

## Ranitidine in Labour

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| Applicable for which staff members?                  | All Auckland DHB clinicians in maternity including access holder lead maternity carers (LMCs) |
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## 1. Purpose of guideline

Obstetric patients are considered at increased risk of aspiration of gastric contents during general anaesthesia when laryngeal reflexes are reduced. This is associated with significant morbidity and mortality. Obstetric patients are at a higher risk compared to the non-pregnant population because high levels of progesterone cause relaxation of the musculature at the gastro-oesophageal junction and increased gastric residual volume. In addition, there is higher intra-gastric pressure due to the gravid uterus, which causes gastric contents to be forced upwards. Studies have shown that the administration of parenteral opioids in labour is associated with delayed gastric emptying.

The risk may be minimised by appropriate antacid prophylaxis around the time of delivery for those patients who are at a higher risk of operative intervention in the peri-partum period, or those who are undergoing elective Caesarean Section.

Ranitidine decreases gastric acid secretion and may decrease gastric volume. It does not affect the pH of the gastric contents that may already be present in the stomach, and therefore must be given some time in advance of general anaesthesia in order to be fully effective.

Sodium citrate is a solution that is given orally to neutralise stomach acid just prior to induction of general anaesthesia.

Timely administration of ranitidine and sodium citrate reduces the degree of pulmonary damage should aspiration occur, however neither will reduce the risk of aspiration or pulmonary damage associated with aspiration of solids.

## 2. Guideline management principles

Antacid prophylaxis should be given to those patients who are considered higher risk for operative intervention. These patients should be identified in labour and offered ranitidine, which should be administered regularly until delivery of the placenta, **after which it should discontinued.**

These patients should only be permitted clear fluids or isotonic sports drinks (eg 'Gatorade' / 'Powerade') and should be discouraged from eating. This is so that if such patients require operative intervention under general anaesthesia they are at reduced risk of aspiration of food and gastric contents.

Effectiveness of ranitidine is dependent on administration timing. Peak plasma levels of oral ranitidine are reached at two to three hours after administration, therefore this timeframe will be needed for appropriate effectiveness. Intravenous ranitidine should ideally be given at 45 to 60 minutes prior to induction of anaesthesia.

## 3. Indications for ranitidine

Ranitidine should be given to those women who are considered higher risk of operative intervention in the peri-partum period. In addition, on making a decision for surgical intervention in labour an appropriate dose and route of administration of ranitidine should be prescribed by the surgeon if none has been administered within the last 6 hours.

If a general anaesthetic is considered, sodium citrate should be given orally following discussion with the duty anaesthetist.

Low risk labouring women do not require ranitidine antacid prophylaxis. However, it should be noted that as labour progresses, and circumstances change, the course of labour may change to a labour with a higher risk of operative intervention.

#### 4. Defining high risk patient groups

There is no national or international method for defining patients at higher risk of operative intervention in the peri-partum period, however the following groups of patients may be considered at higher risk of operative intervention or General Anaesthesia. We would advocate using clinical experience and knowledge in identifying patients who may require antacid prophylaxis as the following list is not exhaustive.

##### **Patients with higher risk of operative intervention or General Anaesthesia:**

###### Maternal risk factors:

- Contraindication to regional anaesthesia (eg coagulation problems, maternal sepsis)
- Previous Caesarean Section/VBAC (Vaginal birth after caesarean)
- BMI >40 at booking
- Diabetes
- Medical condition of mother eg cardiac disease, respiratory disease
- Previous post-partum haemorrhage
- Pre-eclampsia/eclampsia/Gestational hypertension
- Slow progress in labour

###### Fetal risk factors:

- Multiple pregnancy
- Large for gestational age baby
- IUGR
- Pre-term labour
- Signs of fetal distress or meconium

#### 5. Treatment for patients in labour or for operative intervention

##### Elective Caesarean Sections:

- Nil by mouth: six hours for food and two hours for clear fluids, including the preoperative 'Nutricia' carbohydrate drink prior to their surgery.
- Ranitidine 150mg orally on the night before surgery and 150 mg orally in the morning of surgery, two hours prior to induction of anaesthesia.
- Those women who are having their surgery under general anaesthetic should also receive oral sodium citrate (30mls of 300 mmol/L). This should be given within 15 minutes of induction of general anaesthesia.

#### Lower risk Labour:

- No antacid prophylaxis required

#### Higher Risk Labour:

At start of labour:

- Prescribe TWO doses on the ONCE ONLY section of the Drug Chart of
- EITHER:
- Oral ranitidine 150mg six hourly OR
- Intravenous ranitidine 50 mg every six to eight hours (until the placenta has been delivered and there are no concerns regarding surgical management of perineal tears)
- Add a note to the prescribed drug to “discontinue once baby/placenta delivered”

#### Operative Delivery / Trial of forceps / ERPOC / Perineal Tear Repairs / EUA

- A single dose of intravenous ranitidine (50mg) should be given once the decision has been made for surgical intervention if ranitidine has not already been given in the last six hours. Prescribe this on the ONCE ONLY section of the Drug Chart.
- It should be remembered that oral ranitidine takes at least two hours in order to be effective and intravenous ranitidine takes 45 to 60 minutes to take effect. If an oral dose of ranitidine has not been given in the last six hours, and operative intervention is planned, a single intravenous dose of ranitidine (50mg) should be given prior to transfer to theatre unless clinical urgency dictates otherwise.
- If a general anaesthetic is considered then sodium citrate (30mls of 300 mmol/L) should be given orally, following discussion with the duty anaesthetist.

The administration of antacids or sodium citrate **SHOULD NOT** delay transfer to theatre.

#### **Preparation and Administration of Intravenous Ranitidine:**

**Prescribe two doses on the ONCE ONLY section of the drug chart,** with a note to discontinue once baby/placenta delivered.

Preparation: Dilute the intravenous solution immediately before use. Dilute a 50 mg (2mL) ranitidine ampoule with 20 mLs sodium chloride 0.9%.

Administration: Administer as a slow intravenous bolus over three to five minutes. Rapid administration may cause bradycardia, therefore extend the administration time for at risk patients.

## 6. Monitoring and audit

Clinical audit should be undertaken to review guideline compliance; 100% compliance (excluding exempted patients) is expected for all women presenting with a higher risk of operative delivery or anaesthetic intervention in the peri-partum period. Antacid prophylaxis should be prescribed according to patients' individual needs. Exceptions to this include patients' refusal of antacid prophylaxis, allergy to the drugs or other contraindication.

## 7. Supporting evidence

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- Whittington, R. M., Robinson, J., & Thompson, J. (1979). Fatal aspiration (Mendelson's) syndrome despite antacids and cricoid pressure. *The Lancet*, 314(8136), 228-230.

## 8. Associated Auckland DHB documents

- [Caesarean Section \(CS\) - Pre, Peri & Post-Op Care](#)
- [Caesarean Section \(CS\) - Acute - Level 8 OR](#)
- [Caesarean Section \(CS\) - Post Anaesthesia Care Unit \(PACU\)](#)
- [Difficult & Failed Intubation in Obstetrics](#)
- [Perineal Tears - 3rd & 4th Degree](#)
- [Intrapartum Care - Normal Labour & Birth](#)
- [Surgical Safety Checklist](#)

- [Prescribing Medication](#)

#### Clinical forms

- [Anaesthesia Record CC0100](#)
- [Pre-operative Assessment Record CR4049](#)

## 9. Disclaimer

No guideline can cover all the variations required for specific circumstances. It is the responsibility of the health care practitioners using this Auckland DHB guideline to adapt it for safe use within their own institution, recognise the need for specialist help, and call for it without delay, when an individual patient falls outside of the boundaries of this guideline.

## 10. Corrections and amendments

The next scheduled review of this document is as per the document classification table (page 1). However, if the reader notices any errors or believes that the document should be reviewed **before** the scheduled date, they should contact the owner or the [Clinical Policy Facilitator](#) without delay.