PG07 Guideline on pre-anaesthesia consultation and patient preparation 2024

Short title: Pre-anaesthesia consultation

1. Purpose

The purpose of this document is to assist doctors with assessment and preparation of patients being considered for surgery.

2. Scope

This document is intended to apply to all anaesthetists planning to provide anaesthesia care.

It is also recommended that it be followed by any doctor responsible for administering drugs that have the potential for alteration of a patient's conscious state, from any level of sedation through to general anaesthesia, as well as techniques requiring the use of large volumes of local anaesthetic (see *PS02(A) Position statement on credentialling and defining the scope of clinical practice in anaesthesia*).

3. Background

Adequate pre-anaesthesia consultation has been identified as an important factor in patient safety and ANZCA recognises the integral role of the pre-anaesthesia consultation to improved outcomes [(i)]. The terms "pre-anaesthesia consultation" and "anaesthesia" in this document refer not only to situations pertinent to the administration of general anaesthesia but also includes those related to regional anaesthesia/analgesia and sedation. Consultation with a patient prior to anaesthesia by an anaesthetist or a medical practitioner whose scope of practice includes anaesthesia is essential (*see PS57(A) Position statement on duties of specialist anaesthetists, PS59(A) Position statement on roles in anaesthesia and perioperative care, PS62(G) Position statement on cultural competence and cultural safety* and *Good medical practice: A code of conduct for doctors in Australia*[1]).

"Consultation" differs from "assessment" in that an assessment (medical or nursing) contributes to the establishment of the health status of a patient at a particular point in time whereas consultation (medical) involves an assessment as part of a broader preparation process that also includes:

3.1 ensuring that the patient's state of health has been optimised.

3.2 preparing a plan of perioperative management

3.3 allowing discussion with the patient and/or guardian

3.4 obtaining informed consent for the anaesthesia and related procedures.

Anaesthetists and medical practitioners undertaking to provide anaesthesia should be familiar with the principles outlined in the Medical Board of Australia's *Good medical practice: A code of conduct for doctors in Australia*[1] and the New Zealand Medical Council's *Good medical practice*[2]. An awareness of

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[(i)] The executive summary and recommendations of Safety of Anaesthesia: A review of anaesthesia-related mortality in Australia and New Zealand 2009-2011 should also be noted because of its emphasis on the importance of adequate preoperative assessment.

patient autonomy and patients' rights to privacy as set out by the Privacy Act 1993 (NZ)[3], the Privacy Act 1998 (Cth)[4] and the Privacy Amendment (Private Sector) Act 2000 (Cth)[5] is essential. In addition, anaesthetists should be familiar with *Supporting professionalism and performance – A guide for anaesthetists and pain medicine physicians*, and *PS26(A) Position statement on informed consent for anaesthesia or sedation*. These requirements are also reflected in the *New Zealand Code of Health and Disability Consumers' Rights*[6] issued by the New Zealand Health and Disability Commissioner, and the *Australian Charter of Healthcare Rights*[7] (endorsed July 2008).

It is essential that facilities in which procedures are to be undertaken have the resources, staffing, and experience to care for patients in the perioperative period taking into consideration their co-morbidities and surgical complexity.

4. General principles

4.1 The process involved in conducting an effective pre-anaesthesia consultation and optimising care will vary with the environment in which the medical practitioner responsible for the anaesthesia works, but the principle of timely consultation that allows for assessment, planning and discussion remains essential.

4.2 Shared decision making which incorporates the patient's values and lived experience, cultural perspective and family or carer contribution is fundamental.

4.3 The difficulties of undertaking an adequate pre-anaesthesia consultation for patients admitted on the day of their surgery or medical procedure are acknowledged. Robust screening and triage tools should be utilised to facilitate risk assessment and guide optimisation prior to surgery. Consequently, patient review prior to admission is the ideal. Where this is not feasible or deemed necessary, admission times, list planning and session times should accommodate the extra time required for pre-anaesthesia consultations (see *PG15(POM) Guideline for the perioperative care of patients selected for day stay procedures* and *PG29(A) Guideline for the provision of anaesthesia care to children*).

4.4 As part of a pre-admission process, written or computer-generated questionnaires, screening assessments, or documented telephone and videoconferencing assessments by medical or nursing staff may be used to supplement the consultation as long as the requirement of 4.5 is met.

4.5 Even if a preliminary pre-anaesthesia assessment has been performed by some other person, the anaesthetist or medical practitioner responsible for administering the anaesthesia should be satisfied that all elements of that assessment have been adequately addressed, and if necessary, repeat any elements about which there may be doubt.

4.6 The consultation should take place at a time prior to anaesthesia and the planned procedure that allows for adequate consideration of all factors related to assessment and optimisation for surgery, anaesthesia and pain management. This includes the ability to obtain critical information about medication history, which may require liaising with hospital pharmacists and clinicians from other disciplines involved in the management of patients.

This is particularly important where:

4.6.1 there is patient co-morbidity.

4.6.2 major surgery is planned.

4.6.3 there are specific anaesthesia and pain management concerns.

4.6.4 there are specific patient communication requirements due to age, cultural, linguistic and social diversity and special needs (see *PS62(G) Position statement on cultural competence and cultural safety*).

It is essential that issues regarding facilities, patient confidentiality, privacy, the presence of support people if required, autonomy, religious and cultural sensitivities, and patient questions are adequately addressed (see also *PS26(A) Position statement on informed consent for anaesthesia or sedation* and the *Australian Society of Anaesthetists ASA-PS03 Minimum facilities for pre-anaesthesia consultations*[8]).

4.7 In some circumstances, early consultation will not be possible (e.g. emergency surgery, labour ward, and in emergency and critical care departments) but the consultation should not be omitted except when the overall welfare of the patient is at risk.

4.8 An equipped consulting room or single bed hospital room is ideal as a pre-anaesthesia consultation facility. Consideration should be given to the requirements of children, their parents/guardians and those patients with particular cultural, age linguistic and social diversity needs.

4.9 For elective procedures, it is not appropriate for the consultation to occur in the operating theatre. For non-complex cases where the anaesthetist is confident that there has been adequate preoperative assessment and verbal specialist consultation (as per 4.4, 4.5 and 4.6 above), the assessment and consultation process may be completed in the holding/waiting area as long as privacy can be maintained. Under certain circumstances, such as emergency surgery, it may be necessary to perform the consultation in the anaesthesia room.

4.10 It is unacceptable for any patients under anaesthesia to be left unattended by the anaesthetist for the purpose of a pre-anaesthesia assessment and consultation of another patient. Should it be necessary to undertake a pre-anaesthesia assessment and consultation whilst managing a patient under anaesthesia, it is essential that there is strict compliance with *PS53(A) Position statement on the handover responsibilities of the anaesthetist*, as outlined under *PS53(A) item 2*. Protocol for transfer of responsibility during anaesthesia.

5. Recommendations

The pre-anaesthesia consultation should include:

5.1 Identification and introduction of the medical practitioner performing the consultation.

5.2 Confirmation with the patient of the patient's identity, the proposed procedure(s) including site(s) and side, and the proceduralist involved.

5.3 A medical assessment of the patient including relevant medical history, which may be assisted by a questionnaire and/or review of relevant patient records, clinical examination, review of medications and review of the results of relevant investigations.

5.4 Further investigations and/or therapeutic interventions may be considered necessary to optimise the patient's physical status and mental wellbeing. Thus, the medical assessment may lead to delay, postponement, reappraisal or even cancellation of the planned procedure. A robust mechanism is required for alerting the treating anaesthetist to results of investigations, consultations and therapeutic interventions, particularly for complex cases.

5.5 Review of previous anaesthesia records if indicated. On occasions it may be necessary to obtain these from another medical facility.

5.6 Consultation with or referral to professional colleagues as required.

5.7 Consideration of the facilities, equipment, and staffing with respect to the proposed procedure and patient co-morbidities to ensure that levels of care available are commensurate with needs throughout the patient admission: preoperative, intraoperative and postoperative. Prior to any procedure the anaesthetist should be satisfied that necessary postoperative monitoring and staffing, both in terms of numbers and skill set, are available.

5.8 The facility should be staffed and equipped both for the provision of anaesthesia and surgery as well as throughout the period of post-operative hospitalisation (see also *PG15(POM) Guideline for the perioperative care of patients selected for day stay procedures) Guideline for the perioperative care of patients selected for day stay procedures* and *PG29(A) Guideline for the provision of anaesthesia care to children*).

5.9 Provision to the patient (and/or guardian) in a timely manner, of information of significance to the patient including details regarding the conduct of the anaesthesia/sedation, pain management (see *PS45 Position statement on patients' rights to pain management and associated responsibilities*) and relevant potential complications and risks. In addition, patients should be advised regarding continuation or cessation of any medications that may adversely affect surgery or perioperative risks. This material may be in the form of verbal discussion, written pamphlets, electronic information or internet links, which can only be effective if given to the patient ahead of the proposed procedure to allow time for consideration. In addition, the patient should be provided with an opportunity for questions on, and discussions about, issues of concern to them. An interpreter should be available if required.

5.10 Obtaining informed consent for anaesthesia/sedation and related procedures. This should include relevant information regarding the type of anaesthesia, invasive procedures, blood and product transfusion if applicable, procedures and plans for pain management, and where, pertinent, informed financial consent (see *PS26(A) Position statement on informed consent for anaesthesia or sedation*). Where consent has been obtained in a pre-anaesthesia assessment clinic the procedural anaesthetist should still discuss the proposed treatment with the patient to ensure that all required preparation and explanation has occurred. Shared decision making is an important step in obtaining informed consent.

5.11 Provision of additional information to patients intending to breastfeed should be guided by Appendix 2 below.

5.12 The provision of information regarding medication management and ordering/modification/cessation of any additional medications considered necessary.

5.13 Instructions to bring accessories and equipment to optimise post-operative management. This would include equipment for the management of obstructive sleep apnoea and hearing aids, glasses etc to reduce the risk of postoperative delirium. Other aids may assist in management of paediatric, culturally and neuro diverse patients.

5.14 Instructions for fasting according to Appendix 1 below unless otherwise specifically prescribed by the anaesthetist.

5.15 Provision of further information such as escort requirements on discharge. Patients undergoing day-stay procedures with anaesthesia or sedation should be discharged into the care of a responsible person in accordance with recommendations as set out in *PG15(POM) Guideline for the perioperative care of patients selected for day stay procedures*.

5.16 As part of the anaesthetist's role in health advocacy, as well as in optimal preparation for surgery, the pre-anaesthesia consultation is a valuable opportunity to encourage and educate patients regarding modifiable health factors such as encouraging smokers to quit.

5.17 The pre-anaesthesia consultation should identify and take note of any advanced care directives and goals of care. In their absence the consultation provides an opportunity to recommend consideration of such directives, where relevant.

5.18 Risk assessment and risk stratification, which may involve formal calculation of morbidity and/or mortality, is important in patient discussions and considerations of facility choice.

5.19 If during this consultation the perioperative risks of proceeding with surgery are equivocal or unacceptable, then the need for the surgery should be re-evaluated or delayed in consultation with the patient and the proceduralist.

5.20 Contemporaneous written notes documenting the consultation and informed consent should become part of the medical record of the patient. Where decisions are complex and require further consultation, verbal referrals, written referrals and formal letters should preferably be employed. (see *PG06(A) Guideline on the anaesthesia record* and also *PS26(A) Position statement on informed consent for anaesthesia or sedation*.)

See further below for appendices. This document is accompanied by a background paper (PG07BP) which provides more detailed information regarding the rationale and interpretation of the Guideline.

Related ANZCA documents

PS02(A) Position statement on credentialling and defining the scope of clinical practice in anaesthesia

PG03(A) Guideline for the management of major regional analgesia

PG06(A) Guideline on the anaesthesia record

PG09(G) Guideline on procedural sedation

PG15(POM) Guideline for the perioperative care of patients selected for day stay procedures

PS26(A) Position statement on informed consent for anaesthesia or sedation

PG28 Guideline on infection control in anaesthesia

PG29(A) Guideline for the provision of anaesthesia care to children

PG41(G) Guideline on acute pain management

PS45 Position statement on patients' rights to pain management and associated responsibilities

PG51(A) Guideline for safe management and use of medications in anaesthesia

PS57(A) Position statement on duties of specialist anaesthetists

PS59(A) Position statement on roles in anaesthesia and perioperative care

PS62 Position statement on cultural competence and cultural safety

Supporting professionalism and performance – A guide for anaesthetists and pain medicine physicians

References – PG07 Pre-anaesthesia consultation

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Appendix 1 - Fasting guideline

1. Purpose

The purpose of this appendix is to guide the safe management of cessation of oral intake in patients of all ages undergoing anaesthesia, referred to as 'fasting'.

It is intended to include general anaesthesia, major regional anaesthesia[1], or any level of sedation exceeding minimal[2].

2. Scope

This fasting guideline is intended to apply to anaesthesia providers. It should also serve as guidance to non-anaesthetists who manage sedation.

It is not intended to apply to the management of minimal sedation as defined in *PG09(G) Guideline on procedural sedation*.

3. Background

The aim of restricting solids and liquids prior to a procedure under general anaesthesia or greater than minimal sedation, is to minimise the risk of aspiration from the upper gastro-intestinal tract, when airway protective reflexes are known to be reduced or obtunded.

The duration of fasting should be sufficient to minimise gastric volume and reduce the potential for significant regurgitation and aspiration.

However, prolonged deprivation of clear liquids for more than 2 hours in adults and more than 1 hour in children may have deleterious metabolic effects as well as impact on a patient's sense of well-being including an increased risk of post-operative nausea and vomiting and metabolic disturbances[3, 4].

Continued consumption of **clear** liquids, especially those containing carbohydrates, may improve gastric emptying.

Fasting instructions should therefore consider the expected timing of anaesthesia.

'Clear liquids' include water, carbohydrate-rich clear liquids, pulp-free clear fruit juice, clear cordial, green tea, black tea and black coffee. The carbohydrates may be simple or complex.

It excludes fluids containing milk, particulate matter, soluble fibre or jelly.

4. Recommendations

4.1 For persons older than 16 years of age:

4.1.1 **Solid food** - of a low calorific nature (light meal) may be allowed up to 6 hours prior to anaesthesia.

4.1.2 **Clear liquids** – Patients who are low risk for delayed gastric emptying should be offered a 'Sip Til Send' preoperative fluid option, provided the healthcare organisation has appropriate policies in place (see 4.1.3 below). Otherwise, for elective and selected emergency procedures, clear liquids should be encouraged up to 2 hours prior to anaesthesia[5]. In this context, a rate of drinking clear liquids which may be considered in adult elective and selected emergency situations (non-gastrointestinal, non-trauma and

see also section 4.1.4) has been recommended to be up to up to 200mL per hour in adults prior to anaesthesia[5, 6].

4.1.3 **"Sip Til Send"** or allowing clear liquids (typically water up to 200mL per hour in adults) until the patient is sent for theatre, is appropriate for most patients and is supported by the Australian Commission of Safety and Quality in Healthcare (ACSQHC). The ACSQHC guidance for Sip Til Send includes education and implementation resources[7]. It has been shown to reduce fasting duration[3, 8-10] and may be of particular value in preventing prolonged fasting in patients waiting for emergency surgery where there may be frequent delays due to theatre access[11-13]. To date, strategies involving liberal clear liquids have not shown significant evidence for increased aspiration risk in comparison with traditional more conservative fasting guidance[4, 13-15]. Sip Til Send is not recommended for patients with risk factors for delayed gastric emptying (see 4.1.4).

4.1.4 Patient, procedural and pharmacological factors contributing to delayed gastric emptying in individual situations should guide the optimal time for cessation of intake of solids and liquids, as well as selection of anaesthesia technique. Although clear liquids have a rapid gastric transit time, there are conditions that require special consideration, caution or variation. These include (but not limited to) emergency abdominal surgery, patients with restricted input for therapeutic purposes, prior bariatric surgery (involving altering the volume or shape of the stomach), previous lower oesophageal surgery, achalasia, taking medications used for diabetes management and weight loss which slow absorption of gastric contents (eg glucagon-like peptide-1 receptor agonists[16]) and recent intake of high dose opioids.

4.1.5 **Carbohydrate-containing clear liquids** are becoming increasingly available for enhanced recovery after surgery pathways. Although there are more benefits than harm reported, they may not be recommended in all situations.

4.1.6 **Sips of liquid and medication administration** - Prescribed medications may be taken, with a sip (30ml for an adult) of water prior to anaesthesia. The 30ml includes the volume required for any other liquid medications such as sodium citrate.

4.1.7 **Enteral feeds** should generally be continued in intubated intensive care patients until procedural transfer unless airway, thoracic or abdominal procedures are to be performed in which case they should be ceased for 6 hours[17].

4.1.8 **Medications that decrease gastric secretion and/or acidity,** and/or those that increase gastric emptying, should be considered for patients with an increased risk of gastric regurgitation.

4.1.9 **Local practices** (education, audit, quality improvement, communication protocols) are best developed to encourage these times to be followed, to avoid prolonged deprivation of oral liquids, even if intravenous fluids have been commenced. Currently this includes multi-centre initiatives where limited volumes of water are permitted to be sipped until as late as possible (such as SipTilSend[7]) in an attempt to comply with and implement the goal of decreasing the 'no oral liquid' period.

4.2 For children up to 16 years of age:

4.2.1 Prolonged fasting times should be avoided, and healthy children encouraged to drink clear liquids (water, pulp free juice, carbohydrate drinks) of $3ml.Kg^{-1}.hr^{-1}$ up to 1 hour before anaesthesia

Solid food is allowed up to 6 hours prior to anaesthesia but this should be a low calorific, i.e. "light" meal.

4.2.2 Other than clear liquids,

4.2.2.1 For infants up to 12 months of age:

- breast milk feeding should be encouraged until 3 hours
- formula and non-human milk may be encouraged until 4 hours *

4.2.2.2 For children older than 12 months of age:

- breast milk feeding should be encouraged until 3 hours
- formula and non-human milk should be regarded as similar to solids with a fasting time of 6 hours

* 200ml or 20ml/kg for formula and cow's milk, whichever is smaller

This fasting guideline may not apply to individual patients deemed at increased risk of perioperative regurgitation or vomiting (see 4.1.4). Patients taking medications that delay gastric emptying need particular consideration(i).

Where reducing risks for individual patients requires deviating from these recommendations, doctors should exercise their discretion over fasting times versus the risk of dehydration / metabolic effects or of regurgitation. Similarly, adjustment of anaesthesia and airway management techniques may need to be considered to further mitigate the risk of regurgitation.

Chewing gum and boiled sweets should be discarded prior to inducing anaesthesia to avoid them being inhaled as a foreign body but do not constitute an indication for delaying any procedure unless they have been ingested.

Gastric ultrasound, where suitable skills and imaging quality is obtained, may be considered as a tool to ascertain volume and consistency of gastric contents, to guide further management[5, 18-20].

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Appendix 2 - Effect of anaesthesia on breastfeeding

ANZCA supports a culture of inclusion and diversity. This appendix applies to all patients who intend to provide breast milk for neonates, infants or children following anaesthesia/sedation, including procedures facilitating delivery, as well as those performed on patients who are already breastfeeding.

Scope: The purpose of this appendix is to support anaesthetists in providing contemporary pre-anaesthesia information and peri-operative care to patients intending to breastfeed following their procedure.

Background: The term "breastfeeding" is used to refer to both breastfeeding and the use of expressed breast milk (EBM) to tube feed or bottle feed infants. Breastfeeding has significant health benefits and is recommended from birth for 6-12 months or longer, according to preference[1]. Previously, patients have been advised to delay breastfeeding after anaesthesia ("pump and dump") for 24 hours, due to concerns regarding transfer of medication via breast milk. With further pharmacokinetic information and documented experience now available, this advice is no longer applicable. Interruption to breastfeeding carries short and long-term risks, including breast engorgement and mastitis, dehydration, and the health implications of earlier cessation of breastfeeding.

Most medications used in anaesthesia are transferred in small amounts to breast milk. Concerns about infant effects relate to four factors.

1. Amount transferred: The Relative Infant Dose (RID)[2] measures the percentage of any medication per day that results in the breastfed infant when the medication is administered to the breastfeeding patient. Medications are considered "safe" if the RID is <10%. Most medications used in anaesthesia have a very low RID[3].

2. Oral bioavailability in the infant: of the medication or its metabolites once transferred via the breast milk.

3. Metabolism and clearance by the infant. Hepatic and renal medication metabolism and clearance systems are influenced by gestational age, postnatal age and body weight[4].

4. Effects of medication/active metabolites on infants: Many medications used in anaesthesia may cause undesirable effects on infants, including sedation or respiratory depression, which can be exacerbated by large or repeated doses. Specific conditions (e.g. prematurity, a history of apnoeas, or duct dependent cardiac lesions) may create additional risk to the infant.

Recommendations: Peri-operative care and pre-anaesthesia advice for patients intending to breastfeed:

i. Desirable structures and systems that support continuation of breastfeeding peri-operatively include: physical spaces to express breast milk; facilities to safely store breast milk; access to experts in infant feeding; institutional policies that limit periods of separation of the breastfeeding patient and infant and support a safe sleeping environment.

ii. Practical points to consider include:

- breastfeeding or expressing just prior to anaesthesia to prevent breast engorgement
- if separation is anticipated to exceed the duration between feeds then breastmilk can be expressed and stored ahead of the procedure
- following anaesthesia, breastfeeding can be facilitated once the patient is alert, stable and comfortable.
- an alternative carer for the infant should be arranged in the post-operative period and when opioid analgesia is anticipated[5].

iii. Relative benefits of different anaesthesia techniques should be discussed with patients, aiming to optimise early return of consciousness; control of pain, nausea and vomiting; and facilitate same-day discharge if planned.

iv. Patients should be advised that most medication used in anaesthesia and analgesia will pass in small amounts to the breast milk but are not likely to cause adverse effects on the infant.

v. Provision of analgesia facilitates breastfeeding; however, post-procedural opioid administration should be minimised and consideration given to instituting multi-modal analgesia techniques. If required, short courses of opioids are preferable to poor analgesia. Where repeated doses of opioid medication are administered, hospital staff and carers should be advised to monitor infants for signs of sedation. Sedation in the breastfeeding patient should prompt assessment of their infant[4]. Those at risk of apnoeas include premature neonates, those with hypotonia and/or a history of apnoeas[6]. Infants of breastfeeding patients on long-term opioids as management of opioid-use disorder should be observed for neonatal abstinence syndrome[7].

vi. Table 1. Commonly-used anaesthesia medications and the current Therapeutic Guidelines (eTG) categorisation for use in breastfeeding[8]. For other medications refer to eTG (Australia)[8], or the Drugs and Lactation Database (United States)[9].

	Medication	eTG Categorization	Other references
Sedatives	Benzodiazepines	Compatible	Short-acting (midazolam) preferred over long-acting (diazepam)
Induction agents	Propofol	Compatible	
	Thiopentone	Compatible	
Inhaled agents	Volatile agents	*	Little information. Short adult serum half-life[10].
Muscle relaxants and reversal	Suxamethonium	*	No information. Rapid adult metabolism. Poor lipid solubility, very low transfer to breast milk[11].
	Rocuronium	*	Rapidly metabolized in adult circulation, very low transfer to breast milk[12].
	Sugammadex	*	No information available. A large, highly polar molecule, low transfer to breast milk probable[13].
Opioids	Morphine	Compatible, caution with slow-release preparations	
	Oxycodone	Use with caution	
	Codeine	Avoid	
	Tramadol	Compatible for short-term use	Product information recommends against use during breastfeeding[14]. SPANZA and the Obstetric SIG supports

	Medication	eTG Categorization	Other references
			the use of tramadol while breastfeeding[15,16].
	Fentanyl	Avoid transcutaneous patch	
Co-analgesics	Paracetamol	Compatible	
	Ibuprofen	Compatible	Avoid in parents of infants with duct-dependent cardiac lesions.[6]
	Diclofenac	Compatible	Avoid in parents of infants with duct-dependent cardiac lesions.[6]
Local anaesthetics	Lignocaine	Compatible	
	Bupivacaine	Compatible	
Antiemetics	Metoclopramide	Compatible	
	Ondansetron	Compatible	
	Dexamethasone	Use with caution due to lack of data	Data on other steroids reassuring

* No Therapeutic Guideline recommendation provided.

Drugs with emerging pharmacokinetic information:

Dexmedetomidine: this drug does not have a Therapeutic Guidelines breastfeeding recommendation. A pharmacokinetic study published in 2017 suggested a RID of 0.034%[17]. Oral bioavailability in the feeding infant is poor and adverse effects would not be expected[18].

Tapentadol: the Therapeutic Guidelines recommendation is to avoid tapentadol use during breastfeeding due to lack of data. Unlike tramadol and codeine, tapentadol is not converted to active metabolites. Further information is required[19].

References – Appendix 2 Effect of anaesthesia on breastfeeding

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Appendix 3 - Guideline on smoking as related to the perioperative period

Short title: Perioperative smoking

1. Purpose

The purpose of this guideline is to advocate for smoking cessation and advise on measures to be considered, as well as optimisation of timing in the perioperative context.

2. Scope

This appendix is intended to apply to cigarette smoking and electronic cigarette use.

The following information has been compiled for use by anaesthetists, perioperative medicine specialists, and specialist pain medicine physicians. However, it is likely to be of benefit to the community.

3. Background

Tobacco use is a major global health problem and the single greatest preventable cause of death and disease in Australia and New Zealand[1]. Smokers are at increased risk of perioperative respiratory, cardiac and wound-related complications, and quitting smoking may reduce the risk of complications[2].

The use of electronic cigarettes (hereafter known as e-cigarettes), the act of which is known as vaping, has increased markedly in recent years. Many tobacco smokers have used the devices to help quit. However, there has been a worldwide surge in the use of e-cigarettes by non-smokers.

ANZCA is committed to its health advocacy role and recognises that the perioperative period represents a “teachable moment” when many smokers quit or attempt to quit smoking, sometimes permanently[3,4]. The opportunity for clinicians to actively participate in this phase should be seized, and patients should be informed about the adverse health effects of vaping, the current regulatory approaches and be instructed on the means available to quit smoking prior to their surgery.

The benefits of quitting smoking include:

- Quitting for one day results in lower carboxyhaemoglobin and nicotine levels that could be expected to improve tissue oxygen delivery[5].
- Quitting for as little as three weeks has been shown to improve wound healing[6].
- Quitting for six to eight weeks results in sputum volumes that are not increased compared to non-smokers[7] and improved pulmonary function[8].
- Immune function is significantly recovered by 6 months after quitting smoking[9].

4. Issues

4.1 **The health/disease/illness burden of tobacco**
This is large in Australia and New Zealand, accounting for approximately 11.1% of all deaths in Australia and 13.9% in New Zealand[1].

The spontaneous quit rate in the general population of tobacco smokers is estimated to be about 2 per cent per annum[10] but there is increased quitting activity (successful and relapsing) before forthcoming surgery[3,11]. In the absence of interventions to support quitting, longer term abstinence after surgery is low, although successful permanent quitting does occur[12].

There is a growing body of evidence on the harmful health effects of vaping, including exposure to carcinogens, lung injury and poisoning[13]. E-cigarettes are harmful to non-smokers, but given the overwhelming harms of tobacco use in smokers, the risk/benefit balance for those unable to quit through other means may favour vaping.

4.2 **Smoking worsens surgical outcomes**.
Compared to non-smokers, there is a significant increase in general morbidity, wound complications, pulmonary complications and intensive-care admissions[14]. Postoperative surgical site infection is particularly associated with smoking on the day of surgery compared to smokers who abstain on the day of surgery[15]. Parental smoking makes perioperative respiratory adverse events more likely[16]. There is insufficient human data on e-cigarette use and postoperative outcomes.

Tobacco smoking is significantly more harmful to the respiratory system than vaping, which also has a much lower impact on the cardiovascular system; however, it is not free of harmful effects. Such effects include oxidative stress, endothelial dysfunction, angiogenesis and inflammation, which may contribute to cardiovascular and thrombotic risk. Evidence is emerging to suggest vaping may contribute to delayed wound healing[17].

Smoking cessation for at least 4-weeks before surgery has consistently shown improved surgical outcomes[12,18]. Longer quit times have the most significant reduction in complication rates, and there is little evidence that short quit times significantly improve outcomes. However, there is no convincing evidence that quitting shortly before surgery is harmful[19], and public health benefits may follow by encouraging smokers to quit at any time before surgery.

5. Assisting patients to quit before surgery

5.1 Advise to quit smoking
Physician advice to quit smoking significantly improves cessation outcomes[10], and this may be particularly effective before surgery[4,11]

5.2 Consider interventions
Hospital based interventions that include cessation pharmacotherapy and/or behavioural supports (such as telephone Quitline) can significantly increase quitting and reduce complications, particularly when applied for sustained periods before surgery[20].

The Smoking Cessation Taskforce of the American Society of Anesthesiologists developed a simple three-point cessation strategy (A-A-R=Ask, Advise, Refer) that may be used in everyday practice and align with Australian/New Zealand smoking cessation guidelines[21].

A=Ask. Patients should always be asked about their smoking status. Even when the answer is already known, asking is suggested as this reinforces the message to the patient that tobacco use is a significant issue.

A=Advise. Most smokers are aware of the risks that are printed on packets regarding cardio-respiratory disease and cancer, yet data show that few have an awareness of the specific perioperative risks that smoking poses[3,4]. By understanding the benefits of quitting before surgery, the likelihood of behavioural change prior to surgery may be increased.

R=Refer. Awareness of locally available smoking cessation support and referral of patients is likely to significantly improve quit rates. General practitioners, pharmacists, quit counsellors at local community health centres, and telephone Quitlines are recommended referral points. Compared to providing self-help material alone, multi-session counselling delivered via telephone Quitlines increased smoking abstinence at 12 months by a significant 25-50 per cent[22]. Online referrals are options for Quitlines in Australia and New Zealand.

Australia: https://www.quit.org.au/referral-form/

New Zealand: https://quit.org.nz/info-resources/quitline-referral-form-apr-2016.docx?la=en

5.3 Cessation support

This can be achieved by pharmacological or non-pharmacological means, or a combination. Approved cessation pharmacotherapies in Australia/New Zealand include nicotine replacement therapy, the nicotine partial agonist varenicline (Champix), and bupropion (Zyban).

5.3.1 Of the pharmacotherapy options, nicotine replacement therapy has the greatest evidence in perioperative settings and is generally the easiest to initiate. Combination nicotine replacement (slow-release patches plus additional immediate-release forms in case of cravings) has the greatest efficacy and is recommended in Australia/New Zealand for smokers with moderate to high nicotine dependency[(i)]. There is considerable evidence for the safety of nicotine replacement therapy in the perioperative period, including wound healing[23], particularly when the alternative is continued smoking.

5.3.2 The role of e-cigarettes as cessation aids before surgery has been investigated, but there is insufficient evidence to currently recommend it[2]. Trials in non-surgical settings have shown the effectiveness of electronic cigarettes for tobacco cessation. However at the conclusion of such trials, ongoing nicotine use via vaping has been a frequent finding rather than the cessation of inhalational self-medication[24].

Practitioners are strongly encouraged to use every opportunity to address the subject of smoking and vaping, with its inherent multiplicity of risks, encourage cessation preoperatively, and assist patients to quit.

[(i)] Figure 1 in the accompanying *PG07 Background Paper* shows a prescribing guide based on national guidelines.

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