Liverpool Women's NHS Foundation Trust

POSTOPERATIVE NAUSEA AND VOMITING GUIDELINE

THIS IS A CONTROLLED DOCUMENT
The only Valid Version is stored in the Policies, Procedures and Guidelines Intranet Site

Version	6.1
Grade of Change	No Change
Summary of Changes	N/A

Document Type	Clinical Guideline
Coverage	Anaesthetics

Designation of Guideline Sponsor	Consultant Anaesthetist
Responsible Committee	Anaesthetic Meeting

Date ratified	17/10/2024
Date issued	18/11/2024
Review date	Oct 2027

Contents

1. Clinical Content:

Rationale:

The aim of this guideline is to ensure early assessment and appropriate treatment of post-operative nausea and vomiting, therefore enhancing the quality of services to patients in terms of minimizing PONV.

Background:

PONV is unpleasant and associated with patient discomfort, and dissatisfaction with their peri-operative care (5). It can be deemed essential that postoperative nausea and vomiting be treated promptly by initiating appropriate interventions in order to reduce distress to patients thus gaining a higher level of patient satisfaction.

PONV is very common problem in surgical patients with approximately one third of patients in general suffering with this problem (1). Without prophylaxis, PONV occurs in approximately 30 percent of children and adults after anaesthesia. The risk of PONV for an individual patient varies widely; the rate of PONV may be as high as 80 percent in high-risk patients

Patients have reported that avoidance of PONV is of greater concern than avoiding postoperative pain (5).

Morbidity associated with PONV includes wound dehiscence, dehydration, electrolyte disturbance, interference with nutrition (5); rarer associations include oesophageal rupture or aspiration pneumonitis (5); it is also associated with prolonged hospital stay therefore increasing healthcare costs (5).

For hospitals with high patient throughput and a high patient to staff ratio the effective management of PONV is an important issue.

Post-Operative Nausea & Vomiting Risk Factors

Incidence of well-established risk factors[1]

Patient related:

Females 3time more likely than men
Non-smoker 2 times more than smoker
History of motion sickness or previous PONV – 2 times
Age: statistically – incidence of PONV decreasing as the patient age.

Anaesthesia related

Volatile anaesthetic agent – 2times
Nitrous oxide- 1.4 times
Opiod – dose dependant

Surgery related:

Abdominal surgery
Gynaecological surgery
Duration of surgery >120min

Risk assessment:

Prophylactic Assessment

It is often easier to treat nausea and prevent vomiting than to stop vomiting once it has started (5). Identifying levels of risk helps staff to select appropriate action. All patients requiring general anaesthetic should be considered at risk from PONV.

It is the responsibility of the anaesthetist to assess the patient pre-operatively and document the level of risk for PONV. It is the responsibility of the health care professionals to administer appropriate anti- emetic.

APFEL score[2]

The four risk factors were included:

1. Female gender
2. Prior history of Motion sickness or PONV
3. Nonsmoker
4. The use of postoperative opioids.

Number of risk factor present as per APFEL score	Predicted % risk of PONV[6]
0	10
1	20
2	40
3	60
4	80

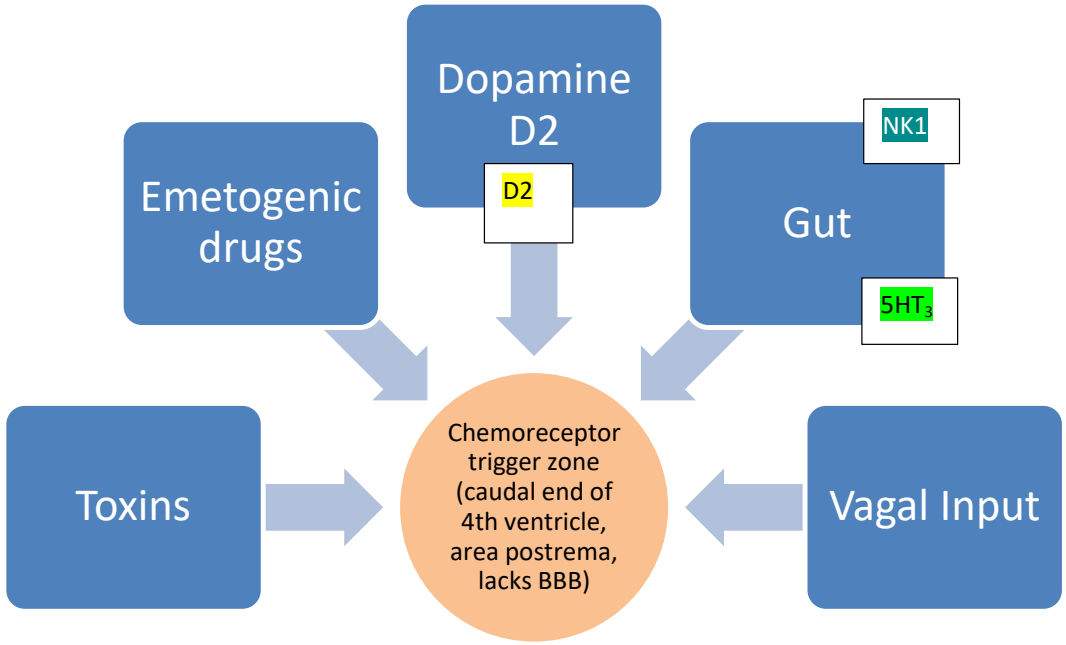
Preventive measures:

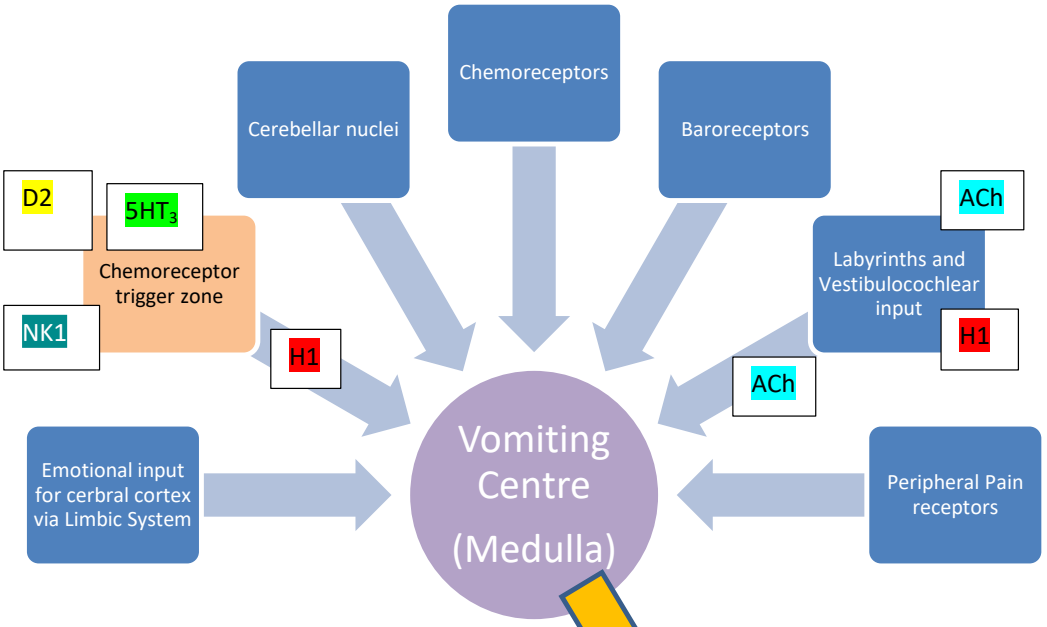
- **Reduction of baseline risk**

  a) Nitrous oxide increased the risk of severe postoperative nausea and vomiting (PONV), more so in Asian subjects; the effect was eliminated by pre-treatment with an antiemetic .Severe PONV was associated with fever, poor quality of recovery, and increased hospital stay, indicating that its prevention is clinically important[4]
  b) TIVA
  c) Adequate hydration

- **Prophylactic Antiemetics**

  i) Reduce the risk by 25%
  ii) When drugs acting on different receptors are given, they have additive action. Prophylactic treatment of PDNV with ondansetron 4 mg or combination treatment with two drugs results in a significant decrease in the risk of PDNV when compared to placebo. The numbers-needed-to-treat was, however, 13 for ondansetron. In contrast, the numbers-needed-to-treat for combination treatment was 5, which would favour this for prophylactic management of PDNV, particularly in high-risk patients[3]
  iii) Beware of side effects
  iv) If rescue drug is needed choose one acting on different receptor to the one the patient already had.





5HT3 Ondansetron, Granisetron, Palonestran

H1 Cyclizine, Promethazine

D2 Metoclopramide, Prochlorperazine, Haloperidol, Droperidol

ACh – Hyoscine Hydrobromide, Cyclizine

NK1 – Aprepitant, rolapitant

Beware of side effects:

Cyclizine - 50mg dose, maximum of 150mg every 24 hours
Can lead to tachycardia & Uncomfortable sensation if given too fast in awake patient.

Ondansetron - 4mg melt dose, maximum of 16mg every 24 hours, works to treat nausea by blocking the 5HT3 receptors on the chemoreceptor trigger zone.
Avoid in patients with QT prolongation

Palonestron : long acting , can be used in patient with long QT

Dexamethasone - 4mg - 8mg dose given once. Awake patient may get **circum anal itching**.

Prochlorperazine - 12.5mg dose, maximum of 30mg every 24 hours is a phenothiazine and works to treat nausea by blocking D2 and 5HT3 receptors in the chemoreceptor trigger zone. At therapeutic doses, Prochlorperazine is mainly dopamine antagonist but it also has anticholinergic and anti-adrenoceptor blocking activity. Its actions on dopamine receptors in the medulla chemoreceptor trigger zone probably accounts for its antiemetic effects. **Patient may develop extrapyramidal symptoms**

Metoclopramide-10mg i.v. maximum of 30mg every 24 hours. **Patient may develop extrapyramidal symptoms**

- **Non pharmacological technique**

Acupuncture been recommended in the literature

Reference:

1. Nausea and vomiting after surgery: Sébastien Pierre, MD Rachel Whelan *Continuing Education in Anaesthesia Critical Care & Pain*, Volume 13, Issue 1, 1 February 2013, Pages 28–32

2. A Simplified Risk Score for Predicting Postoperative Nausea and Vomiting: Conclusions from Cross-validations between Two Centers Christian C. Apfel, M.D.,* Anesthesiology 9 1999, Vol.91, 693.

3. Does the Routine Prophylactic Use of Antiemetics Affect the Incidence of Postdischarge Nausea and Vomiting following Ambulatory Surgery?: A Systematic Review of Randomized Controlled Trials: Review Article | August 2003 *David C. Warltier, M.D., Ph.D., Editor; Anil Gupta, M.D., F.R.C.A., Ph.D.; Christopher L. Wu, M.D.; Nabil Elkassabany, M.D.;*

Courtney E. Krug, B.A., B.S.; et al Stephen D. Parker, M.D.; Lee A. Fleisher, M.D. Anesthesiology 8 2003, Vol.99, 488-495.

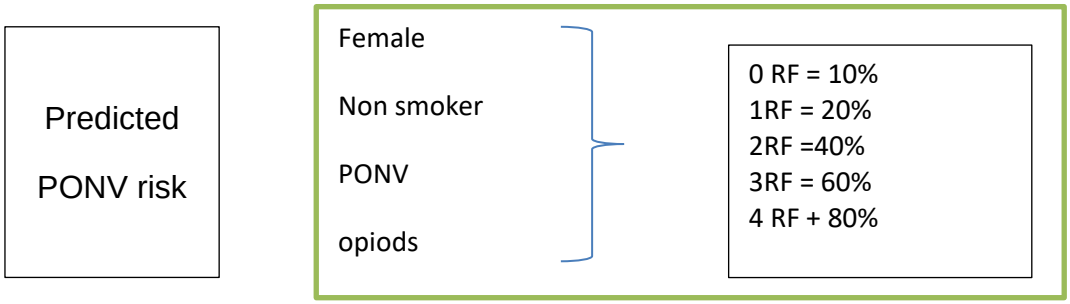
4. Severe Nausea and Vomiting in the Evaluation of Nitrous Oxide in the Gas Mixture for Anesthesia II Trial Anesthesiology 5 2016, Vol.124, 1032-1040.
5. Postoperative Nausea And Vomiting, .Rahman, M.H. & Beattie, J., (2004), *The Pharmaceutical Journal,* Vol 273, pp 786-8.
6. Postoperative nausea and vomiting- UpToDate : May 2018

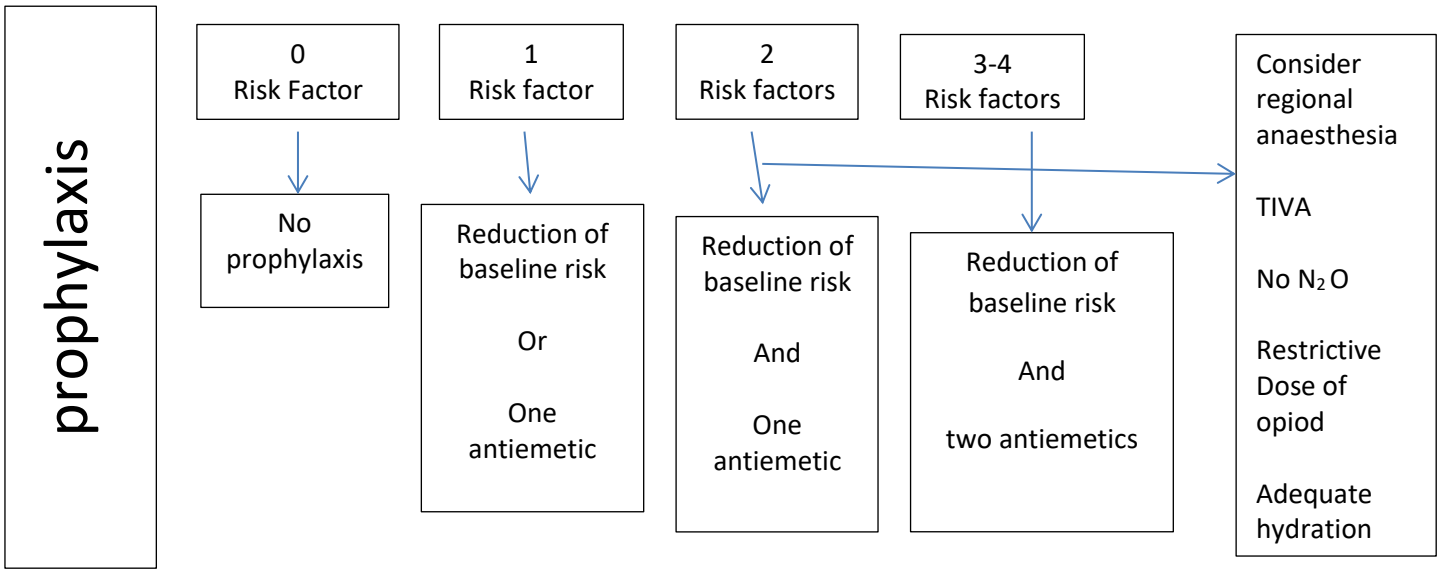
Most major surgery patients will be at significant risk of PONV. It is often easier to treat nausea and prevent vomiting than to stop vomiting once it has started. Identifying levels of risk helps staff to select appropriate action

2. Guideline of the Management of Postoperative Nausea and Vomiting (PONV)

Prophylactic interventions:

1. Reduction of baseline risk
    a. Modification of anaesthetic technique
    b. Adequate hydration
2. Antiemetic soon at or soon after induction





Rescue antiemetic in recovery:

- **Consider different class of antiemetic that's been used in theatre**
- **Ondanstrone maximum of 8mg (including the intraoperative dose)**
- **Ensure adequate hydration**
- **Ensure regular antiemetics and IV fluids prescribed**
- **Advice patient to take bed rest (patient information)**

3. Frequency of Observations

PONV scores should be assessed and recorded on observation chart as part of postoperative observations.
If treatment is required, heart rate and blood pressure should be monitored, as per flow chart, due to the potential side effects anti-emetics may cause such as tachycardia, prolongation of QT interval and drowsiness,
The PONV score should be recorded on the observation chart before, and again one hour after, the administration of medication, then four hourly if stable.
If no treatment is required then monitor 4 hourly for 24 hours post operatively, or until opioid analgesia is discontinued.

4. Electronic Prescribing

Cyclizine and Ondansetron are contained in all the major, intermediate and minor sets currently on Electronic Prescribing (EP). There is also a separate anti-emetic set if required.

5. Drug Administration

Staff must record the administration of an anti-emetic on EP by entering ‘Full Document’, and entering ‘given’ and filing ‘administration’.
This will facilitate the audit of anti-emetic use, and will also ensure that the total doses do not exceed the maximum safe dose per 24 hour period

6. Patient Controlled Analgesia (PCA)

PCA’s should not be discontinued due to PONV unless ALL treatment suggested in algorithm has been administered with no effect.

7. Patient Education

Encourage patients to inform staff if they feel nauseous.
A copy of the patient information leaflet ‘Sickness After Surgery’ should be made available in the preoperative phase.

8. Actions of Health Care Professionals

Patients may be embarrassed by vomiting in the presence of staff and other patients, and by the need for hospital staff to provide additional care. It is the responsibility of the staff to minimise this embarrassment as much as possible.

- Identify those patients at risk of PONV
- Ensure patients have adequate rest.

- Ensure patients are adequately hydrated.
- Ensure patients are not experiencing unacceptable levels of pain.
- Ensure observations are measured and recorded.
- Administer, and record the administration of appropriate anti-emetics as required.
- Evaluate efficacy of any given treatments and then make the required amendments to the prescription as per flowchart.

9. Auditable Standards as suggested in RCoA Audit Recipe:

Suggested indicators

- % patients should be assessed for risk of PONV.
- % patients receiving PONV prophylaxis as per local guidelines.
- % patients receiving treatment for PONV as per local guidelines.

Proposed standards for indicating best practice

A 100% compliance with each indicator is ideal but impossible to achieve. The aim should be to measure the baseline levels of compliance of standards. Then implement locally agreed changes aimed at improvement using PDSA cycle methodology. Compliance should improve towards 100%.

- Incidence of PONV should be lower than predicted by risk scoring.
- Incidence of 'clinically important' PONV5 should be < 20% of all PONV patients. The
- Incidence of PONV should decrease as compliance with the above standards increase.

10. Consultation and Ratification Process

Guideline to be consulted and ratified within Anaesthetics meeting

11. Intranet Classification

Tags (separated by ;)	PONV; nausea; vomiting;

12. Version Control Sheet

Version	Date	Author	Status	Comment
1.0	Aug 2008	Consultant Anaesthetist	Archive	Guideline creation
2.0	Aug 2011	Consultant Anaesthetist	Archive	Updated
3.0	Sept 2013	Consultant Anaesthetist	Archive	Reviewed and updated
4.2	Sept 15	Consultant Anaesthetist	Archive	Reviewed and updated
5.0	Sept 18	Consultant Anaesthetist	Archive	Reviewed
6.0	Sept 21	Consultant anaesthetist	Archive	No changes required
6.1	Oct 2024	Consultant anaesthetist	Current	No changes required

13. Appendices

APPENDIX A – patient information sheet

Sickness after Surgery -

Some people worry about feeling or being sick after an operation. This leaflet answers the questions that patients often ask

Q. Is everyone sick after an operation?

A. No. Roughly one third of people feel sick, whilst two thirds usually don't.

Q. Are some people more likely to be sick than others?

A. Yes. Some people seem more sensitive to treatments than others. Also how long the operation takes, the sort of operation it is, and which pain killers are used can have an effect.

Q. Can sickness be prevented?

A. Yes. There are drugs that can be given to prevent sickness. It is important to tell the staff any worries that you have. Before your operation the staff will ask you questions to see if you are more likely than usual to feel sick.

Q. Is it necessary to have an injection?

A. Not usually. A special plastic tubing is in place in (usually) your hand and this can be used. Alternatively the staff may give you anti-sickness tablets.

Q. How long does the feeling of sickness last?

A. Everybody is different. Usually sickness soon passes off, especially once some treatment has been given.

Q. Can I do anything to stop feeling sick?

A. Yes. Try the following top tips for coping with sickness; tell the staff if you've felt sick after previous operations

After your operation try not to make sudden movements. When sitting up or getting out of bed, move slowly and smoothly.

When you start drinking take small sips and build up to proper drinking gradually – the staff will assist you in knowing the amounts to drink

Eat small light meals to start with

If you do feel sick, take slow deep breaths to reduce the sensation. Most importantly, tell the staff as soon as you feel the slightest bit sick

Remember:

The staff understand how unpleasant it is to feel sick and will do everything they can to help you prevent it.

If you are unfortunate enough to suffer any sickness the staff, once informed. Will treat you promptly, and give you privacy and support**.**