

OPTIMIZING PROTON PUMP INHIBITOR (PPI)

Long-use has been associated with risks such as fractures, chronic kidney disease and infections.

PPI IN FORMULARY & POLICIES:

- **Esomeprazole (Capsule, Injection)**
 - Cap. 40 mg, A*: Gastroenterologist, Surgeons, ENT Specialists - 3 months supply only
 - Inj. 40 mg: A*: Acute UGIB (Consultant only); Prevention of re-bleeding and duodenal ulcers (Gastroenterologist)
- **Omeprazole (Capsule)**
- **Pantoprazole (Tablet, Injection, Syrup)**
 - Inj. 40 mg, A*: Consultants only
 - Tab: Group B (no limit of supply), PRN basis supply 2 strips only
 - Ryle's tube patient: Syrup available/ tablet dispersed in water

PPI IN SF PHARMACY:

- Dexlansoprazole cap 30 mg & 60 mg
 - both strength RM 1.60/tab
- Vonoprazan tab 20 mg (RM3.86/tab)
- Esomeprazole tab (RM2.10/tab)
 - to be taken out from formulary
 - use while stocks last

INDICATIONS WHICH MAY REQUIRE LONG TERM USE:

- Zollinger-Ellison syndrome (long-term)
- Barrett's esophagus (long-term)

If need long term use, to switch to pantoprazole.

OR

If need esomeprazole more than 3 months, gastro/ upper GI specialists to write indication in intake action or escalate to other alternatives in SF Pharmacy.

Primary team to review PPI indication after 3 months

RISK OF LONG-TERM USE

- **Infection²:**
 - Increased risk of *C. difficile* infection (~50-100% in most meta-analyses)
 - Increased risk of community-acquired pneumonia (~40-70%)
- **Bone Health²:**
 - Hip fractures (~20-30%)
- **Nutritional Deficiencies⁵:**
 - Vitamin B12 deficiency (up to 20% prevalence reported; with use > 2 years)
- **Renal Complications³:**
 - Increase risk of chronic kidney disease (~20-50%)

EQUIPOTENT DOSES OF PPI¹⁰

Targeted Dose	Clinical Substitution	Omeprazole Equivalents
Omeprazole 20 mg	Pantoprazole 40 mg	9 - 10 mg OE
	Esomeprazole 20 mg	32 mg OE



Registered indications for PPIs and Potassium- Competitive Acid Blockers (PCAB)

Indication	Omeprazole	Pantoprazole	Esomeprazole	Dexlansoprazole	Vonoprazan (PCAB)
Symptomatic GERD (Acid Reflux)	✓	✓	✓	✓	✓
Healing of Erosive Esophagitis (EE)	✓	✓	✓	✓	✓
Maintenance of Healed EE	✓	✓	✓	✓	✓
Active Duodenal Ulcer (Short-term healing)	✓	✓	✓		✓
Active Benign Gastric Ulcer	✓	✓	✓		✓
H. pylori Eradication (Combination therapy)	✓	✓	✓		✓
NSAID-Associated Gastric Ulcer Risk Reduction	✓	✓	✓		✓
Pathological Hypersecretory Conditions (e.g., Zollinger-Ellison Syndrome)	✓	✓	✓		

HOW TO DEPRESCRIBE PPI?

1 STEPWISE DOSE REDUCTION⁸:

- **Dose reduction:** Lower the daily dose by roughly 50% every 1-2 weeks (e.g. from twice daily to once daily).
- **Alternate dosing:** If available dosage forms limit easy halving, utilize alternate-day dosing to facilitate weaning process (PRN basis).
- **Cessation:** Maintain the lowest available dose for 2 weeks, then stop treatment entirely.



COMMON INAPPROPRIATE USE⁴

- Stress ulcer prophylaxis continued after discharge
- Empirical use for mild dyspepsia without review
- Long-term therapy without documented indication

2 IMMEDIATE ON-DEMAND USE⁹:



- Stop regular daily PPI.
- To take PPI when necessary if reflux symptoms recur, continuing until symptoms resolve completely before stopping again.

3 NON-PHARMACOLOGICAL STRATEGIES:

- Avoid meals 2-3 hours before bedtime.
- Avoid exercising immediately after eating.
- Elevate the head of the bed.
- Counsel patient on smoking cessation.
- Avoid trigger items such as caffeine, alcohol, fatty or spicy foods, chocolate, citrus fruits, carbonated beverages, and tomato products.

MANAGING REBOUND/ OCCASIONAL SYMPTOMS

- Rebound may occur 2-8 weeks after discontinuation
 - Antacids/ alginates on PRN basis



New Updates in HCTM Formulary App

- Dosing for inj. human albumin 5% & 20%.
- Dosing, dilution and administration of ceftazidime/avibactam and aztreonam.

SAFETY ALERTS NPRA:

- Pyridoxine - Risk of Peripheral Neuropathy
- Denosumab & Biosimilars: Multi Vertebral Fractures after Discontinuation of Denosumab
- Sunitinib: Risk of Hyperammonaemic Encephalopathy
- Moxifloxacin: DRESS, Fixed Drug Eruption & Photosensitivity
- Clindamycin capsule: Risk of Oesophagitis and Oesophageal Ulcer
- Mesalazine: Risk of Idiopathic Intracranial Hypertension

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