POST-OPERATIVE NAUSEA AND VOMITING: MANAGEMENT IN CHILDREN - SCH

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- Many children experience post-operative nausea and vomiting (PONV).
- The first line treatment of nausea in children is Ondansetron.
- In some patients prophylactic treatment should be considered.
- If treatment is unsuccessful contact the Pain Team.

CHANGE SUMMARY

- Document due for mandatory review.
- Replaces SCH document C.20.06.
- Dose changes to reflect most recent consensus guidelines for the management of postoperative nausea and vomiting.

READ ACKNOWLEDGEMENT

- SCH clinical nurses and medical officers caring for patients at risk of or experiencing post-operative nausea and vomiting should read and understand this document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st October 2015	**Review Period**: 3 years
Team Leader:	Senior Staff Specialist	**Area/Dept**: Anaesthetics SCH

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This Guideline may be varied, withdrawn or replaced at any time.

Aim

Provide appropriate treatment and prophylaxis for perioperative nausea and vomiting and minimise time to discharge readiness.

Background

Post-operative nausea and vomiting (PONV) occurs in approximately 25% of all paediatric surgical patients 1. PONV has patient morbidity and cost consequences. Many antiemetics are available with differing efficacy and primary acquisition costs.

Available agents

1. Dopamine 2 (D2) receptor antagonists: Metoclopramide, droperidol
2. Serotonin receptor antagonists (5 hydroxytryptamine (5HT3) blockers): Dolasetron, ondansetron, tropisetron, granisetron.

Metoclopramide and droperidol have been incorrectly implicated in causing increased dystonic reactions in children. In the UK between 1967 and 1982, reporting rate for dystonic reactions with metoclopramide was about 29 cases per million prescriptions i.e. 0.003%2. Droperidol in low doses such as 15-20 microg/kg IV has not been associated with extrapyramidal side effects in children[3]. Most studies suggest that metoclopramide is an inferior antiemetic when compared with ondansetron or droperidol for PONV, but is still worth considering in addition to these first line drugs at a dose of 0.25mg/kg (up to 10mg)[10,11] .

Ondansetron, dolasetron and tropisetron are equally effective [4,5,6]. Primary acquisition cost can be used to choose between 5HT3 antagonists[7]. Combinations of agents may increase antiemetic efficacy[4,8]. Examples include ondansetron with droperidol, ondansetron with dexamethasone and droperidol with dexamethasone.

Cost-effectiveness analysis demonstrates that prophylaxis can be more cost-effective than 'wait and see' for operations with a high anticipated rate of PONV[9]It is possible to identify children at high risk of postoperative vomiting and a summary of the evidence is presented in Table 1, taken from the 2009 guidelines of the Association of Paediatric Anaesthetists of Great Britain & Ireland [12].

Risk	Risk Factor (Post-operative Vomiting)
Low risk	< 3yrs age
	Intraoperative fluids may reduce risk
Increased risk	Past Hx PONV
	Past Hx Motion Sickness
	Post pubertal girls
	Otoplasty
	Use of volatile anaesthesia if other risk factors present
	Use of longer acting intraoperative opioids
	Use of anticholinesterase drugs
	Mandatory oral fluids prior to discharge
High Risk	General anaesthesia (GA) > 30mins
	Strabismus surgery
	Adenotonsillectomy

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Not a risk	Preop anxiety
	Obesity
	Smoking
	Nitrous oxide use during GA

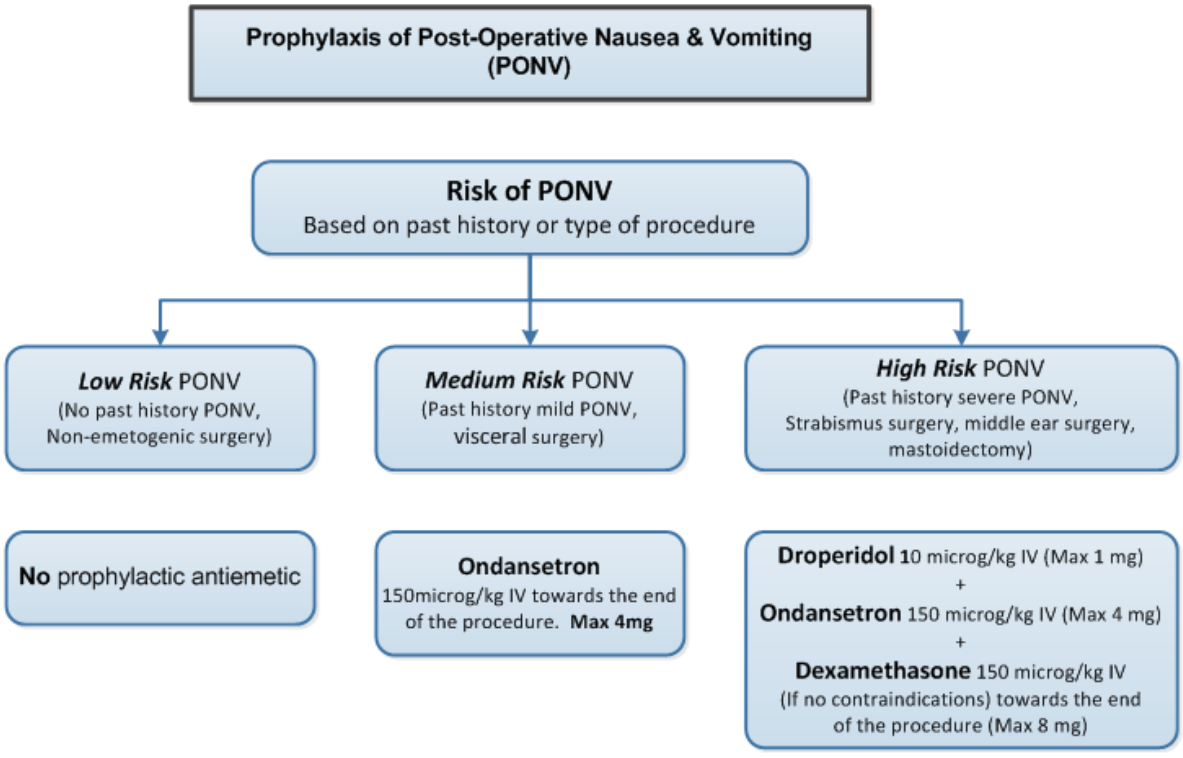
Table 1: Summary of Patient, Surgical and Anaesthetic Factors associated with a higher risk of Postoperative Vomiting.

Where possible, ondansetron wafers should be used in preference to injection. The approximate bioavailability of ondansetron tablets, wafers and syrup are approximately 60%. The wafer is administered by placing it on top of the tongue where it dissolves within seconds and is swallowed. Wafers are usually cheaper than parenteral ondansetron preparations.

It is the anecdotal impression of ambulatory care that children treated with droperidol are drowsier than those treated with ondansetron. This may be caused by practice variation where some anaesthetists choose to use high dose droperidol. Low dose droperidol is not associated with increase in drowsiness3. However, we have decided to err on the side of caution and recommend ondansetron as the first line anti-emetic in ambulatory patients.

Results of studies of efficacy of prochlorperazine for perioperative and opioid induced nausea and vomiting are inconsistent. Overall, it is probably of similar efficacy to metoclopramide [4]. Chlorpromazine whilst effective as an antiemetic for cytotoxic induced nausea and vomiting has not been demonstrated to be effective for perioperative or opioid induced nausea and vomiting[4].

Algorithm 1: PONV Prophylaxis



* Dose data limited in children under 2 years

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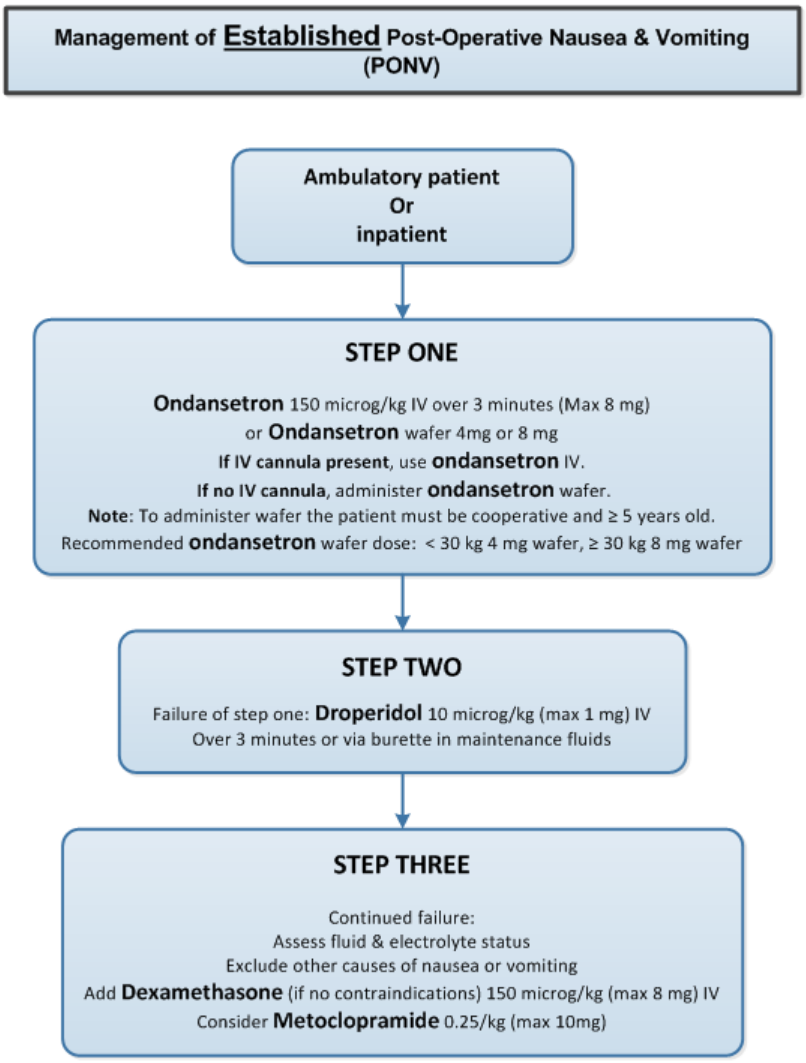
Algorithm 2: Established PONV



Note: Recommended droperidol dose = 10 microg/kg(max 1mg) up to 4 hourly

Recommended ondansetron dose = 150 microg/kg (max 8mg) 8 hourly

Recommended dose of metoclopramide = 0.25mg/kg /(max 10mg) 8hourly

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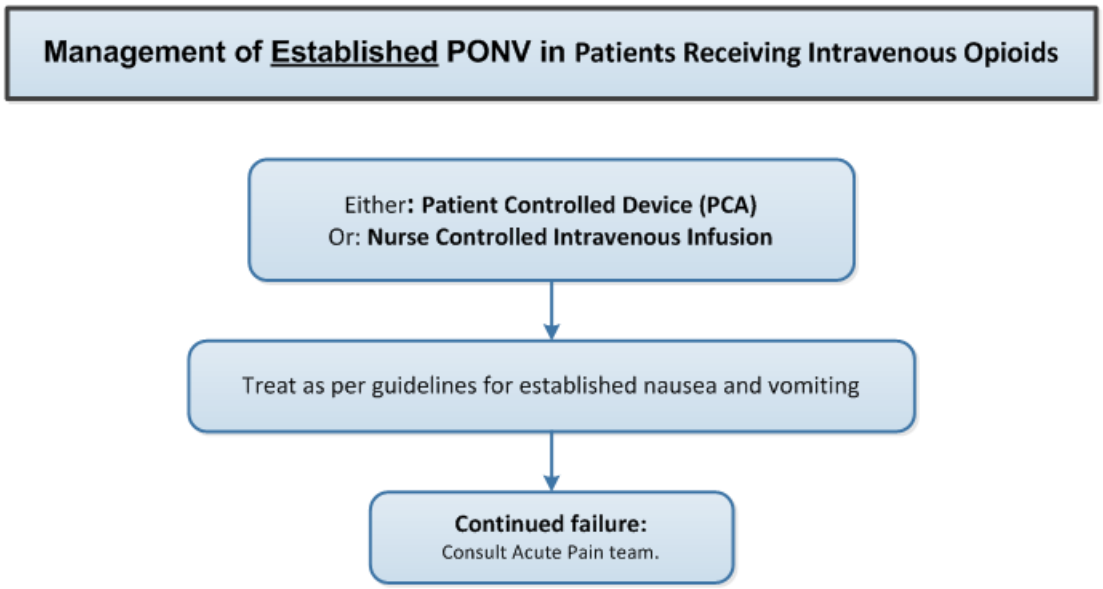
Algorithm 3: Established PONV in Patient Receiving IV Opioids



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