide adequate nutrients and should not be used as the sole source of nutritional support for longer than one (1) day. Consider IV fluid replacement for extended fasting times.
6. Pre-operative fluids covered in this guideline must **exclude** all liquids containing fat, protein and insoluble fibre. **Note:** clear soups, thickened fluids and jelly are **NOT** suitable pre-operative fluids (see appendix A and B).
7. Patients with enteral tube feeding can continue feeding **until six (6) hours pre-procedure**; water may be administered via tube **up to two (2) hours prior to the induction of anaesthesia**. Patients should then be nil-by-tube until the end of the procedure.
8. Diabetic patients should be managed pre-operatively through regular blood glucose monitoring and the titration of insulin (intravenous or subcutaneous, as determined by the anaesthetist/endocrinologist) and the possible administration of intravenous glucose preparations (i.e. 5% glucose solution) as required. *Please refer to local clinical business rules and clinical judgement to help determine the appropriate management.*
9. Advice from an endocrine medical officer should be sought for all type 1 and type 2 diabetes patients (on basal/bolus insulin regimens, SGLT2 inhibitors, GLP1 inhibitors and DPP4s) and those with poor glycaemic control (i.e. >9% HbA1C, or random BGL >10 mmol/L).
10. Type 1 and type 2 diabetic patients on basal/bolus regimens (and those with undetectable c-peptide levels) **should not** have their insulin withheld entirely during periods of fasting; insulin titration should occur in consultation with the patient and the anaesthetist +/- endocrinologist to achieve and target BGL (5-10 mmol/L).

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11. Clinical patient outcomes are improved when fluids are continued until two (2) hours prior to the induction of anaesthesia (compared to prolonged fasting) including (ACI 2016):
- Replaced/maintained the body's water balance
 - Easier peripheral cannulation
 - Improved post-operative nausea and vomiting
 - Improved patient comfort
 - Enhanced post-operative recovery
12. Patients should be encouraged to drink up to 400mL appropriate preoperative oral fluids 2h prior to their earliest predicted anaesthetic start time. For example, in patients waiting for surgery on a list that starts at 8am, they should be encouraged to drink at 6am. Any patients whose known anaesthetic start time is >2h away should be allowed to drink pre-operative oral fluids, no more than 400mL/h. ([European Society of Anaesthesiologists Fasting Guidelines](#) and [American Society of Anesthesiologists Fasting Guidelines](#))
13. Medications should not be withheld purely for fasting purposes. Tablets such as paracetamol and opioid analgesics can be given with small sips of water at any time while fasting. Patients should not have analgesia withheld because they are waiting for an anaesthetic. Good pre-operative pain management is essential for patient wellbeing.

Section 3 - Definitions

DM	Diabetes Mellitus
BGL	Blood Glucose Level
IV	Intravenous
SC	Subcutaneous
PACE	Patient with an Acute Condition for Escalation
BTF	Between the Flags (eMR2)
NSAID	Non-steroidal anti-inflammatory drugs
SGLT2	Sodium-glucose co-transporter-2
HbA1C	Haemoglobin A1c
GLP1 agonists	Glucagon-like peptide-1 agonists
DPP4s	Dipeptidyl peptidase-4

Section 4 - Responsibilities

Anaesthetists are responsible for:

- Pre-operative assessment of patient's 'fitness' for surgery
- Provision of clear and evidence based instructions of fasting times to patients and nursing staff.
- Prescription of insulin regimens for diabetic patients, in consultation with endocrine, where appropriate
- Prescription of intravenous glucose infusions where appropriate
- Responding to deterioration of patients in regards to complications related to pre-operative fasting and diabetic emergencies (hypo/hyperglycaemia) in pre-operative patients (refer to [SESLHDPR/697 - Management of the Deteriorating ADULT inpatient \(excluding maternity\)](#) or [SESLHDPR/705 - Management of the deteriorating MATERNITY woman](#))
- Informing nursing staff of delayed lists and instructions for the provision of timeframes for fluids prior to procedure
- Documenting medication plan on NIMC/eMeds and progress notes.

Surgeons are responsible for:

- Documenting clear and evidence based instructions for provision of fasting times to patients and nursing staff.
- Alerting anaesthetic and nursing staff of alterations in list order to provide patients with appropriate nourishment.

Registered and Enrolled Nurses are responsible for:

- Following instructions provided in this guideline for pre-operative patients
- Communicating with anaesthetists and surgeons in regards to fasting instructions for specific patients
- Escalation of clinical deterioration of fasting patients including initiation of the PACE system (refer to [SESLHDPR/697 - Management of the Deteriorating ADULT inpatient \(excluding maternity\)](#) or [SESLHDPR/705 - Management of the deteriorating MATERNITY woman](#)).
- Regular BGL monitoring of fasting diabetic patients
- Provision of clinical handover to the procedural unit or operating theatre nurse including fasting time and BGL monitoring
- Ordering and providing appropriate fluids for pre-operative patients (as per local procedures).

Section 5 – Pre-Procedure Fasting

5.1 All Patients

- Fasting times for non-elective patients should be checked with anaesthetist
- Consider IV fluid replacement if patient is elderly, bowel preparation has been administered or if there is a delay in procedure.

5.2 Non-Insulin Requiring Type 2 Diabetic Patients

The management and treatment of fasting diabetic patients should be guided by local business rules from each facility.

Diet Controlled Type 2 Diabetic Patients

- Check BGL's every four (4) hours
- Supplemental rapid acting subcutaneous insulin may be given as supplemental in patients whose blood glucose levels are elevated (i.e. >10mmol/L)
- Alternatively an IV insulin infusion may be required as guided by local clinical business rules.

Type 2 Diabetic Patients Treated With Oral Hypoglycaemic Agents/Non-Insulin Injectable Agents

- Withhold oral hypoglycaemic agents/ non-insulin injectable agents on the morning of surgery
- Patients taking a SGLT2 inhibitor should be assessed for their risk of diabetic ketoacidosis (DKA) before surgical procedures. Perioperative risks include dehydration, urinary tract infections and renal impairment. Refer to NSW Health [Safety Notice 005/18](#).
- Check BGL's every two (2) hours (from when fasting is commenced)
- Supplemental short or rapid acting insulin may be required as supplemental insulin in patients whose glucose levels are elevated or alternatively IV insulin infusion may be required
- Most oral hypoglycaemic medication can be restarted after surgery when the patient has resumed eating, *with the exception of metformin which should only be resumed when the patient is on a full diet and renal function is adequate as determined by procedural team.*

5.3 Insulin Requiring Diabetic Patients

Where possible, type 1 and type 2 diabetic patients on basal/bolus insulin regimens should receive consultation from an endocrine specialist to ensure a management plan is put in place and the risk of adverse events is reduced.

A subcutaneous or IV insulin regimen should be prescribed as guided by local clinical business rules and/or advice from endocrinologist. **Patients with Type 1 diabetes require insulin at all times (including during periods of fasting) and should not have their insulin withheld altogether** (i.e. the dose of insulin should to be reduced).

Intravenous Insulin Infusions

- For a patient receiving IV insulin infusion – measure BGLs every hour and document on the appropriate Insulin Infusion Medication and Record Form (or according to unit specific protocols which have been approved through local governance structures). When the patient is within the target BGL range for at least six (6) hours consider BGLs every two (2) hours

- Frequency of BGL testing should be increased if BGLs are found out of range (i.e. $</>$ 5-10 mmol/L)
- Insulin infusions orders must be documented on a form approved by the appropriate local governance committees. Examples can be found here:
 - SGH: Adult IV Insulin Infusion Medication and Record Form (SES130.013)
 - POWH: Intravenous (IV) Insulin Infusion (SES130.036).
- A glucose infusion should be commenced before insulin is administered to prevent hypoglycaemia/starvation ketosis
- *Glucose is contraindicated for some conditions such as neurological head trauma or haemorrhage, and some trauma patients, so review by the primary team is required.*
- Refer to local clinical business rules for comprehensive management guidelines.

Subcutaneous Insulin Injections

- For a patient prescribed subcutaneous insulin injections according to a supplemental scale, measure BGL every two (2) hours and administer insulin according to the supplemental scale
- Document on the appropriate patient record BTF (eMR2), iView or Adult Subcutaneous Insulin Prescribing Chart (SMR 130035) or according to unit specific protocols which have been approved through local governance structures.

Continuous Subcutaneous Insulin Infusion Pumps

- Refer to local clinical business rules for perioperative management guidelines.

Section 6 – Hyper/Hypoglycaemia

- Consult the anaesthetist or surgical team if there are any concerns regarding management of the patient's BGL
- Use escalation process as outlined in [SESLHDPR/697 - Management of the Deteriorating ADULT inpatient \(excluding maternity\)](#) or [SESLHDPR/705 - Management of the deteriorating MATERNITY woman](#) for patients experiencing hypoglycaemia (<4mmol/L) or hyperglycaemia (>20mmol/L)
- Follow local guidelines in regards to the management of hypoglycaemic episodes.

Section 7 – Pre-Procedural Medication Administration

Prescribed morning medications (including analgesia) should be administered with a sip of water at 0600 hrs unless otherwise stated (check anaesthetist's and surgeon's instructions).

Patients' medications should be reviewed prior to procedural fasting by the anaesthetist, in consultation with the procedural team, for appropriateness to continue/suspend the medication depending on the nature of the procedure and patient factors.

Medications to be withheld/suspended should be clearly annotated on the medication chart (NIMC/eMeds).

Exceptions:

This list is NOT exhaustive:

Intention to continue these medications should be confirmed with treating team and/or anaesthetist.

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Contact the anaesthetist or medical team for clarification if required.

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**Anticoagulants
Antiplatelet Medications
Hypoglycaemic Agents
Lithium
Monoamine Oxidase Inhibitors
NSAIDs
Potassium Sparing Diuretics
Hormone Replacement Therapy
Oral Contraceptives**

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Patients undergoing vascular, neurosurgical or cardiac surgery may require the continuation of anticoagulation/antiplatelet medication. Seek clarification from Surgical/Anaesthetic Medical Officer.

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Patients with cardiac stents should only have antiplatelet medications withheld with approval from a cardiologist.

Patients' medications should be reviewed prior to procedural fasting by the anaesthetist, in consultation with the procedural team, for appropriateness to continue/suspend the medication depending on the nature of the procedure and patient factors.

Section 8 – Documentation

Pre and Post Procedural Handover Form

- Last food time
- Last drink time
- Last BGL pre-procedure result.

Intravenous Fluid Therapy

- Intravenous Fluid Order Form.

BGL

- BTF (eMR2)/SAGO/iView
- Approved Insulin Infusion forms
- Approved Subcutaneous Insulin Management forms
- Pre and Post Procedural Handover form.

Subcutaneous Insulin Prescription

- Approved Subcutaneous Insulin Management forms
- Approved electronic medication management systems (e.g. eMEDs, eRIC).

Intravenous Insulin Infusion

- Approved Insulin Infusion forms
- Approved electronic medication management systems (e.g. eRIC).

Progress Notes

- Specific fasting instructions (for deviations from this guideline)
- PACE notifications.

Medication Chart

- Document medications to be withheld/suspended on eMeds/NIMC and review date post operatively.

References

- [ACI. 2016. Key Principles: Preoperative fasting in NSW public hospitals](#)
- [NSW Ministry of Health 2020- Consent to Medical and Healthcare Manual](#)
- [NSW Ministry of Health Policy Directive PD2017_032 - Clinical Procedure Safety](#)
- [Peri-operative risk of SGLT2 inhibitor-associated ketoacidosis \(2018\) NSW Health Safety Notice](#)
- [SESLHDPR/697 - Management of the Deteriorating ADULT inpatient \(excluding maternity\)](#)
- [SESLHDPR/705 - Management of the deteriorating MATERNITY woman](#)
- [SGSHHS. 2018. CLIN079 PREOPERATIVE/PROCEDURE MANAGEMENT OF AN ADULT](#)
- [Prince of Wales Hospital \(2019\) Clinical Business Rule: Surgery and Medical Procedures for Patients with Diabetes Mellitus](#)
- [American Society of Anesthesiologists \(2017\) "Practice Guidelines for Preoperative Fasting and Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration." Anesthesiology 126:376-393](#)

- [European Society of Anaesthesiology \(2011\) “ Perioperative fasting in adults and children.” European Journal of Anaesthesiology 28: 556-569](#)

Revision and Approval History

Date	Revision no:	Author and approval
August 2017	Draft	Executive Sponsor endorsed development of guideline
November 2017	Draft	Executive Services processed prior to submission to SESLHD DQUM for endorsement.
December 2017	Draft	Approved by Drug and Quality Use of Medicines Committee
December 2017	Draft	Approved at Clinical and Quality Committee.
March 2021	1	Minor review. Updated links and terminology (from clear fluids to perioperative fluids), updated fasting guidelines for preoperative fluid intake, medications taken while fasting and added surgeon responsibility as well to document correct fasting times. Approved by Executive Sponsor. To be tabled at Quality Use of Medicines Committee (QUMC).
August 2021	1.1	Updated following recommendation from QUMC to include advice regarding management of SGLT2 inhibitors in the peri-operative period. Approved by Executive Sponsor. To be tabled at Quality Use of Medicines Committee (QUMC).
September 2021	1.2	Minor amendments recommended by QUMC. QUMC noted ‘Approved with amendment’.

Appendix A: Diet – Pre-operative Oral (Non-Diabetic)

	Allowed	Not Allowed
Beverages	Water Apple juice Cordial Black tea/coffee	All others, including: prune juice Milk Thickened fluids Carbonated drinks
Miscellaneous	Commercial re-hydration fluids Sugar/Sweetener	Cream Commercial supplements with milk or soy proteins
NO FOOD PRODUCTS IN THE SIX (6) HOURS PRIOR TO INDUCTION OF ANAESTHESIA		

ACI (2016). Key Principles: Preoperative fasting in NSW public hospitals.

Appendix B: Diet – Pre-operative Oral (Diabetic)

	Allowed	Not Allowed
Beverages	Water Diet cordial Black tea/coffee	All others, including juice Regular cordial Milk Thickened fluids Carbonated drinks
Miscellaneous	Diet Commercial re-hydration fluids Sweetener	Sugar Cream Commercial supplements with milk or soy proteins
NB: Some diabetic patients may require small amounts of carbohydrate-containing oral fluids to correct hypoglycaemia. This should be determined on a case-by-case basis following local protocols.		
NO FOOD PRODUCTS IN THE SIX (6) HOURS PRIOR TO INDUCTION OF ANAESTHESIA		

ACI (2016). Key Principles: Preoperative fasting in NSW public hospitals.