

Analysis of proton pump inhibitor (PPI) medicines used in the management of gastrointestinal acid related disorders

Drug utilisation sub-committee (DUSC)

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Abstract

Purpose

To review recent utilisation of PBS-listed proton pump inhibitor (PPI) medicines used in the management of gastrointestinal acid related disorders following Pharmaceutical Benefits Scheme (PBS) listing changes in May 2019 and March 2021.

Date of listing on the Pharmaceutical Benefits Scheme (PBS)

- Omeprazole was first listed on 1 August 1990 as an Authority Required listing.
- Lansoprazole was first listed on the 1 August 1994 as an Authority Required listing.
- Pantoprazole was first listed on the 1 November 1995 as an Authority Required listing.
- Rabeprazole was first listed on the 1 May 2001 as an Authority Required listing.
- Esomeprazole was first listed on the PBS on the 1 August 2002.

Data Source / methodology

Data extracted from the PBS data maintained by the Australian Government Department of Health and Aged Care, processed by Services Australia was used for the analyses.

Key Findings

- From 2013 to 2021, the number of patients supplied lansoprazole had remained relatively stable, whilst there was a slight decrease in the number of patients supplied omeprazole and rabeprazole. In Q1 2019, the number of patients supplied pantoprazole increased, overtaking the number of esomeprazole patients in Q4 2019. The number of pantoprazole patients continued to increase, while esomeprazole started decreasing in Q4 2018 and appeared to stabilise between Q2-Q3 2020.
- The number of high strength prescriptions remained relatively stable until 2019, where there was a decrease before stabilising. The number of low strength PPI prescriptions supplied also remained relatively stable until 2019 with a gradual

increase occurring from 2019 to 2021. The standard strength of PPI medications was the most commonly prescribed, with small increases and decreases at every quarter from 2013 to 2021.

- In 2017 there were 611,154 initiating patients on PPI medication and in 2020 there were 494,347 initiating patients on PPI medication. In 2017 there were 145,903 (24%) patients first starting on a high dose of PPI medication. In 2020 there were 8,026 (2%) initiating patients on high dose of PPI. For first initiators in 2017, 20,309 (3%) patients went from a standard dose to high dose medication and in 2020 there was 5,896 (1%) patients starting on standard dose who transitioned to a high dose.
- The aim of the 2019 restriction changes was to reduce the number of patients using high dose formulations. The Defined Daily Doses (DDDs) analysis showed that there was a reduction in the DDDs for high dose listings. The overall DDDs for all PPIs showed there was an overall reduction in DDDs following the restriction changes. Even though total script utilisation (across all drugs) increased after the May 2019 restriction changes, the total number of DDDs decreased.

Purpose of analysis

The purpose of this analysis was to provide an overview of recent utilisation patterns of Pharmaceutical Benefits Scheme (PBS)-listed proton pump inhibitor (PPI) medicines including esomeprazole, lansoprazole, omeprazole, pantoprazole and rabeprazole, used in the management of gastrointestinal acid related disorders, including gastroesophageal reflux disease (GORD), peptic ulcer, gastric ulcer (including *Helicobacter pylori* Infection), pathological hypersecretory conditions including Zollinger-Ellison syndrome (ZES) and idiopathic hypersecretion and scleroderma oesophagus. The analysis considered changes to the PBS listings in May 2019 and March 2021.

Background

Clinical situation

GORD is a condition characterised by the presence of reflux affecting the lower oesophageal sphincter (LES). GORD may result in esophagitis, peptic oesophageal ulcer, oesophageal stricture, Barrett oesophagus, and oesophageal adenocarcinoma which is dependent on factors including; the nature of the refluxate, the inability to clear the refluxate from the oesophagus, the volume of gastric contents within the stomach, and mucosal protective functions.

Currently, there are approximately 1.03 billion individuals globally suffering from GORD with females being at a higher risk than males within the population.² Within Australia, the estimated prevalence of diagnosed GORD in individuals is 11.6%, and 7.5% in Australia not accounting for undiagnosed individuals within the community.¹ GORD has a significantly higher prevalence in individuals using non-steroidal anti-inflammatory drugs (NSAIDs) including aspirin.²

Peptic ulcer disease develops in the lining of the stomach and upper portion of the intestine. One of the most common causes for peptic ulcer disease is *Helicobacter pylori* (*H. pylori*) infection. *H. pylori* and NSAIDs decrease normal mucosal defence and repair, therefore making the mucosa more susceptible to damage from stomach acid.

PPIs are mostly utilised for GORD and GORD like symptoms. Indications for PPI use relate to over secretion of gastric acids that cause symptoms such as heartburn, laryngitis, nausea, regurgitation, and dysphagia (difficulty in swallowing). These are symptoms generally related to peptic ulcer disease, *H. Pylori* infections, scleroderma oesophagus, Barrett's oesophagus, and ZES.

¹ [RACGP - Gastro-oesophageal reflux disease \(GORD\) in Australian general practice patients](#)

² [Global Prevalence and Risk Factors of Gastro-oesophageal Reflux Disease \(GORD\): Systematic Review with Meta-analysis | Scientific Reports \(nature.com\)](#)

Pharmacology

H⁺/K⁺-ATPase is an enzyme, commonly referred to as a proton pump, that secretes hydrogen ions which are present in the stomach wall. PPIs reduce gastric acid secretion by inhibiting the H⁺/K⁺-ATPase or proton pump which reduces the symptoms associated with gastrointestinal disorders such as pain and heartburn.

There are five PBS-listed PPI medicines in Australia:

- Esomeprazole
- Lansoprazole
- Omeprazole
- Pantoprazole
- Rabeprazole

Therapeutic Goods Administration (TGA) approved indications

PPIs are indicated for the treatment of:

- Gastro-oesophageal reflux disease
- Pathological hypersecretory conditions including Zollinger-Ellison syndrome and idiopathic hypersecretion
- Scleroderma oesophagus
- Peptic ulcer
- Eradication of *Helicobacter pylori* (E.g. esomeprazole in combination with clarithromycin and amoxicillin)

Dosage and administration

The course of PPI treatment should last between 4 to 8 weeks with a follow up review. The step-down approach for treatment should be considered after this initial course of treatment to manage symptoms and avoid reoccurring symptoms.

Dosage

Esomeprazole

For GORD, initially, oral/IV 20 mg once daily for 4–8 weeks; change from IV to oral treatment as soon as possible. If response inadequate, increase oral dose to 40 mg daily for a further 4 weeks. For maintenance use oral form and reduce to minimum required dose.

Dosage for Zollinger-Ellison syndrome needs to be adjusted according to gastric acid output. *Adult*, oral, initially 40 mg twice daily.

Dosage for *H. pylori* eradication is oral 20 mg twice daily, with 2 antibiotics.

Dosage for NSAID-associated gastric ulcer is oral/IV 20 mg once daily for 4–8 weeks; change from IV to oral treatment as soon as possible.

For the prevention of NSAID-associated peptic ulcer dosage is oral/IV 20 mg once daily; change from IV to oral treatment as soon as possible.

For NSAID-associated upper GI symptoms dosage is oral 20 mg once daily for 4 weeks.

Prevention of peptic ulcer rebleeding dose of IV infusion, initially 80 mg over 30 minutes, then decrease rate to 8 mg/hour for 3 days, then oral 40 mg once daily, seek specialist advice.

Lansoprazole

The dosage for reflux oesophagitis is 30 mg lansoprazole once daily for 4 weeks. Most patients will be healed after their first course. For patients who have not fully healed within this time, a further 4 weeks' treatment using the same dosage regimen is indicated. For long-term management, a maintenance dose of 15 mg or 30 mg once daily can be used dependent upon patient response.

Dosage for duodenal ulcer is 30 mg lansoprazole once daily for 4 weeks. For the prevention of relapse, the recommended maintenance dose is 15 mg once daily.

Dosage for gastric ulcer is 30 mg lansoprazole once daily for 8 weeks.

Dosage for acid-related dyspepsia is Lansoprazole 15 mg or 30 mg once daily for 2-4 weeks, depending on the severity and persistence of symptoms. Patients who do not respond after 4 weeks, or who relapse shortly afterwards, should be investigated.

Dosage for eradication of *H. pylori* is the following combinations have been shown to be effective when used for 7 days: Lansoprazole 30 mg twice daily plus two of the following antibiotics: amoxicillin 1 g twice daily, metronidazole 400 mg twice daily and clarithromycin 250 mg twice daily.

Omeprazole

Recommended dose for symptomatic GORD is omeprazole 10 mg to 20 mg once daily for a maximum of four weeks.

Recommended dose for erosive oesophagitis is omeprazole 20 mg once daily for four to eight weeks. In most patients symptomatic relief is rapid, and healing is usually complete within four weeks. Omeprazole 40 mg once daily usually produces healing within eight weeks in patients with ulcerative reflux oesophagitis refractory to treatment. It is recommended omeprazole 10 mg is consumed once daily for maintenance therapy after healing.

Helicobacter pylori associated peptic ulcer disease where gastric or duodenal ulceration is not associated with NSAID ingestion require antimicrobial treatment in addition to antisecretory drugs whether on first presentation or on recurrence. Omeprazole administered at a dose of 40 mg once daily or 20 mg twice daily in association with the following combinations has been found to achieve eradication rates of approximately 90%:

- amoxicillin 500 mg and metronidazole 400 mg both three times a day for two weeks; or
- amoxicillin 1 g and clarithromycin 500 mg both twice a day for one week; or
- clarithromycin 250 mg and metronidazole 400 mg twice a day for one week.

The recommendation for duodenal ulcer is omeprazole 20 mg once daily for four to eight weeks. In those patients not fully healed during the initial four weeks of treatment, healing usually occurs during a further four weeks of treatment. Omeprazole 40 mg once daily usually produces healing within four to eight weeks in patients with duodenal ulcer refractory to treatment. Maintenance for the long-term prevention of relapse in patients with duodenal ulcer that are *H. pylori* negative and whose ulceration had not been associated with NSAIDs, the recommended dose is omeprazole 10 mg to 20 mg daily.

For gastric ulcer the recommended healing dosage of omeprazole 20 mg once daily for four to eight weeks. Omeprazole 40 mg once daily usually produces healing within eight weeks in patients with gastric ulcer refractory to treatment. For maintenance treatment, the recommended dose for the long-term prevention of relapse in patients with gastric ulcer who are proven to be *H. pylori* negative and whose ulceration had not been associated with NSAIDs is omeprazole 20 mg daily.

For NSAID-associated duodenal ulcers, see NSAID-associated gastric or duodenal ulcers or erosions. The recommended dose for NSAID-associated gastric or duodenal ulcers or erosions in patients with or without continued NSAID treatment is omeprazole 20 to 40 mg daily. In most patients, symptomatic relief is rapid, and healing occurs within four weeks. In those patients not fully healed during the initial four weeks of treatment, healing usually occurs during a further four weeks of treatment.

The recommended dose for the prevention of NSAID-associated gastric or duodenal ulcers or erosions and dyspeptic symptoms is omeprazole 20 mg once daily.

The recommended initial dose for ZES is omeprazole 60 mg once daily. This should be adjusted to the individual patient's response and treatment continued for as long as is clinically indicated. If the daily oral dose exceeds 80 mg, omeprazole should be given in divided doses twice daily.

Pantoprazole

Dosage for a duodenal ulcer is pantoprazole 40 mg (1 tablet / 1 sachet of 40 mg granules) is once a day. If a 2-week period of treatment is not sufficient, healing will be achieved within a further 2 weeks.

Dosage for a gastric ulcer is pantoprazole 40 mg (1 tablet / 1 sachet of 40 mg granules) should be given once a day. If a 4-week period of treatment is not sufficient, healing will usually be achieved in a further 4 weeks.

Dosage for ZES should be individually adjusted so that the acid output remains below 10 mmol/L.

The recommended dosage for symptomatic GORD (treatment of symptomatic reflux) is one pantoprazole 20 mg tablet per day for adults and for children aged over 5 years. If symptom control has not been achieved after four weeks treatment with pantoprazole 20 mg tablets daily, further investigation is recommended such as endoscopy.

Treatment of reflux oesophagitis is one pantoprazole 20 mg or 40 mg tablet or one sachet of pantoprazole 40 mg granules per day. In children over 5 years of age, the dosage should be adjusted according to weight. A 4-week period is usually required for healing, however if this is not sufficient, healing will usually be achieved within a further 4 weeks. This dosage may be increased up to 80 mg pantoprazole per day in adults.

Rabeprazole

The recommended dose for treatment of active GORD is one 20 mg tablet once daily for four to eight weeks. The recommended oral dose for prevention of relapse of GORD is one 10 mg tablet once daily. If needed this dose should be increased to one 20 mg tablet to be taken once daily. Treatment for symptomatic GORD is 10 mg once daily in patients without oesophagitis. If no response, the dose should be increased to 20 mg once daily for four weeks. If symptom control has not been achieved within four weeks, the patient should be further investigated.

The recommended dose for the treatment of active duodenal ulcer and gastric ulcer is one 20 mg tablet daily. Some patients with duodenal ulcer may respond to one 10 mg tablet taken once daily. Most patients with gastric ulcer heal within six weeks. However, a few patients may require an additional six weeks of therapy to achieve healing.

The current Product Information (PI) and Consumer Medicine Information (CMI) are available from [the TGA \(Product Information\)](#) and [the TGA \(Consumer Medicines Information\)](#).

PBS listing details (March 2022)

See Appendix A for PPI listing details as at March 2022.

Restriction

For details of the current PBS restrictions listing refer to the [PBS website](#)

Changes to listing

On 1 May 2019, PBS restriction changes were applied to high and standard dose PPI medicines. The changes were intended to improve appropriate prescribing of PPI medicines and included:

- High dose PPI (esomeprazole 40 mg) with 1 repeat, were changed from Restricted Benefit to Authority Required (Telephone).

- All standard dose PPIs (esomeprazole 20 mg, lansoprazole 30 mg, omeprazole 20 mg, pantoprazole 40 mg, rabeprazole 20 mg) were changed from Restricted Benefit to Authority Required (Streamlined).
- Increases in the maximum quantity or number of units authorised were no longer allowed for GORD.

On 1 March 2021, new listings were introduced for standard and high dose PPIs to allow twice-daily dosing for *complex GORD*. These new items were additional to existing PBS listings for PPIs. They were intended to cater for patients with gastrointestinal acid-related disorders and inadequate symptom control despite use of a once-daily (or equivalent) standard or high dose PPI.

- Prescription for twice-daily standard and high dose PPIs for *complex GORD* is Authority Required (immediate assessment) (also known as Telephone Authority) The treatment must be the sole PBS-subsidised PPI for this condition.
- Initial treatment with twice-daily standard dose PPIs requires prescription by or in consultation with a specialist (gastroenterologist or upper GI surgeon). Continuing treatment may be prescribed by a specialist or general practitioner.
- High dose esomeprazole 40 mg for *complex GORD* is restricted to prescribing by a specialist (gastroenterologist or upper GI surgeon). This facilitates continuing specialist review, an important consideration in this group of patients.

Current PBS listing details are available from the [PBS website](#).

Relevant aspects of consideration by the Pharmaceutical Benefits Advisory Committee (PBAC)

At the March 2018 meeting, PBAC recommended that revision of the wording and terminology of all PPI restrictions should be undertaken by the Department and reconsidered by PBAC at a later meeting. The PBAC agreed that changes to the restriction levels and/or number of repeats were likely to be required to address the over prescribing of high and highest dose PPIs and that it would also reconsider these options.

The PBAC also noted that there was little clinical need to start patients on the 40 mg strength of esomeprazole and that in the first instance patients should be trialled on 20 mg. For this reason, PBAC agreed to increase the PBS Restricted Benefit items for 40 mg esomeprazole with one repeat to Authority Required, consistent with restriction level for the 40 mg esomeprazole (5 repeat) items.

The PBAC were particularly concerned by the large number of high and highest dose prescriptions dispensed relative to low dose PPIs, 95% versus 5% respectively. This was of concern for both cost and safety reasons, particularly as the highest prevalence of use is in the elderly who are more vulnerable to side effects and pharmacological interactions with

other medicines. In addition, the PBAC noted that there may be use of PPIs for non-subsidised indications such as prevention of gastric ulcer in patients prescribed NSAIDs and that this may be contributing to the high PBS utilisation.

For further details refer to the [Outcome Statement for the March 2018 PBAC meeting](#).

At the March 2020 meeting, the PBAC recommended the restrictions (as above) for PBS-listed standard dose complex GORD, noting the restrictions were consistent with its advice provided at the March 2018 PBAC meeting. The restrictions were also consistent with input received from the RACGP and GESA, which highlighted that for some patients, GORD can be difficult to treat, and that some patients with complex GORD require more than once-daily standard dose PPI therapy to manage their condition (i.e., symptomatic and/or maintenance treatment).

For further details refer to the [Outcome Statement for the March 2020 PBAC meeting](#).

Previous reviews by the DUSC

A previous DUSC review was completed in 2018 looking at the utilisation of PBS-listed PPI medicines used in the management of gastrointestinal acid related disorders. Specifically, to examine PPI utilisation patterns in 2013-2016 and highlight differences in high versus low strength utilisation. Over a four-year period (2013-2016) there were a total of 82.8 million dispensings of PBS-listed PPIs to 5.1 million patients. The vast majority (78%) of dispensings were for high strength formulations, while 17% were of highest strength and 5% of low strength.

DUSC observed that in comparison to the clinical guidelines and considering the prevalence of GORD, high dose PPIs appeared to be overprescribed in Australia, for excessively long periods of time, particularly amongst older people. This raised concerns regarding the safety, quality use of medicines and high PBS expenditure. Use for non-subsidised indications such as prevention of gastric ulcer in patients prescribed NSAIDs may have been contributing to the high PBS utilisation.

DUSC also compared the utilisation results with the previous PBS restrictions and with relevant clinical practice guidelines. Since 2018 there had been alterations to the restrictions of PBS-listed PPI medicines requiring an updated review on the recent listing changes.

Methods

Data Source / methodology

Prescriptions were extracted from the Services Australia prescription database for all PBS items that have an ATC classification of A02BC (Proton pump inhibitors) from 1 January 2013 until the end of December 2021 (based on date of supply).

Patient Counts

Prevalent patients are the count of unique de-identified patient identifiers (IDs) on prescriptions for the analysis period (e.g. quarterly in the time series graphs). In this report, initiating patients were defined as patients who had not had a prescription for the drug / drug group since 1 January 2013. The patient counts start from 2014 Q1, so all initiators have at least 12 months with no prior prescription.

Relative Dose

Relative dose was assigned to prescriptions based on the following table.

Drug	Relative dose	PBS item code	Form and strength	
ESOMEPRAZOLE	High dose	03401B	Tablet (enteric coated) 40 mg (as magnesium trihydrate)	
		08601Q	Tablet (enteric coated) 40 mg (as magnesium trihydrate)	
		10330Q	Capsule (enteric) 40 mg (as magnesium)	
		10331R	Capsule (enteric) 40 mg (as magnesium)	
		Twice daily for Complex GORD	12275C	Capsule (enteric) 20 mg (as magnesium)
			12287Q	Tablet (enteric coated) 20 mg (as magnesium trihydrate)
	Twice daily for Complex GORD	Very High dose	12283L	Tablet (enteric coated) 40 mg (as magnesium trihydrate)
			12290W	Capsule (enteric) 40 mg (as magnesium)
	Standard dose	08600P	Tablet (enteric coated) 20 mg (as magnesium trihydrate)	
		08886Q	Tablet (enteric coated) 20 mg (as magnesium trihydrate)	
		10295W	Capsule (enteric) 20 mg (as magnesium)	
		10343J	Capsule (enteric) 20 mg (as magnesium)	
11687D		Capsule (enteric) 20 mg (as magnesium)		
11692J		Tablet (enteric coated) 20 mg (as magnesium trihydrate)		
LANSOPRAZOLE	Low dose	08198L	Capsule 15 mg	
		09331D	Tablet 15 mg (orally disintegrating)	
	Standard dose	02240X	Capsule 30 mg	
		02241Y	Capsule 30 mg	
		09477T	Tablet 30 mg (orally disintegrating)	
		09478W	Tablet 30 mg (orally disintegrating)	
		11669E	Capsule 30 mg	
		11697P	Tablet 30 mg (orally disintegrating)	
	Twice daily for Complex GORD	High dose	12276D	Tablet 30 mg (orally disintegrating)
			12284M	Capsule 30 mg
OMEPRAZOLE	Low dose	08332M	Tablet 10 mg (as magnesium)	
		01326T	Capsule 20 mg	
	Standard dose	01327W	Capsule 20 mg	
		08331L	Tablet 20 mg	
		08333N	Tablet 20 mg	
		09109K	Tablet 20 mg (as magnesium)	

Drug	Relative dose	PBS item code	Form and strength
		09110L	Tablet 20 mg (as magnesium)
		11677N	Tablet 20 mg (as magnesium)
		11682W	Capsule 20 mg
		11683X	Tablet 20 mg
Twice daily for Complex GORD	High dose	12270T	Tablet 20 mg (as magnesium)
		12272X	Tablet 20 mg
		12281J	Capsule 20 mg
PANTOPRAZOLE	Low dose	08399C	Tablet (enteric coated) 20 mg (as sodium sesquihydrate)
	Standard dose	08007K	Tablet (enteric coated) 40 mg (as sodium sesquihydrate)
		08008L	Tablet (enteric coated) 40 mg (as sodium sesquihydrate)
		09423Y	Sachet containing granules 40 mg (as sodium sesquihydrate)
		09424B	Sachet containing granules 40 mg (as sodium sesquihydrate)
		11678P	Sachet containing granules 40 mg (as sodium sesquihydrate)
		11681T	Tablet (enteric coated) 40 mg (as sodium sesquihydrate)
Twice daily for Complex GORD	High dose	12277E	Tablet (enteric coated) 40 mg (as sodium sesquihydrate)
		12282K	Sachet containing granules 40 mg (as sodium sesquihydrate)
RABEPRAZOLE	Low dose	08507R	Tablet containing rabeprazole sodium 10 mg (enteric coated)
	Standard dose	08508T	Tablet containing rabeprazole sodium 20 mg (enteric coated)
		08509W	Tablet containing rabeprazole sodium 20 mg (enteric coated)
		11670F	Tablet containing rabeprazole sodium 20 mg (enteric coated)
Twice daily for Complex GORD	High dose	12286P	Tablet containing rabeprazole sodium 20 mg (enteric coated)

Prescription Sequence analysis

In the relative dose sequence analysis, each patient was limited to 12 months of PPI prescription history from their date of initiation so that the opportunity for switching dose is equal for all patients. The two cohorts chosen for comparison are those patients who initiated PPI therapy in 2017 and 2020. The 2017 cohort uses the prescription history up to the end of 2018 (i.e. 12 month of history for patients who initiated at the end of 2017). These patient prescription histories are all prior to the policy changes on 1 May 2019. In contrast, the 2020 initiators have prescription histories which are all after the policy changes.

In the relative dose sequence analysis for Complex GORD patients, firstly all patients that had initiated treatment for Complex GORD (identified using the item codes in the table above), from 1 March 2021 (first listing of Complex GORD items) to the end of December 2021, were identified. Next all PPI prescriptions for these patients supplied from 1 January 2013 to the end of December 2021 were extracted, the relative dose of each prescription determined (as per the above table) and then the relative dose initiation sequence was constructed for each patient.

The Defined Daily Doses (DDDs) were calculated as follows:

DDDs = quantity (i.e. number of tablets or capsules dispensed) x mass amount (i.e. mg of drug in each tablet/capsule) / WHO Defined Daily Dose (drug specific)

The WHO DDD for each drug used in the above formula were; esomeprazole and lansoprazole = 30mg; omeprazole & rabeprazole = 20mg; and pantoprazole=40mg.

Note that the WHO DDD for esomeprazole changed from 20mg to 30mg in 2005.

As these analyses used date of supply prescription data, there may be small differences compared with publicly available Services Australia PBS date of processing data³ which only includes subsidised PBS and Repatriation PBS (R/PBS) prescriptions (i.e. prescriptions under the patient co-payment are not included). The Services Australia prescription database data used in this report includes under co-payment prescriptions from 1 April 2012.

³ PBS statistics. Services Australia Medicare. Canberra. Available from <https://www.servicesaustralia.gov.au/organisations/about-us/reports-and-statistics/statistical-information-and-data-0/medicare-statistics/pharmaceutical-benefits-schedule-statistics>

Results

Analysis of drug utilisation

Overall utilisation

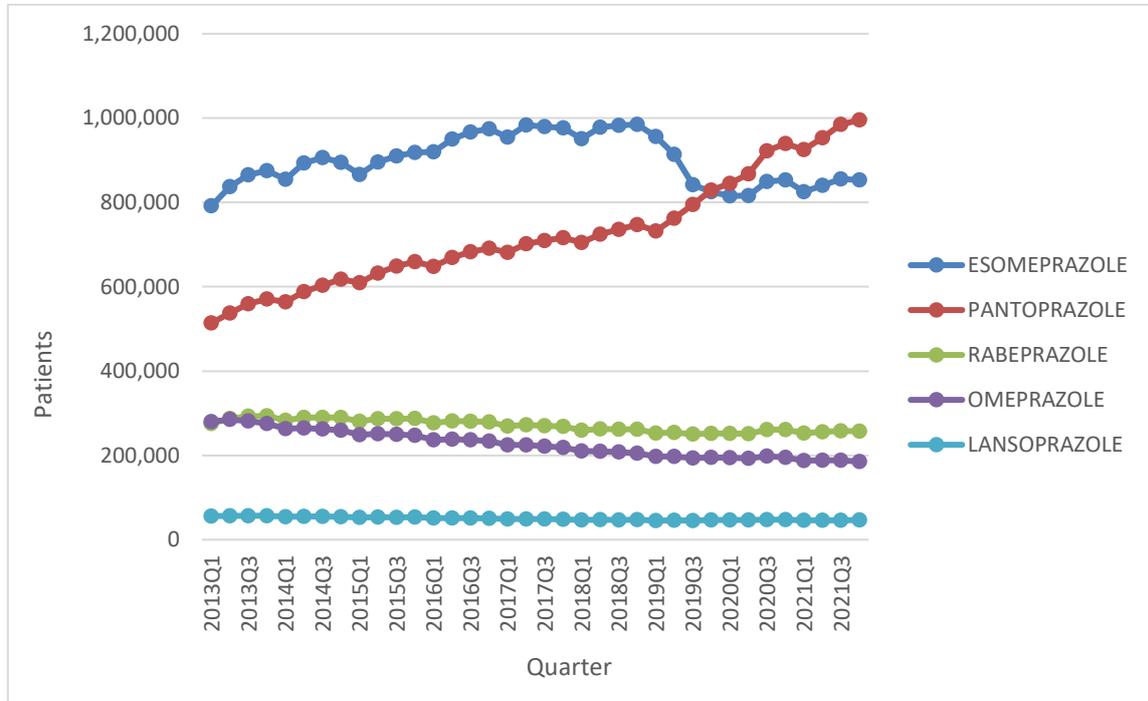


Figure 1: Number of prevalent patients supplied PPI drugs per quarter

Figure 1 shows the number of prevalent patients supplied PPI drugs per quarter. From 2013 to 2021, the number of patients supplied lansoprazole had remained relatively stable, whilst omeprazole and rabeprazole have a slight decrease, with rabeprazole dropping at a slower rate than omeprazole. In Q1 2019, the number of patients supplied pantoprazole increased, overtaking the number of esomeprazole patients in Q4 2019. The number of pantoprazole patients continued to increase, while esomeprazole started decreasing in Q4 2018 and appeared to stabilise between Q2-Q3 2020. Interestingly, the COVID-19 pandemic appeared not to have impacted the utilisation of PPI medicine as there appeared to be no decrease from 2020.

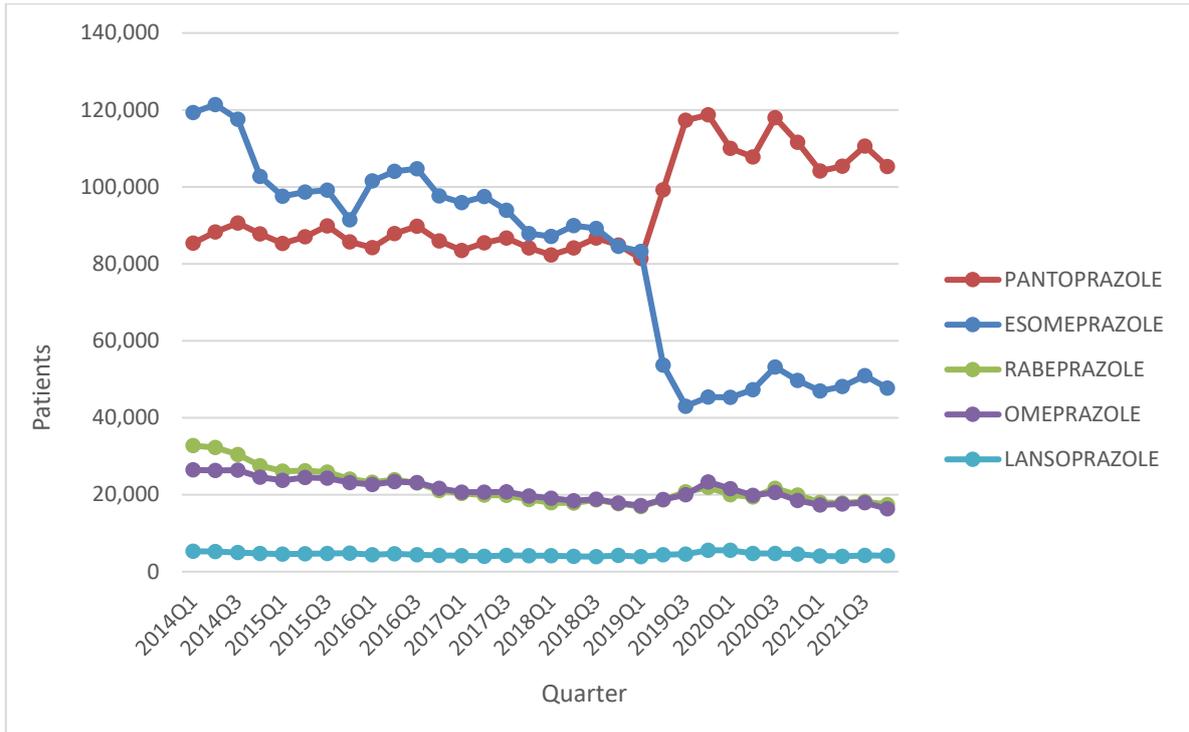


Figure 2: Initiating patients supplied PPI prescriptions by quarter

Figure 2 shows the number of initiating patients supplied PPI prescriptions by quarter. From Q2 2019 there is an increase in pantoprazole (99,195 patients) at the same time there is a significant decrease in esomeprazole (53,653 patients). Rabeprazole, omeprazole and lansoprazole has remained relatively consistent from 2019, a minor increase in 2019. In total, there was 2,596,039 patients administered esomeprazole from 2014 – 2021 while there were 3,014,576 patients administered pantoprazole from the same time.

Table 1: PPI drug prescriptions dispensed by drug by year

Drug	Prescription count									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	Grand Total
ESOMEPRAZOLE	8,273,359	8,735,006	8,875,445	9,285,425	9,471,639	9,462,314	8,596,775	8,346,582	8,414,198	79,460,743
PANTOPRAZOLE	5,446,700	5,930,980	6,361,915	6,703,448	6,992,544	7,270,194	7,695,023	8,939,128	9,588,286	64,928,218
RABEPRAZOLE	2,846,075	2,898,715	2,885,752	2,837,249	2,748,789	2,677,054	2,569,705	2,680,532	2,669,124	24,812,995
OMEPRAZOLE	2,903,727	2,729,358	2,578,092	2,434,640	2,287,272	2,142,970	2,001,793	2,047,374	1,947,592	21,072,818
LANSOPRAZOLE	593,710	577,480	558,931	536,260	513,301	496,270	479,783	508,833	495,263	4,759,831
Grand Total	20,063,571	20,871,539	21,260,135	21,797,022	22,013,545	22,048,802	21,343,079	22,522,449	23,114,463	195,034,605
Growth from previous year	-	4.00%	1.90%	2.50%	1.00%	0.20%	-3.20%	5.50%	2.60%	

Table 1 shows the PPI drug prescriptions dispensed by drug each year; it also shows the total overall growth rate from the previous year. Esomeprazole is the most dispensed drug in total from the years 2013 to 2021, followed by pantoprazole. In 2020 and 2021, pantoprazole had more dispensings than esomeprazole however, prior to that esomeprazole was the most prescribed drug from 2013 to 2019. The growth rate for all PPI medications was the highest in 2020 at 5.5%.

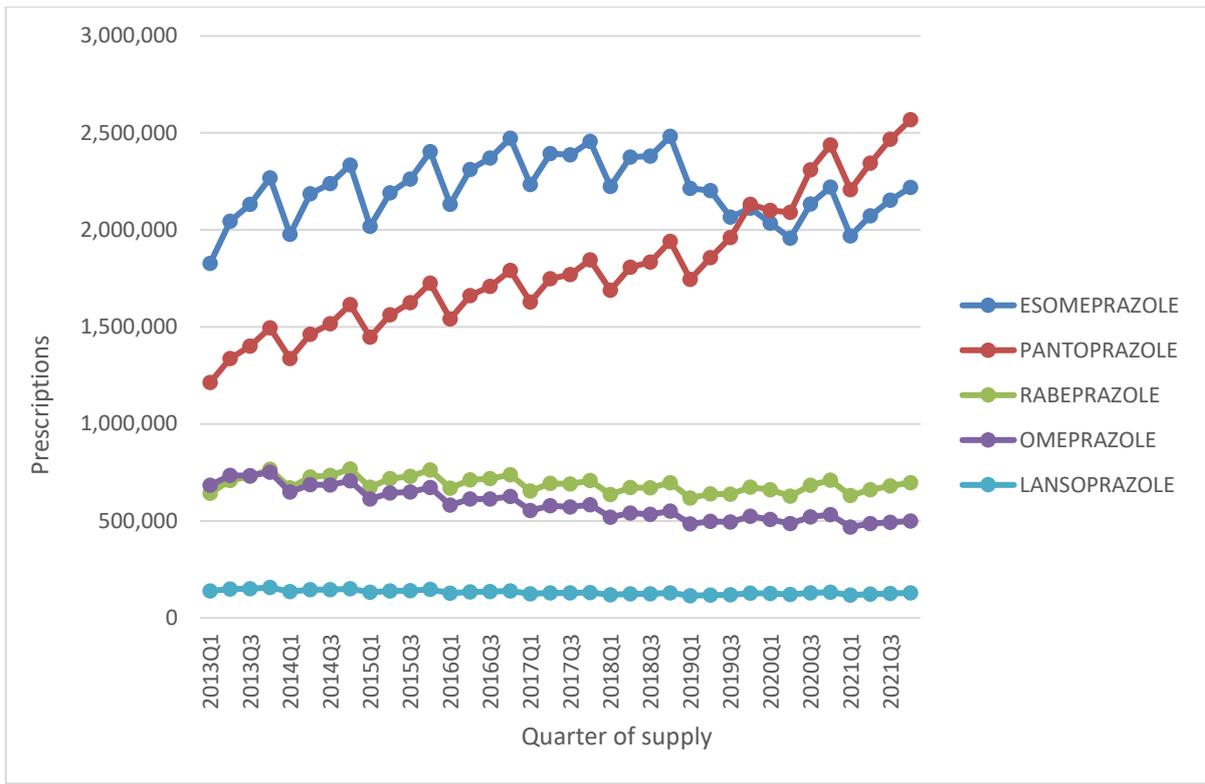


Figure 3: Number of prescriptions supplied for PPI drugs by quarter

Figure 3 shows the number of prescriptions supplied for PPI drugs by quarter each year. The two most commonly dispensed PPI listings are esomeprazole and pantoprazole. Each quarter the utilisation of esomeprazole and pantoprazole fluctuate however, in Q3 2019 the number of pantoprazole prescriptions supplied increased, being the highest among all PPI for prescriptions supplied to patients while the number of esomeprazole prescriptions supplied slightly decreased in Q3 2019.

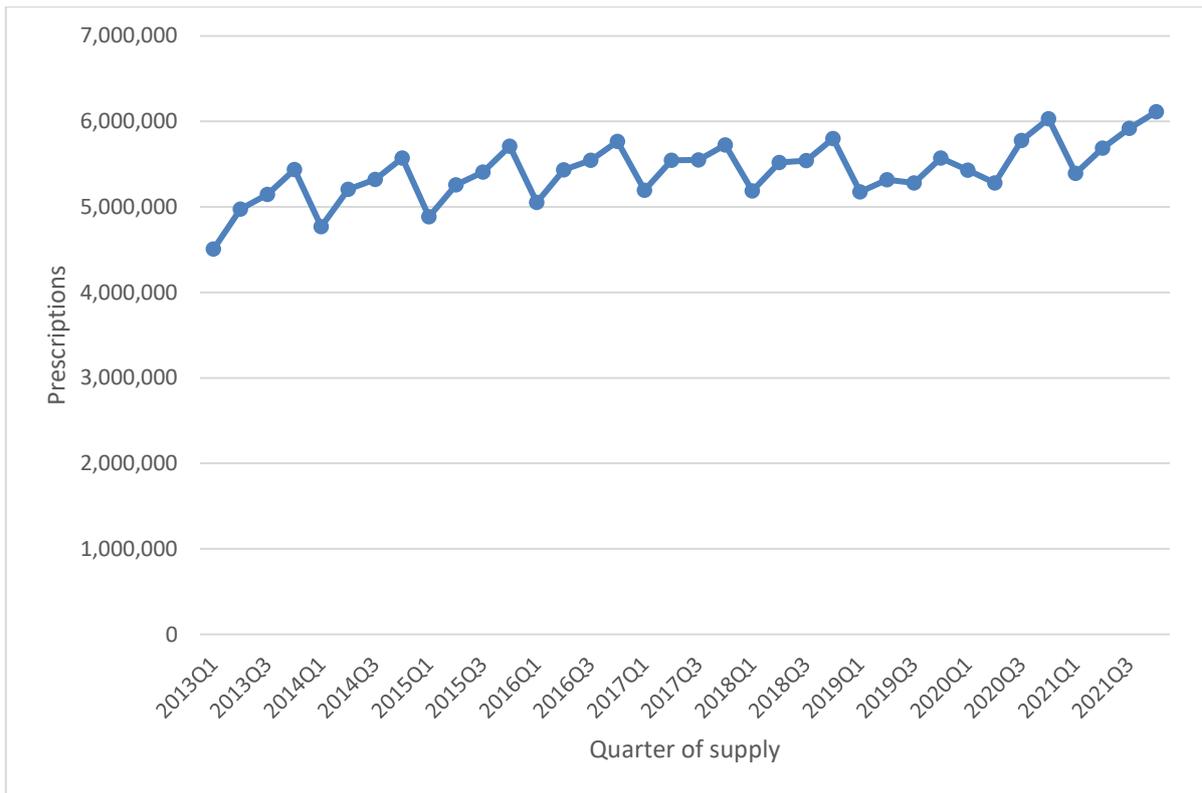


Figure 4a: PPI prescriptions per quarter from 2013 to 2021

Figure 4a shows the number of scripts prescribed to patients for PPI medications per quarter from 2013 to 2021. After the PPI reforms on 1 May 2019 there was a small decrease that remained stable before an increase after Q2 2020.

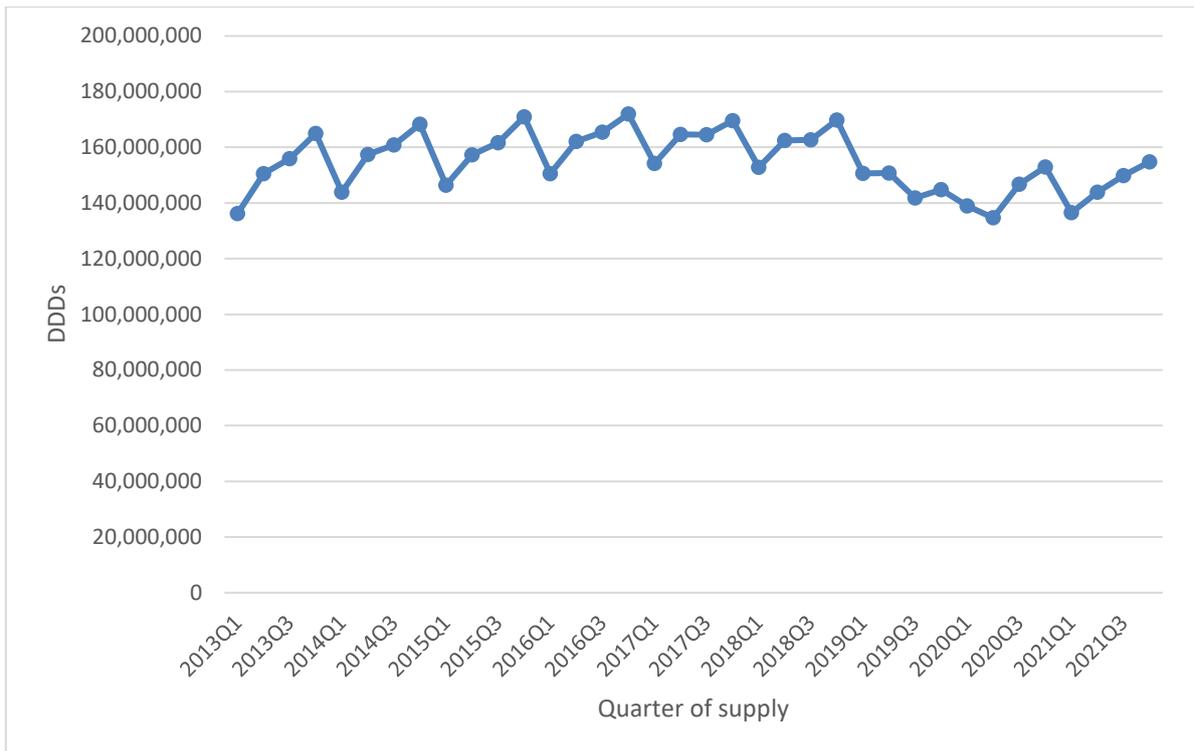


Figure 4b: Number of DDD’s supplied for PPI medications per quarter from 2013 to 2021

Figure 4b shows that the number of DDD’s decreased in Q1 2019 until 2021. Comparing Figure 4a and 4b shows that whilst the PPI reforms had minimal impact on prescriptions utilisation, the DDD utilisation was decreased.

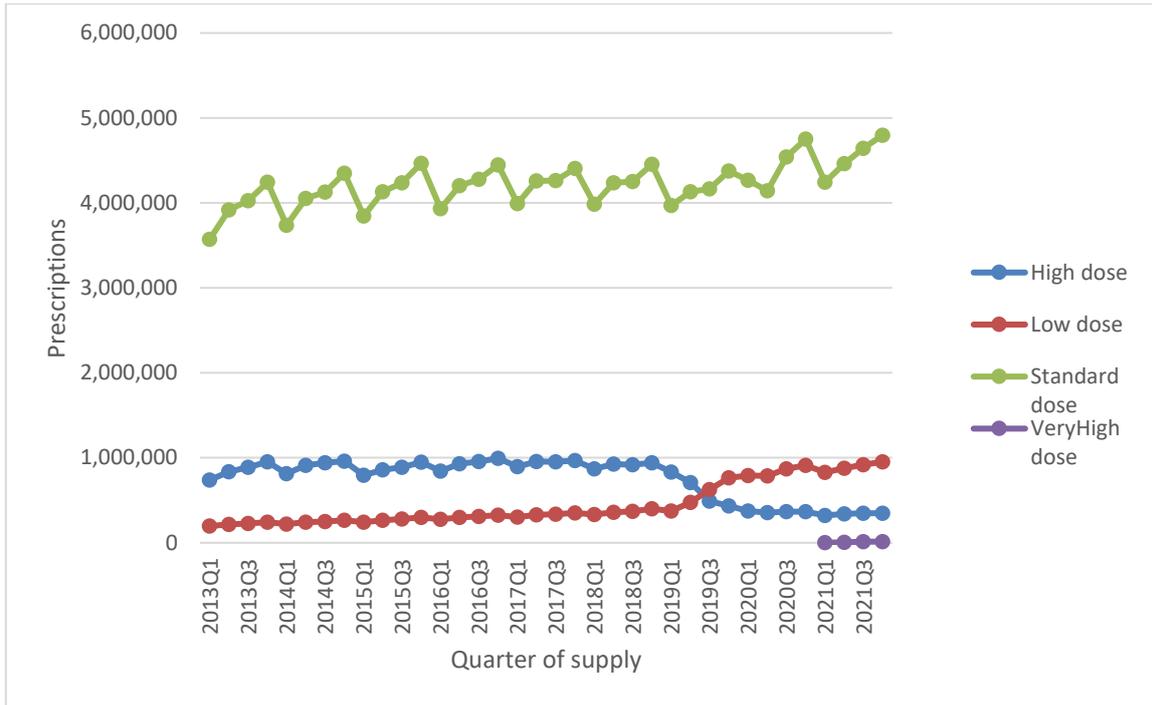


Figure 5a: Number of prescriptions supplied for PPI medication by strength dose quarterly from 2013 to 2021

Figure 5a shows the number of PPI prescriptions supplied by strength dose quarterly from 2013 to 2021. The number of high strength prescriptions remained relatively stable until 2019, where there is a decrease before stabilising. The number of low strength PPI prescriptions supplied also remained relatively stable until 2019 and a gradual increase from 2019 to 2021. The standard strength of PPI medications is the most commonly prescribed, with small increases and decreases at every quarter from 2013 to 2021.

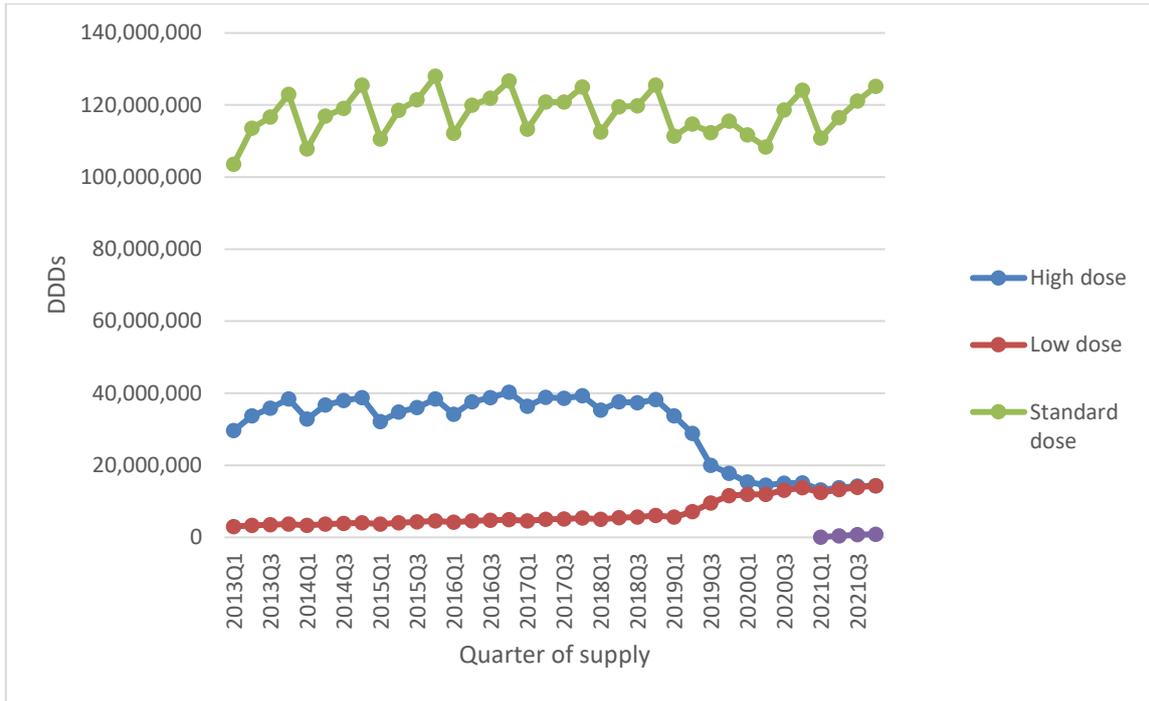


Figure 5b: Number of DDD's supplied for PPI by quarter from 2013 to 2021

Figure 5b shows the number of defined daily doses supplied to patients for all PPI medications by relative dose from 2013 to 2021. Following the restriction changes in 2019 the number of DDDs for high doses decreased whilst the low dose increased. Figure 5b shows the high and low dose prescriptions supply a similar number of DDDs per quarter following the restriction changes. In contrast, Figure 5a, shows more prescriptions per quarter for the low dose than for high dose.

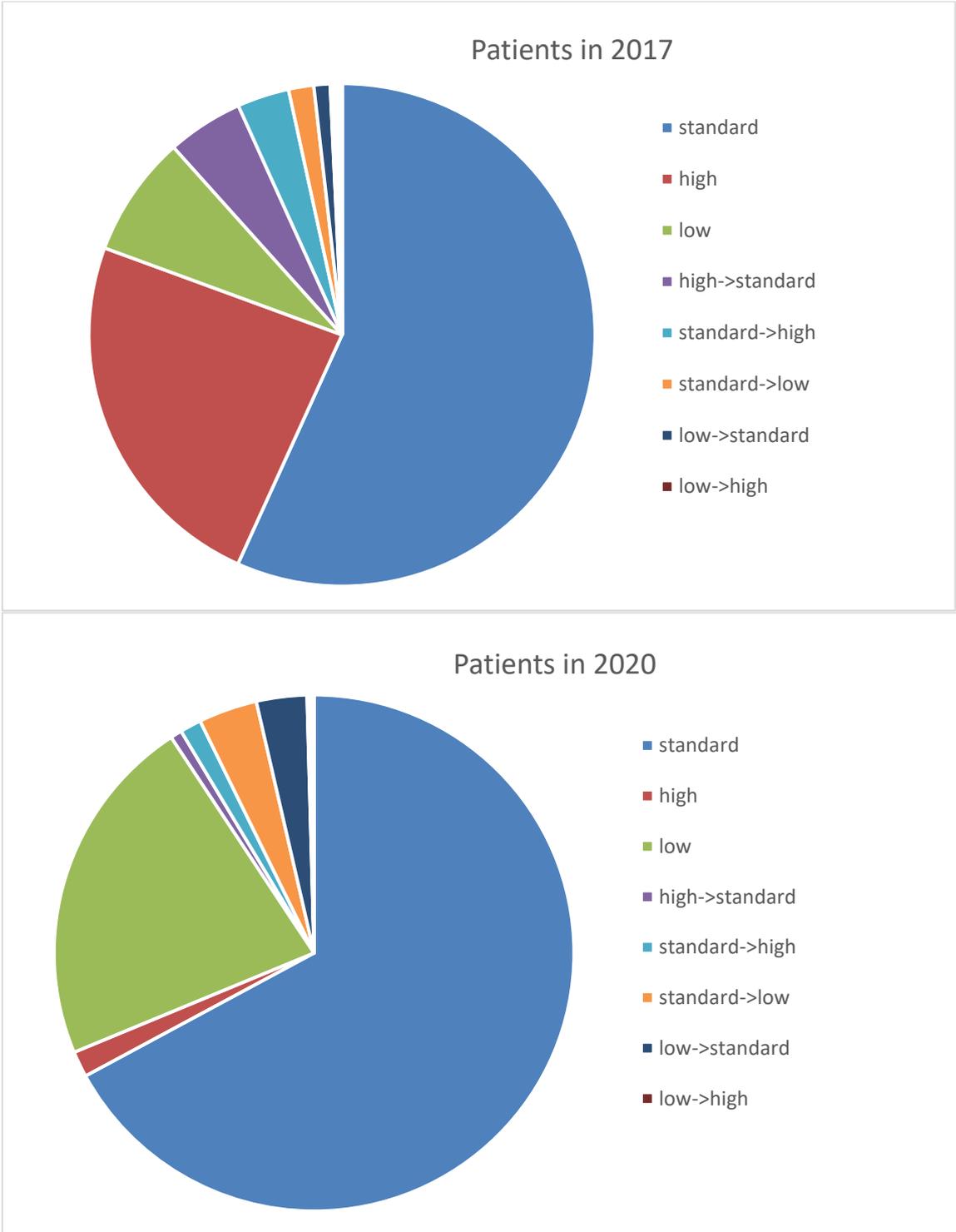


Figure 6: Strength of initiating dose and dose titrations for patients supplied a PPI medication in 2017 and in 2020.

Note: A single dose (e.g. standard) indicates there was no dose titration.

Figure 6 shows that in 2017 there were 611,154 initiating patients on PPI medication and in 2020 there were 494,347 initiating patients on PPI medication. Figure 6 shows that in 2017 there were 145,903 (24%) patients first starting on a high dose of PPI medication. However,

in 2020 there were 8,026 (2%) initiating patients on high dose of PPI. For first initiators in 2017, 20,309 (3%) patients went from a standard dose to high dose medication and in 2020 there was 5,896 (1%) patients starting on standard dose who transitioned to a high dose.

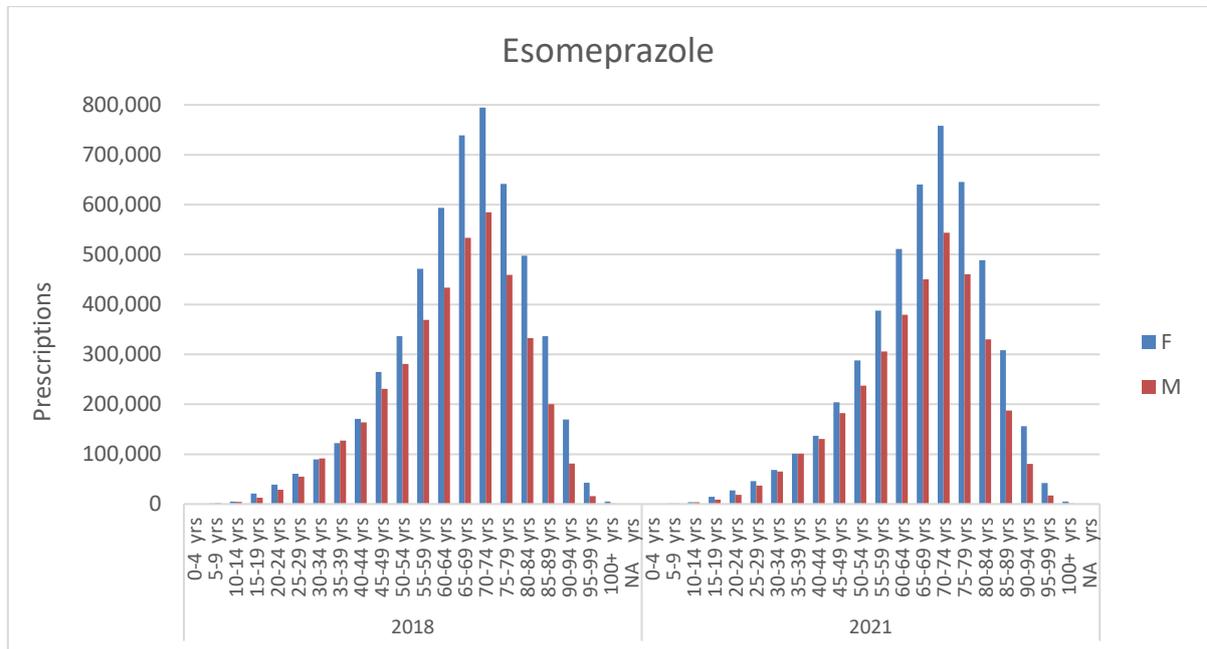


Figure 7a: Number of prescriptions supplied for esomeprazole in 2018 and 2021 for male and female patients by age group

Figure 7a shows the number of prescriptions supplied for esomeprazole in the year 2018 and 2021. Patients aged 70–74-years were the most common age group to be supplied PPI medications. In addition, more females were prescribed esomeprazole and pantoprazole than males across all age groups.

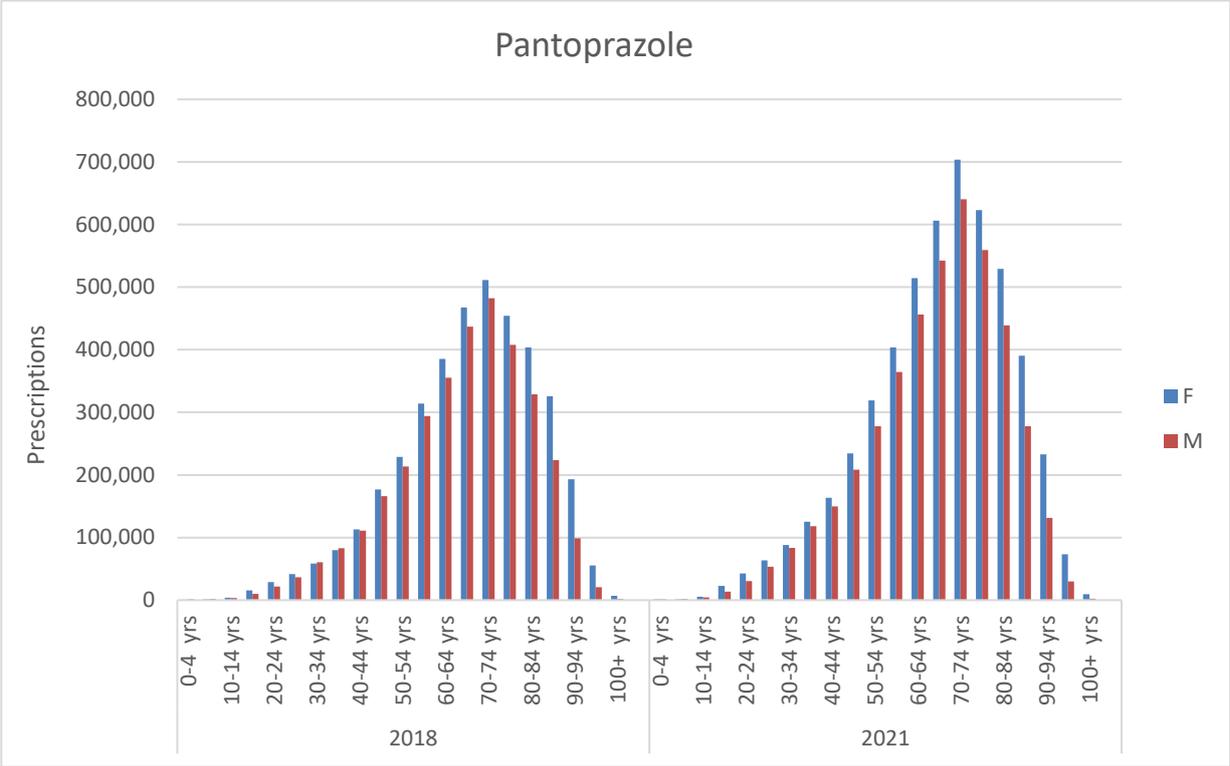


Figure 7b: Number of prescriptions supplied for pantoprazole in 2018 and 2021 for male and female patients by age group

Figure 7b shows the number of prescriptions supplied for pantoprazole in the year 2018 and 2021. As for esomeprazole with the patients aged 70–74-years were the most common age group to be supplied pantoprazole.

Table 2: Dose titration sequences for Complex GORD (CGORD) patients

Relative dose initiation sequences	Values	
	Patients	% Patients
Standard->High(CGORD init)	4,491	14.5%
Standard->High(CGORD init)->High(CGORD)	4,235	13.7%
Standard->Standard(CGORD init)	2,159	7.0%
Standard->Standard(CGORD init)->Standard(CGORD)	1,652	5.3%
High->Standard->Standard(CGORD init)	1,298	4.2%
High->Standard->Standard(CGORD init)->Standard(CGORD)	1,110	3.6%
High(CGORD init)	1,052	3.4%
High->Standard->High(CGORD init)->High(CGORD)	809	2.6%
Standard(CGORD init)	791	2.6%
High->Standard->High(CGORD init)	777	2.5%
Standard->High->VeryHigh(CGORD init)->VeryHigh(CGORD)	749	2.4%
Standard->Low->High(CGORD init)	676	2.2%
Standard->Low->High(CGORD init)->High(CGORD)	652	2.1%
Standard->High->Standard(CGORD init)	622	2.0%
High->Standard->VeryHigh(CGORD init)->VeryHigh(CGORD)	583	1.9%
Standard->High->Standard(CGORD init)->Standard(CGORD)	583	1.9%
Standard->High->VeryHigh(CGORD init)	566	1.8%
High->Standard->VeryHigh(CGORD init)	482	1.6%
Standard->High->High(CGORD init)->High(CGORD)	477	1.5%
Standard->High->High(CGORD init)	458	1.5%
Low->Standard->High(CGORD init)	438	1.4%
Low->Standard->High(CGORD init)->High(CGORD)	373	1.2%
High->VeryHigh(CGORD init)->VeryHigh(CGORD)	346	1.1%
High(CGORD init)->Standard	324	1.0%
High->VeryHigh(CGORD init)	282	0.9%
High(CGORD init)->High(CGORD)	269	0.9%
Standard->VeryHigh(CGORD init)->VeryHigh(CGORD)	221	0.7%
Standard->VeryHigh(CGORD init)	219	0.7%
Standard(CGORD init)->Standard(CGORD)	185	0.6%
VeryHigh(CGORD init)	174	0.6%
Other	3,927	12.7%
Total	30,980	100%

In Table 2, the relative dose sequence analysis was completed on each patient however is limited to 12 months of PPI prescription history from their date of initiation so that the opportunity for switching dose was equal for all patients. The two cohorts chosen for comparison were those patients who initiated PPI therapy in 2017 and 2020. The 2017 cohort used the prescription history up to the end of 2018 (i.e. 12 months of supply history for patients who initiated at the end of 2017). These patient prescription histories are all prior to the policy changes on 1 May 2019. In contrast, the 2020 initiators had prescription

histories which were all after the policy changes. Referring to Table 2, 14.5% of patients started on a standard dose and increased to a high dose, while a smaller number (4.2%) were starting at high doses before reducing to a lower dose.

Discussion

PPI medicines are one of the most used medicines worldwide. Evidence has shown that they are inappropriately prescribed for a longer period than recommended by the current guidelines. Additional studies investigating international data on PPI prescriptions suggests that approximately half of prescriptions are inappropriate according to treatment guidelines; with estimates of the proportion of inappropriate prescribing of PPI medicines in Australia ranging from 22% to 63%.⁴ In addition, the use of PPI therapy for adults in Australia are mostly prescribed for GORD (68%). This has raised concerns on the impact of long-term use of PPI medications, with research suggesting the negative consequences of prolonged use can include the development of osteoporosis, pneumonia, fractures, multiple vitamin deficiencies, and colon cancer.⁵

The PBS data indicates that following the 1 May 2019 PPI restriction changes there has been a decrease in number of high dose PPI prescriptions and a general shift towards the prescription of lower doses of PPIs. The total number of PBS subsidised PPI prescriptions was 5% less from 1 May-31 December 2019 compared to the same period in 2018.

The overall supply of PPI medicines had remained relatively consistent for rabeprazole, omeprazole and lansoprazole over the reporting period of 2013 Q1 to 2021 Q3. The utilisation of esomeprazole and pantoprazole varied over the period of 2013 to 2021 with an increase in pantoprazole and a decrease in esomeprazole from 2019. When looking at the drugs singularly, pantoprazole and esomeprazole were the most supplied drugs since 2013. In 2019, the utilisation of high strength dose listings decreased from 31,859 prescriptions in 2018 to 11,380 prescriptions in 2021. At the same time, the utilisation of low dose strength listings increased from 13,720 prescriptions in 2018 to 33,485 prescriptions in 2021.

Figures 6a and 6b show the total use of PPI prescription drugs were more prevalent in the female population than male population in 2018 prior to the restriction changes and in 2021 after the introduction of the new restrictions. The most common age group for PPI utilisation was 70-74 years among both genders.

This analysis reflects the restrictions made in 2019, as data in 2017 shows there were 145,903 patients starting on a high dose of PPI medication. However in 2020 there were significantly less patients (8,026) on high dose PPI. In 2017 there was 20,309 patients that went from standard to high dose medication and in 2020 there was 5,896 patients starting on a standard dose and shifting to a high dose PPI. In 2020 there was a significant decrease in the number of patients initiating on PPI medication, with 611,154 initiating patients in 2017 compared to 494,347 in 2020. One explanation for this could potentially be the

⁴ [2.3 Proton pump inhibitor medicines dispensing, 18 years and over \(safetyandquality.gov.au\)](https://www.safetyandquality.gov.au/2021/03/23/proton-pump-inhibitor-medicines-dispensing-18-years-and-over)

⁵ [Community-dwelling older adults' awareness of the inappropriate use of proton pump inhibitors | BMC Geriatrics | Full Text \(biomedcentral.com\)](https://www.biomedcentral.com/fulltext/BMCGeriatrics-10-10-10)

education provided to general practitioners, such as from NPS MedicineWise,^{6,7} on the use and appropriate prescribing of PPI medications in addition to the new restrictions in place as of 2019. In addition, the supply of high dose prescriptions have reduced and an increase in the utilisation of low dose prescriptions for PPI, in particular pantoprazole.

More patients starting PPI treatment were prescribed pantoprazole, however total prevalence of patients prescribed esomeprazole was higher than pantoprazole in total from 2013-2021. The decrease in the utilisation of esomeprazole and increase in pantoprazole in 2019 was likely due to the restriction changes where high dose esomeprazole 40 mg for complex GORD was restricted to being prescribing by a specialist (gastroenterologist or upper gastrointestinal (GI) surgeon) only rather than a decrease in PPI utilisation overall. Pantoprazole was classified as either standard or low dose and had more prescription dispensings from 2019 than any other PPI therefore being the most common medication supplied among all the PPI prescriptions.

Previous data has shown the older population are more prevalent to using PPI long term than any other age group.⁸ This was also evident within this data, where patients aged 70-74 years had the highest supply of PPI medication compared to other age groups.⁹ This was likely due to this population having multiple co-morbidities (including a high prevalence of GORD) coupled with age-related physiological changes therefore requiring medication for symptom management.⁴

The current data observed that the use of PPI medications, in particular pantoprazole, is still increasing on a yearly basis. The utilisation of the remaining four PPI listings remained relatively consistent. In addition, the growth rate in utilisation for 2020 and 2021 was more than the previous years. This suggests PPI medications may still be prescribed for longer periods of time than recommended.

The aim of the 2019 restriction changes was to reduce the number of patients using high dose formulations. The DDD analysis shows that there has been a reduction in the utilisation by DDDs for high dose listings. The overall DDDs for all PPIs (Figure 4b) showed there was an overall reduction in DDDs following the restriction changes. Even though total script utilisation (across all drugs) increased after the May 2019 restriction changes, the total number of DDDs decreased. As such the listing changes could be regarded as achieving a reduction overall utilisation of PPIs by moving patients to lower dose PPIs.

⁶ NPS MedicineWise, 'Proton pump inhibitors: PBS changes May 2019'. Accessed on 25 April 2022 at: <https://www.nps.org.au/radar/articles/proton-pump-inhibitors-pbs-changes-may-2019>

⁷ Wu et al. (2020) Impact of NPS MedicineWise general practitioner education programs and Choosing Wisely Australia recommendations on prescribing of proton pump inhibitors in Australia. BMC Fam Pract 2020 May 9;21(1):85.

⁸ The Fourth Australian Atlas of Healthcare Variation (2021), Section 6.3, Australian Commission on Safety and Quality in Health Care. Accessed on 2 May 2022 at: <https://www.safetyandquality.gov.au/publications-and-resources/resource-library/fourth-australian-atlas-healthcare-variation-2021>

⁹ [6.3 Proton pump inhibitor medicines dispensing, 75 years and over | Australian Commission on Safety and Quality in Health Care](#)

However further investigation is warranted at a later date as total DDDs appeared to be on an upward trend again.

DUSC consideration

DUSC noted PBS data indicated that following the 1 May 2019 PPI restriction changes there was a decrease in the number of high dose PPI prescriptions and a general shift towards the prescribing of lower doses of PPIs. The total number of PBS subsidised PPI prescriptions was 5% less from 1 May-31 December 2019 compared to the same period in 2018.

DUSC noted the overall supply of PPI medicines had remained relatively consistent for rabeprazole, omeprazole and lansoprazole over the reporting period of 2013 Q1 to 2021 Q3. The utilisation of esomeprazole and pantoprazole varied over the period from 2013 to 2021 with an increase in pantoprazole and a decrease in esomeprazole from 2019. DUSC noted pantoprazole and esomeprazole were the most supplied drugs since 2013. In 2019, the utilisation of high strength listings decreased from 31,859 prescriptions in 2018 to 11,380 prescriptions in 2021. At the same time, the utilisation of low strength listings increased from 13,720 prescriptions in 2018 to 33,485 prescriptions in 2021. DUSC noted that omeprazole, esomeprazole and pantoprazole were available as over the counter (OTC) medications and that these as well as private prescriptions were not considered therefore utilisation could be higher than seen within this analysis.

DUSC noted more patients starting PPI treatment were prescribed pantoprazole, however total prevalence of patients prescribed esomeprazole was the highest from 2013-2021. The decrease in the utilisation of esomeprazole and increase in pantoprazole in 2019 is likely due to the restriction changes where high dose esomeprazole 40 mg for complex GORD was restricted to being prescribing by a specialist (gastroenterologist or upper gastrointestinal (GI) surgeon) only rather than a decrease in PPI utilisation overall. Pantoprazole was classified as either standard or low dose and had more dispensings from 2019 than any other PPI.

DUSC noted in 2017 there were 145,903 patients starting on a high dose of PPI medication and in 2020 there were significantly less patients initiating (8,026) on high dose PPI. DUSC considered that the restriction changes in 2019 were effective at reducing the number of patients starting on high dose PPI. In 2017 there were 20,309 patients that went from standard to high dose listings and in 2020 there were 5,896 patients starting on a standard dose and shifting to a high dose PPI. In 2020 there was a significant decrease in the number of patients initiating on PPI medication, with 611,154 initiating patients in 2017 compared to 494,347 in 2020. DUSC noted that this could be due to education programs provided to

general practitioners, such as from NPS MedicineWise,^{10,11} on the use and appropriate prescribing of PPI medications in addition to the new restrictions. DUSC noted the supply of high dose prescriptions had reduced and low dose prescriptions had increased for PPI, in particular for pantoprazole.

Previous data had shown that the older population were more likely to use PPI long term than any other age group.¹² DUSC noted this was evident within the analysis where patients aged 70-74 years had the highest supply of PPI medication compared to other age groups. This was likely due to this population having multiple co-morbidities (including a high prevalence of GORD) coupled with age-related physiological changes and consumption of multiple medication that cause heartburn therefore requiring medication for symptom management.⁴

DUSC noted that PPI medication and in particular pantoprazole, was still increasing on a yearly basis. The utilisation of the remaining four PPI listings had remained relatively consistent. DUSC considered the growth rate in utilisation for 2020 and 2021 was more than the previous years' suggesting PPI medications may still be prescribed for longer periods of time than recommended. DUSC considered the reasoning for prescribing for longer periods than recommended may be due to patients not ceasing treatment and new patients receiving prescriptions. DUSC also considered that patients were being prescribed PPI medication in conjunction with anti-inflammatory medication to counteract adverse effects. DUSC noted there could be higher OTC and private prescription data that was not considered.

DUSC noted the DDD analysis showed that there has been a reduction in the DDDs for high dose listings. The overall DDDs for all PPIs showed there is an overall reduction in DDDs following the restriction changes. Even though total script utilisation (across all drugs) increased after the May 2019 restriction changes, the total number of DDDs decreased. DUSC considered the restriction changes were successful in decreasing overall utilisation of PPIs by moving patients to lower dose PPIs. However further investigation was warranted at a later time as total DDDs appeared to be on an upward trend and OTC and private prescription data were not included in the analysis.

¹⁰ NPS MedicineWise, 'Proton pump inhibitors: PBS changes May 2019'. Accessed on 25 April 2022 at: <https://www.nps.org.au/radar/articles/proton-pump-inhibitors-pbs-changes-may-2019>

¹¹ Wu et al. (2020) Impact of NPS MedicineWise general practitioner education programs and Choosing Wisely Australia recommendations on prescribing of proton pump inhibitors in Australia. BMC Fam Pract 2020 May 9;21(1):85.

¹² The Fourth Australian Atlas of Healthcare Variation (2021), Section 6.3, Australian Commission on Safety and Quality in Health Care. Accessed on 2 May 2022 at: <https://www.safetyandquality.gov.au/publications-and-resources/resource-library/fourth-australian-atlas-healthcare-variation-2021>

DUSC actions

DUSC requested that the report be provided to the PBAC for consideration.

Context for analysis

The DUSC is a Sub Committee of the Pharmaceutical Benefits Advisory Committee (PBAC). The DUSC assesses estimates on projected usage and financial cost of medicines.

The DUSC also analyses data on actual use of medicines, including the utilisation of PBS listed medicines, and provides advice to the PBAC on these matters. This may include outlining how the current utilisation of PBS medicines compares with the use as recommended by the PBAC.

The DUSC operates in accordance with the quality use of medicines objective of the National Medicines Policy and considers that the DUSC utilisation analyses will assist consumers and health professionals to better understand the costs, benefits and risks of medicines.

The utilisation analysis report was provided to the pharmaceutical sponsors of each drug and comments on the report were provided to DUSC prior to its consideration of the analysis.

Sponsors' comments

Alphapharm Pty Ltd: The sponsor has no comment.

Amneal Pharmaceuticals Pty Ltd: The sponsor has no comment.

Apotex Pty Ltd: The sponsor has no comment.

Arrow Pharma Pty Ltd: The sponsor has no comment.

AstraZeneca Pty Ltd: The sponsor has no comment.

Avallon Pharmaceuticals Pty Limited: The sponsor has no comment.

Generic Health Pty Ltd: The sponsor has no comment.

Janssen-Cilag Pty Ltd: The sponsor has no comment.

Medis Pharma Pty Ltd: The sponsor has no comment.

Pfizer Australia Pty Ltd: The sponsor has no comment.

Pharmaco (Australia) Limited: The sponsor has no comment.

Pharmacor Pty Limited: The sponsor has no comment.

Sandoz Pty Ltd: The sponsor has no comment.

Strides Pharma Science Pty Ltd: The sponsor has no comment.

Sun Pharma ANZ Pty Ltd: The sponsor has no comment.

Takeda Pharmaceuticals Australia Pty. Ltd: The sponsor has no comment.

Disclaimer

The information provided in this report does not constitute medical advice and is not intended to take the place of professional medical advice or care. It is not intended to define what constitutes reasonable, appropriate or best care for any individual for any given health issue. The information should not be used as a substitute for the judgement and skill of a medical practitioner.

The Department of Health and Aged Care has made all reasonable efforts to ensure that information provided in this report is accurate. The information provided in this report was up-to-date when it was considered by the Drug Utilisation Sub-committee of the Pharmaceutical Benefits Advisory Committee. The context for that information may have changed since publication.

To the extent provided by law, the Department of Health and Aged Care makes no warranties or representations as to accuracy or completeness of information contained in this report.

To the fullest extent permitted by law, neither the Department of Health and Aged Care nor any Department of Health and Aged Care employee is liable for any liability, loss, claim, damage, expense, injury or personal injury (including death), whether direct or indirect (including consequential loss and loss of profits) and however incurred (including in tort), caused or contributed to by any person's use or misuse of the information available from this report or contained on any third party website referred to in this report.

Appendices

Appendix A – PBS listings of PPIs as at March 2022

Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
8601Q	esomeprazole 40 mg enteric tablet, 30	1	1	\$22.80	APO-Esomeprazole Esomeprazole Apotex Esomeprazole GH Esomeprazole GxP Esomeprazole Mylan Esomeprazole RBX Esomeprazole Sandoz Esomeprazole SZ Esopreze Nexazole Nexole NOUMED ESOMEPRAZOLE	GORD
10330Q	esomeprazole 40 mg enteric capsule, 30	1	1	\$22.80	Noxicid Caps	GORD
3401B	esomeprazole 40 mg enteric tablet, 30	1	5	\$22.80	APO-Esomeprazole Esomeprazole Apotex Esomeprazole GH Esomeprazole GxP Esomeprazole Mylan Esomeprazole Esomeprazole Sandoz Esomeprazole SZ Esopreze Nexazole Nexole NOUMED ESOMEPRAZOLE	Pathological hypersecretory conditions including Zollinger-Ellison syndrome and idiopathic hypersecretion, Scleroderma oesophagus

Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
10331R	esomeprazole 40 mg enteric capsule, 30	1	5	\$22.80	Noxicid Caps	Pathological hypersecretory conditions including Zollinger-Ellison syndrome and idiopathic hypersecretion, Scleroderma oesophagus
10343J	esomeprazole 20 mg enteric capsule, 30	1	5	\$18.39	Noxicid Caps	Scleroderma oesophagus
8600P	esomeprazole 20 mg enteric tablet, 30	1	5	\$18.39	APO-Esomeprazole Esomeprazole Apotex Esomeprazole GH Esomeprazole GxP Esomeprazole Mylan Esomeprazole RBX Esomeprazole Sandoz Esomeprazole SZ Esopreze Nexazole Nexole NOUMED ESOMEPRAZOLE	Scleroderma oesophagus
11687D	esomeprazole 20 mg enteric capsule, 30	1	5	\$18.39	Noxicid Caps	GORD
11692J	esomeprazole 20 mg enteric tablet, 30	1	5	\$18.39	APO-Esomeprazole Esomeprazole Apotex Esomeprazole GH Esomeprazole GxP Esomeprazole Mylan Esomeprazole RBX Esomeprazole Sandoz Esomeprazole SZ Esopreze Nexazole Nexole NOUMED ESOMEPRAZOLE	GORD
10295W	esomeprazole 20 mg enteric capsule, 30	1	1	\$18.39	Noxicid Caps	Peptic ulcer, GORD

Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
8886Q	esomeprazole 20 mg enteric tablet, 30	1	1	\$18.39	APO-Esomeprazole Esomeprazole Apotex Esomeprazole GH Esomeprazole GxP Esomeprazole Mylan Esomeprazole RBX Esomeprazole Sandoz Esomeprazole SZ Esopreze Nexazole Nexole NOUMED ESOMEPRAZOLE	Peptic ulcer, GORD
12275C	esomeprazole 20 mg enteric capsule, 30	2	5	\$24.70	Noxicid Caps	Complex GORD
12287Q	esomeprazole 20 mg enteric tablet, 30	2	5	\$24.70	APO-Esomeprazole Esomeprazole Apotex Esomeprazole GH Esomeprazole GxP Esomeprazole Mylan Esomeprazole RBX Esomeprazole Sandoz Esomeprazole SZ Esopreze Nexazole Nexole NOUMED ESOMEPRAZOLE	Complex GORD

Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
12283L	esomeprazole 40 mg enteric tablet, 30	2	5	\$33.52	APO-Esomeprazole Esomeprazole Apotex Esomeprazole GH Esomeprazole GxP Esomeprazole Mylan Esomeprazole RBX Esomeprazole Sandoz Esomeprazole SZ Esopreze Nexazole Nexole NOUMED ESOMEPRAZOLE	Complex GORD
12290W	esomeprazole 40 mg enteric capsule, 30	2	5	\$33.52	Noxicid Caps	Complex GORD
8198L	lansoprazole 15 mg enteric capsule, 30	1	5	\$15.62	Zopral	GORD, Scleroderma oesophagus
9331D	lansoprazole 15 mg orally disintegrating tablet, 28	1	5	\$15.41	APO-Lansoprazole ODT Lansoprazole ODT GH Zopral ODT	GORD, Scleroderma oesophagus
9478W	Lansoprazole 30 mg orally disintegrating tablet, 28	1	5	\$17.71	APO-Lansoprazole ODT Lansoprazole ODT GH Zopral ODT	Scleroderma oesophagus
2241Y	lansoprazole 30 mg enteric capsule, 28	1	5	\$17.71	APO-Lansoprazole Lanzopran NOUMED LANSOPRAZOLE Zopral	Scleroderma oesophagus
11697P	lansoprazole 30 mg orally disintegrating tablet, 28	1	5	\$17.71	APO-Lansoprazole ODT Lansoprazole ODT GH Zopral ODT	GORD
11669E	lansoprazole 30 mg enteric capsule, 28	1	5	\$17.71	APO-Lansoprazole Lanzopran	GORD

Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
					NOUMED LANSOPRAZOLE Zopral	
9477T	lansoprazole 30 mg orally disintegrating tablet, 28	1	1	\$17.71	PO-Lansoprazole ODT Lansoprazole ODT GH Zopral ODT	GORD
2240X	lansoprazole 30 mg enteric capsule, 28	1	1	\$17.71	APO-Lansoprazole Lanzopran NOUMED LANSOPRAZOLE	GORD
12276D	lansoprazole 30 mg orally disintegrating tablet, 28	2	5	\$23.34	APO-Lansoprazole ODT Lansoprazole ODT GH Zopral ODT	Complex GORD
12284M	lansoprazole 30 mg enteric capsule, 28	2	5	\$23.34	APO-Lansoprazole Lanzopran NOUMED LANSOPRAZOLE	Complex GORD
8332M	omeprazole 10 mg enteric tablet, 30	1	5	\$15.86	Losec Tablets	GORD, Scleroderma oesophagus, Zollinger-Ellison syndrome
8333N	omeprazole 20 mg enteric tablet, 30	1	5	\$16.51	APO-Omeprazole Maxor EC Tabs Omeprazole generichealth Ozmep	Scleroderma oesophagus, Zollinger-Ellison syndrome
9110L	omeprazole 20 mg enteric tablet, 30	1	5	\$16.51	Acimax Tablets Omepral Omeprazole Sandoz	Scleroderma oesophagus, Zollinger-Ellison syndrome
1327W	omeprazole 20 mg enteric capsule, 30	1	5	\$16.51	APO-Omeprazole Maxor Omeprazole Sandoz Pemzo Pharmacor Omeprazole 20 Probitor	Scleroderma oesophagus, Zollinger-Ellison syndrome
11677N	omeprazole 20 mg enteric tablet, 30	1	5	\$16.51	Acimax Tablets Omepral	GORD

					Omeprazole Sandoz	
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Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
11683X	omeprazole 20 mg enteric tablet, 30	1	5	\$16.51	APO-Omeprazole Maxor EC Tabs Omeprazole generichealth	GORD
11682W	omeprazole 20 mg enteric capsule, 30	1	5	\$16.51	APO-Omeprazole Maxor Omeprazole Sandoz Pemzo Pharmacor Omeprazole	GORD
8331L	omeprazole 20 mg enteric tablet, 30	1	1	\$16.51	APO-Omeprazole Maxor EC Tabs Omeprazole generichealth	Peptic ulcer, GORD
9109K	omeprazole 20 mg enteric tablet, 30	1	1	\$16.51	Acimax Tablets Omepral Omeprazole Sandoz	Peptic ulcer, GORD
1326T	omeprazole 20 mg enteric capsule, 30	1	1	\$16.51	APO-Omeprazole Maxor Omeprazole Sandoz Pemzo Pharmacor Omeprazole 20	Peptic ulcer, GORD
12270T	omeprazole 20 mg enteric tablet, 30	2	5	\$20.94	Acimax Tablets Omepral Omeprazole Sandoz	Complex GORD
12272X	omeprazole 20 mg enteric tablet, 30	2	5	\$20.94	APO-Omeprazole Maxor EC Tabs Omeprazole generichealth	Complex GORD
12281J	omeprazole 20 mg enteric capsule, 30	2	5	\$20.94	APO-Omeprazole Maxor Omeprazole Sandoz Pemzo Pharmacor Omeprazole 20	Complex GORD

Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
8399C	pantoprazole 20 mg enteric tablet, 30	1	5	\$13.65	APO-Pantoprazole NOUMED PANTOPRAZOLE Ozpan Panthron Pantoprazole APOTEX Pantoprazole generichealth Pantoprazole Sandoz Salpraz Somac Sozol	GORD, Scleroderma oesophagus, Zollinger- Ellison syndrome
9424B	pantoprazole 40 mg enteric coated granules, 30 sachets	1	5	\$33.20	Somac	Scleroderma oesophagus, Zollinger-Ellison syndrome
8008L	pantoprazole 40 mg enteric tablet, 30	1	5	\$14.66	APO-Pantoprazole I-Pantoprazole NOUMED PANTOPRAZOLE Ozpan Panthron Pantoprazole AN Pantoprazole APOTEX Pantoprazole generichealth Pantoprazole Sandoz Salpraz	Scleroderma oesophagus, Zollinger-Ellison syndrome
11678P	pantoprazole 40 mg enteric coated granules, 30 sachets	1	5	\$33.20	Somac	GORD

Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
11681T	pantoprazole 40 mg enteric tablet, 30	1	5	\$14.66	APO-Pantoprazole I-Pantoprazole NOUMED PANTOPRAZOLE Ozpan Panthron Pantoprazole Pantoprazole APOTEX Pantoprazole generichealth Pantoprazole Sandoz Salpraz Somac Sozol	GORD
9423Y	pantoprazole 40 mg enteric coated granules, 30 sachets	1	1	\$33.20	Somac	Peptic Ulcer, GORD
8007K	pantoprazole 40 mg enteric tablet, 30	1	1	\$14.66	APO-Pantoprazole I-Pantoprazole NOUMED PANTOPRAZOLE Ozpan Panthron Pantoprazole AN Pantoprazole APOTEX Pantoprazole generichealth Pantoprazole Sandoz Salpraz Somac Sozol	Peptic Ulcer, GORD
12282K	pantoprazole 40 mg enteric coated granules, 30 sachets	2	5	\$54.32	Somac	Complex GORD

Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
12277E	pantoprazole 40 mg enteric tablet, 30	2	5	\$17.24	APO-Pantoprazole I-Pantoprazole NOUMED PANTOPRAZOLE Ozpan Panthron Pantoprazole AN Pantoprazole APOTEX Pantoprazole generichealth Pantoprazole Sandoz Salpraz Somac Sozol	Complex GORD
8507R	rabeprazole sodium 10 mg enteric tablet, 28	1	5	\$15.32	APO-Rabeprazole Parbezol Rabeprazole Sandoz	GORD, Scleroderma oesophagus
8508T	rabeprazole sodium 20 mg enteric tablet, 30	1	5	\$15.12	APO-Rabeprazole Parbezol Rabeprazole Mylan Rabeprazole Sandoz Rabeprazole SUN Zabep	Scleroderma oesophagus
11670F	rabeprazole sodium 20 mg enteric tablet, 30	1	5	\$15.12	APO-Rabeprazole Parbezol Rabeprazole Mylan Rabeprazole Sandoz Rabeprazole SUN Zabep	GORD
8509W	rabeprazole sodium 20 mg enteric tablet, 30	1	1	\$15.12	APO-Rabeprazole	Peptic ulcer, GORD

Item	Name, form & strength, pack size	Max. quant.	Rpts	DPMQ	Brand name	Indication
					Parbezol Rabeprazole Mylan Rabeprazole Sandoz Rabeprazole SUN Zabep	
12286P	rabeprazole sodium 20 mg enteric tablet, 30	2	5	\$18.16	APO-Rabeprazole Parbezol Rabeprazole Mylan Rabeprazole Sandoz Rabeprazole SUN Zabep	GORD
10759G	esomeprazole 20 mg enteric tablet [14] (& amoxicillin 500 mg capsule [28] (&) clarithromycin 500 mg tablet [14], 1 pack	1	0	\$37.51	ESOMEPRAZOLE SANDOZ	Eradication of Helicobacter pylori
8738X	esomeprazole 20 mg enteric tablet [14] (& amoxicillin 500 mg capsule [28] (&) clarithromycin 500 mg tablet [14], 1 pack	1	0	\$41.09	Nexium Hp7	Eradication of Helicobacter pylori

Source: the [PBS website](#).