**ADVERSE EFFECTS OF PPIs**

*Clostridium difficile* infection
- 1.4 to 2.75 times higher risk of *C. difficile* infection
- OR 1.7 (incident infection), OR 2.5 (recurrent infection)

Community-acquired pneumonia
- OR 1.52 vs 1.37 (high dose vs low dose)
- Meta analysis showed increased risk OR 1.27

Increased risk of hip fractures
- At high PPI doses (adjusted OR 1.53)
- With PPI use longer than 1 year (adjusted OR 1.34)

**Hypomagnesemia**
- After 1 year of PPI use (25% required replacement + discontinuation of PPI)

**THE 5-STEP DEPRESCRIBING PROCESS**

1. **Perform a comprehensive patient interview and reconcile medications and indications**
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**LET’S START WITH PROTON PUMP INHIBITORS (PPIs)**

In 2014, more than 59 million capsules of PPIs amounting to S$19 million were used in eight local institutions.

**COMMON INAPPROPRIATE USES OF PPIs**

- Dual antiplatelets *without* risk factors*
- Non-steroidal anti-inflammatory drugs (NSAID) *without* risk factors*
- COX-2 inhibitors
- Short duration of corticosteroids, without concomitant NSAIDs

*refer appropriate indication box for risk factors

Please scan QR code for more information on deprescribing and full list of references or visit http://tinyurl.com/pwsg2015

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**APPROPRIATE INDICATIONS OF PPIs**

- Gastro-esophageal reflux disease*
- Peptic ulcer disease (PUD)*
- *Helicobacter pylori* eradication*
- Zollinger-Ellison Syndrome*
- Uninvestigated dyspepsia*
- Patients on dual antiplatelets *with* risk factors:
  - History of PUD or GI bleed
  - Age > 75 years
  - Concurrent use of anticoagulants or steroids
  - *H. pylori* infection
- Prevention of NSAID-induced ulcers in patients *with* risk factors:
  - Age > 65 years
  - History of PUD or GI bleed
  - Concurrent use of low dose aspirin, antiplatelets, anticoagulants or steroids

* Use for less than 12 weeks
  # Risk factors should be constantly reviewed and PPIs deprescribed when risk factors are resolved

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