Differences in Adult Nausea and Emesis Treatment

Paramedic | Intensive Care | Extended Care | Specialist

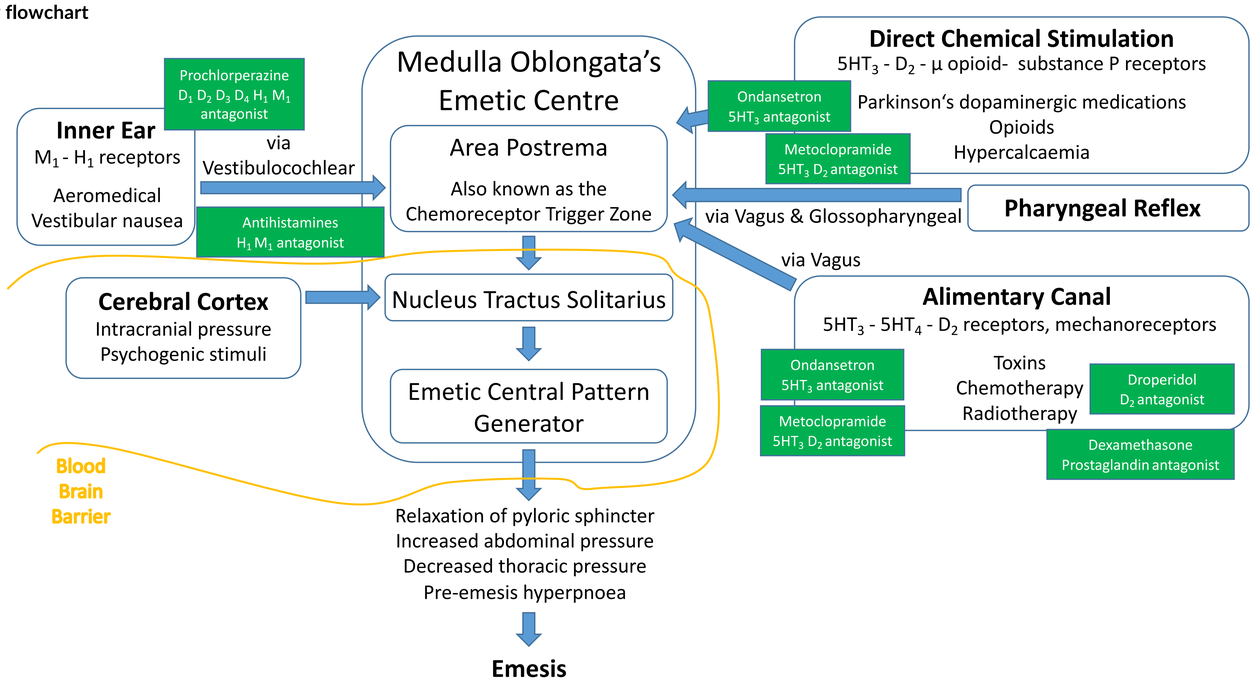
Method

Produced July 2022. This poster is a descriptive analysis and comparison of a specific and discrete cluster of primary sources. All of the ten jurisdictional services have open access Clinical Practice Guidelines (CPGs). Content was extracted by two paramedics, with oversight from two senior lecturers in paramedicine. Scope of practice was classified as 'Paramedic' (undergraduate degree, represented by a ✓), 'Intensive Care Paramedic' (intensive care postgraduate degree), 'Extended Care Paramedic' (primary care postgraduate degree), or 'Specialist' (all other advanced roles, e.g. Retrievalist). Routine cares were omitted for brevity. This comparison does not review the peer-reviewed, published literature to determine current best practice in treatment. Consequently, no CPG is inferred to be superior or inferior to any other, nor that the most common treatment is necessarily optimal. This resources is created purely to assist making paramedics aware of current Australasian treatment options across JASs.

Jurisdiction (Service)	Pharmacology									Intervention
	Ondansetron (intramuscular)	Ondansetron (per oral)	Ondansetron (intravenous)	Prochlorperazine (intramuscular)	Metoclopramide (intramuscular)	Metoclopramide (intravenous)	Droperidol	Levomepromazine	Dexamethasone	Gastric aspiration
Aus. Capital Territory (ACTAS)	✓	✓	✓	✓			(a)			✓
New South Wales (NSWA)	✓	ECP	✓		✓	✓	✓			✓
New Zealand (SJNZ)	✓		✓	ECP			ECP	ECP		
New Zealand (WFA)	✓		✓	ECP			ECP	ECP		
Northern Territory (SJNT)	✓	✓	✓	✓					✓ (b)	ICP
Queensland (QAS)	✓	✓	✓				(a)		(c)	✓
South Australia (SAAS)	✓	✓	✓				(a)			✓
Tasmania (AT)	✓		✓	✓	✓	✓	(a)		(d)	ICP
Victoria (AV)	✓	✓	✓	✓					(e)	✓
Western Australia (SJWA)	✓	✓	ICP		ICP	ICP	(a)			Specialist (f)

(a) Available under Agitated Patient CPG; not currently indicated for nausea and emesis (b) Where an existing palliative care plan authorises its use (c) Available under Croup CPG; not currently indicated for nausea and emesis (d) Available under Bronchospasm CPG, COPD CPG, Croup CPG, COVID 19 CPG; not currently indicated for nausea and emesis (e) Available under Bronchospasm CPG, Stridor CPG, COPD CPG, Croup CPG; not currently indicated for nausea and emesis (f) ICP - "Critical Care Paramedic" only (note: due to terminology differences this is not the same as the baseline ICP level, and not synonymous to the CCP level in Queensland or New South Wales)

Pathology flowchart



Treatment rationale

Ondansetron
- Primarily functions as serotonin 5-HT3 antagonist.
- Considered the optimal drug option for post-operative nausea, with some benefit for ocular trauma, spinal cord immobilisation, and narcotic-associated nausea. It is also recommended for traumatic brain injury due to lower likelihood of adverse effects.

Prochlorperazine
- Primarily a D1, D2, D3 and D4 dopaminergic antagonist, and has some effect on H1 histamine and M1 acetylcholine receptors.
- More likely to be effective for vestibular nausea, and consequently is recommended for aeromedical use.

Metoclopramide
- D2 dopaminergic antagonist at low doses, and a weak 5-HT3 serotonin antagonist at higher doses, and also stimulates a small amount of gastrointestinal acetylcholine release (improving gastric motility and tone, reducing nausea and reflux).
- Recommended for migraines, with some benefit for gastrointestinal causes and narcotic-associated nausea.

Droperidol
- A D2 dopaminergic antagonist, with dual antiemetic and antipsychotic properties.

Levomepromazine
- Antagonist of multiple receptors, including adrenergic, dopamine, histamine, muscarinic, and serotonin (not included on pathology chart to left due to this complexity).
- As it also has analgesic and antipsychotic effects, it is primarily used in palliative care.

Dexamethasone
- Mechanism of action is theorised to be blockage of prostaglandin synthesis.

Antihistamines
- Antihistamines antagonise the H1 histamine receptors (and, often, the M1 cholinergic muscarinic receptors as well) stimulated by the vestibulocochlear nerve, and are effective for motion sickness.

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