NHS
South East London
Clinical Commissioning Group

Long Term Proton Pump Inhibitor (PPI) Review Guidance in Primary Care: Deprescribing Algorithm (Adults)

Why has patient been prescribed a PPI for more than 4-8 weeks treatment dose?
If unsure has patient: Previously had an endoscopy/Been hospitalised for bleeding ulcer/Is taking PPI for gastroprotection against ulcerogenic medicine/ Has heartburn/dyspepsia?

Indication still unknown

- **Un-investigated Dyspepsia**
- **Functional Dyspepsia**
- **Mild-Moderate GORD** (confirmed with endoscopy. Treated 4-8 weeks (oesophagitis healed, symptoms controlled)

- **Peptic Ulcer Disease** treated for 2-12 weeks (from NSAID use; H. pylori)
- **Upper GI symptoms without endoscopy** – asymptomatic for 3 consecutive days
- **ICU/surgery stress ulcer prophylaxis treated beyond hospital admission**
- **Uncomplicated H.pylori** treated for 2 weeks and now asymptomatic

- **Barrett's Oesophagus**
- **Oesophageal stricture dilation**
- **Severe oesophagitis /GORD** complicated by past strictures, ulcers or haemorrhage
- **Previous peptic ulcer with haemorrhage**
- **Zollinger- Ellison Syndrome**
- **On-going uncontrolled GORD**
- **Gastroprotection** : from ulcerogenic medicine e.g. Dual Antiplatelet/NSAID/Antiplatelet/Corticosteroid/ Anticoagulant/SSRI/SNRI/Carbocisteine and at high risk of GI bleed (see section 4):

Recommend Deprescribing PPI:

1. **Alternate day therapy for 1-2 weeks before discontinuation** (prevent rebound acid hypersecretion)
2. **Stop and use on demand for 4 weeks**
3. **Taper to lower dose and review after 4 weeks. After this can consider stopping:** Evidence suggests no increased risk in return of symptoms compared with continuing higher dose.

If low risk can potentially ulcerogenic medicine be stopped?

Continue PPI.

Review dose and step down to the lowest effective dose and **Review annually**
If risk of osteoporosis consider fracture risk assessment and change to H2 receptor antagonist if clinically appropriate.

Monitor at 4 and 12 weeks :
Heartburn/ Dyspepsia/Regurgitation/Epigastric Pain/Loss of appetite/Weight loss

Non-Pharmacological Intereventions: avoid eating 2-3 hours before bedtime; elevate head of bed; weight loss; smoking; alcohol; dietary triggers e.g. caffeine, chocolate, fatty food, spice, fizzy drinks

Manage Occasional Symptoms using:
OTC products

If symptoms relapse:
If symptoms persist for more than 3-7 days and interfere with normal activity:
1) Test and treat for H.pylori
2) Consider returning to previous dose
3) Consider stopping PPI after 4 weeks

1. Principles for Prescribing

- **Diagnosis, referral and management should follow NICE CG184 2014: Gastro-oesophageal reflux disease and dyspepsia in adults: investigation and management:** https://www.nice.org.uk/guidance/cg184
- Only prescribe PPIs for clearly **documented indications** for a **short duration** and careful consideration should be given before prescribing long term PPIs.
- **Manage patient expectations**: Explain to patients that over time their dose may be reduced and they may be asked to stop treatment once symptoms are well controlled. Manage repeats and review regularly. Only put PPI on a repeat if long-term therapy has been established.
- Intermittent courses should be used to control symptoms and/or promote healing, typically up to 4–8 weeks.
- All newly initiated PPIs should be **reviewed** after four weeks and repeat PPI prescriptions should be reviewed at a minimum **annually**.
- Step down to the lowest effective dose required to control symptoms, using PPIs 'as required' or stopping treatment where appropriate. **For dosage regimes see Tables 1,2 and 3**. Use patient letter in Appendix 1
  - **Step-down:** Options include reducing the daily PPI dose, giving doses on alternate days or using PPIs 'as required'
  - **Stop-PPI:** Gradual dose reduction of PPI treatment can help prevent rebound acid hypersecretion. Alternate day therapy for 1-2 weeks before discontinuation is another option. **See flow chart for stepping down.**
- Review medication for possible causes of dyspepsia. These include **calcium channel blockers, nitrates, theophyllines, bisphosphonates, corticosteroids, SSRIs or NSAIDs**
- Patients undergoing endoscopy should be free from medication with either a PPI or an H2-receptor antagonist for a minimum of 2 week

2. Self-Care

- Check lifestyle advice, e.g. healthy eating, weight reduction and smoking cessation (**all patients should be given this advice)**
  - Advise the patient to **avoid alcohol, coffee, fizzy drinks, chocolate and fatty foods, or food/drink** which exacerbates symptoms. Having the main meal **3-4 hours before bedtime, avoiding large meals and raising the head of the bed may also help**.
  - Address psychosocial triggers, such as **stress**.
- Promote **symptomatic use of alginates/antacids** when required purchased over the counter (OTC). They can also help reduce rebound acid hypersecretion when reducing PPI therapy.
- OTC H2- receptor antagonists (e.g. ranitidine) or OTC PPI can be tried if antacids have failed.

3. Indication for long term PPI use

- There are indications where the benefits of long term PPI use outweigh the risks:
  - Barrett's Oesophagus
  - Oesophageal stricture dilation
  - Severe oesophagitis complicated by past strictures, ulcers or haemorrhage
  - Previous peptic ulcer with major haemorrhage
  - Zollinger- Ellison Syndrome
  - Gastroprotection from potentially ulcerogenic medication in at risk patients: e.g. anti-platelets, anti-coagulants, NSAIDs, corticosteroids (this list is not exhaustive)

4. Risk Assessment Criteria for Patients taking NSAIDs, Antiplatelets, Anticoagulants or Corticosteroids

- When using PPIs for medication prophylaxis they are only licensed for the prevention of NSAID-associated gastric and duodenal ulcers in patients at risk.
- Use for prophylaxis with antiplatelets, anti-coagulants and corticosteroids in at risk patients is good practice but there is no national guidance on dosage. Dosage should be individualised with lowest dose to control symptoms but equivalent with licensed NSAID prophylaxis advice is reasonable as per Table 1 below.

- **TABLE 1:** Licensed doses of proton pump inhibitors used for gastroprotection for people who require continued NSAID treatment.

PPI	Dose for NSAID prophylaxis[9]
Lansoprazole	15–30 mg once daily
Omeprazole	20 mg once daily
Pantoprazole	20 mg once daily

4.1 Risk factors for Medication Induced Gasto-Intestinal Adverse Effects

- Aged >65 years
- History of gastroduodenal ulcer, GI bleeding, or gastroduodenal perforation
- Heavy smoking
- Excessive alcohol consumption.
- A serious comorbidity, such as cardiovascular disease, hepatic or renal impairment (including dehydration), diabetes, or hypertension
- Concomitant use of medications that are known to increase the likelihood of upper GI adverse events (e.g. antiplatelets, NSAIDs, anticoagulants, corticosteroids, SSRIs, SNRIs (venlafaxine/duloxetine) and carbocisteine
- Previous adverse reaction to NSAIDs.
- Prolonged requirement for NSAIDs.
- High dose of NSAID

  - **Low Risk** if patient has no risk factors: Deprescribe PPI if clinically appropriate.
  - **Moderate Risk** if patient has 1–2 risk factors: *Continue PPI.*
  - **High Risk** if patient has more than two risk factors: *Continue PPI.*

5. PPI Choice

- Prescribe low acquisition cost PPIs in preference to high acquisition cost PPIs:
  - **Omeprazole capsules are first line choice** in South East London, (omeprazole tablets have a higher cost)
  - **Lansoprazole capsules** should be used if patient is on clopidogrel (MHRA – 2014), use pantoprazole if intolerant.
  - **Omeprazole dispersible tablets - Do not use in adult patients**, these are reserved for paediatric indications.
  - **Lansoprazole dispersible tablets** are dispersible PPI of choice in adult patients. They can be used for patients with swallowing issues and enteral feeding tubes
  - **Esomeprazole and Rabeprazole are non-formulary and should not be initiated in SEL.** Existing patient should be reviewed with aim of changing to clinically appropriate PPI.

TABLE 2: Dosage information on PPIs – as per NICE CG184

Proton pump inhibitor	Full/standard dose	Low dose (on-demand dose)	Double dose
Omeprazole (1st line)	20mg once a day	10mg[1] once a day	40mg once a day
Lansoprazole (2nd line)	30mg once a day	15mg once a day	30mg[1] twice a day
Pantoprazole (3rd line)	40mg once a day	20mg once a day	40mg[1] twice a day
[1]*Off-label dose for GORD*			

TABLE 3 – PPI doses for severe oesophagitis – as per NICE CG184

Proton pump inhibitor	Full/standard dose	Low dose (on-demand dose)	Double dose
Omeprazole (1st line)	40mg[1] once a day	20mg[1] once a day	40mg[1] twice a day
Lansoprazole (2nd line)	30mg once a day	15mg once a day	30mg[2] twice a day
Pantoprazole (3rd line)	40mg once a day	20mg once a day	40mg[1] twice a day
[1] *NICE CG184 updated dosing specifically for severe oesophagitis* [2]*Off-label dose for GORD*			

6. Risks of PPI

a) Clostridium difficile Infection (CDI)[2]

- Gastric acid suppression has been a suggested risk factor for CDI, as less acidic PPI treated gastric juices are less effective at killing bacterium and neutralising its toxin.
- Public Health England guidelines recommend that consideration be given to stopping or reviewing the need for PPIs in patients with or at high risk of CDI.
- Risk factors for CDI infection include **advanced age** (more than 65 years old), antibiotic use (most commonly the **broad spectrum antibiotics**: clindamycin, cephalosporins, quinolones and co-amoxiclav), **underlying morbidity**, **inflammatory bowel disease** and **hospitalisation**.
- Also take into account current incidence of CDI in the community.

b) Increased risk of Osteoporotic Fractures – MHRA 2012

- There is modest increase in risk of fracture with PPIs especially if used in **high doses**, in the **elderly** and **over long durations (>1year)**. Two meta-analyses suggest the risk of fracture is increased by 10-40% above baseline.
- PPIs should be used with caution in patients with other risk factors for bone fractures
- For people with risk factors for osteoporosis, calculate the 10-year fragility fracture risk prior to arranging a DXA scan to measure BMD.
- Consider using the online risk calculators QFracture® or FRAX®, which predict the absolute risk of hip fracture and major osteoporotic fractures (spine, wrist, hip, or shoulder) over 10 years.
- Risk increases with a longer duration of PPI use in post-menopausal women with a history of smoking, which is known to inhibit calcium absorption.
- Smoking and PPI use may have a synergistic effect on fracture risk mediated by impaired calcium absorption.
- Treat patients at risk of osteoporosis according to the current clinical guidelines and ensure they have an adequate intake of vitamin D and calcium
- Meta-analysis shows similar risks of fracture associated with PPIs but not H2 receptor antagonists e.g. ranitidine

c) Low risk of Subacute Cutaneous Lupus Erythematosus (SCLE) – MHRA 2015

- PPIs are associated with very infrequent cases of subacute cutaneous lupus erythematosus (SCLE), a non-scarring dermatosis that can develop in sun-exposed areas. If a patient treated with a PPI develops lesions, especially in sun-exposed areas of the skin and it is accompanied by arthralgia:
  1. Advise them to avoid exposing the skin to sunlight
  2. Consider SCLE as a possible diagnosis
  3. If SCLE is suspected discontinue the PPI and seek specialist advice if needed

d) Other adverse effects associated with PPI:

- Adverse effects of PPIs are usually mild and reversible; however, through case reports and observational studies (subject to bias and causation difficult to prove) long term PPI treatment may be associated with uncommon, serious adverse effects such as:
  - Hypomagnesaemia
  - Pneumonia
  - Rebound hypersecretion
  - Tubulo-interstitial nephritis (TIN)
  - Vitamin B12 deficiency
  - Hyponatraemia
  - Community acquired pneumonia

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APPENDIX 1: Patient Letter

[Practice name]
[Address]
[Tel]
[Fax]
[Email]

«PATIENT_Title» «PATIENT_Forename1» «PATIENT_Surname»
«PATIENT_House» «PATIENT_Road»
«PATIENT_Locality»
«PATIENT_Town»
«PATIENT_County»
«PATIENT_Postcode»

«SYSTEM_Date»

Dear «PATIENT_Title» «PATIENT_Surname»,

Re: Your proton pump inhibitor therapy

The practice is reviewing the use of a group of medicines known as Proton Pump Inhibitors (PPIs) in line with current National Institute for Health and Care Excellence (NICE) guidelines. PPIs work by reducing the acid produced in your stomach.

Indigestion (dyspepsia) is a feeling of pain or discomfort in the chest or stomach. This sometimes happens after eating or drinking. Other symptoms include feeling bloated, burping (belching) and feeling sick or being sick. PPIs are prescribed for 4 weeks to treat dyspepsia.

Acid reflux (gastro-oesophageal reflux disease [GORD]) causes heartburn – a burning sensation in the chest. It happens because some of the acidic stomach contents come back up the oesophagus towards the mouth, known as acid reflux. PPIs are also prescribed for 4 to 8 weeks to treat acid reflux. Some people have conditions that need long-term treatment with a PPI, your doctor will tell you if this is the case.

Our recent audit identified that you are being prescribed a PPI called [esomeprazole/lansoprazole/omeprazole/pantoprazole /rabeprazole [**delete as appropriate**] to treat [dyspepsia/GORD [**delete as appropriate**]].

You have been taking the PPI for longer than recommended by NICE, which could potentially lead to side-effects (e.g. osteoporosis). It is therefore recommended that: [**delete as appropriate**]

- **You need a review by your GP/practice pharmacist. Please book a routine appointment**
- **You should take on alternate days for 2 weeks and then stop taking**
- **You should take only when required for 4 weeks and then stop taking**
- **You should reduce the dose/strength of the PPI:**

OLD DOSAGE:
NEW DOSAGE:

In the meantime there are a number of dietary and lifestyle measures you can take to help improve symptoms, should you need to reduce or stop taking your medication, or only using it short-term when needed. We recommend the following changes that should make you feel better:

- Avoid or reduce smoking, alcohol, coffee, chocolate, fizzy drinks or fatty food, as these can cause dyspepsia.
- Eat healthily at regular times and eat your main meal well before bedtime (at least 3 hours before).
- Try to lose weight if you are overweight.
- Raise the head of your bed (using blocks under the legs of your bed) as this may help.
- **In some people dyspepsia may return on stopping the PPI, due to your stomach making more acid. If this happens, you can buy antacids from a pharmacy and take these for a short time.**

Please speak to your GP or pharmacist if you need further advice.

Yours sincerely

Dr XXX and partners

Further information on PPIs and dyspepsia or GORD can be found at:
http://www.nice.org.uk/guidance/CG184/InformationForPublic

http://www.nhs.uk/Conditions/Indigestion/Pages/Treatment.aspx

References

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12. Osteoporosis - prevention of fragility fractures. https://cks.nice.org.uk/osteoporosis-prevention-of-fragility-fractures#!scenario:1

Equality & Equity Impact Assessment & EDS2 Checklist

This is a checklist to ensure relevant equality and equity aspects of proposals have been addressed either in the main body of the document or in a separate equality & equity impact assessment (EIA)/ equality analysis. It is not a substitute for an EIA which is required unless it can be shown that a proposal has no capacity to influence equality. The checklist is to enable the policy lead and the relevant committee to see whether an EIA is required and to give assurance that the proposals will be legal, fair and equitable. The word proposal is a generic term for any policy, procedure or strategy that requires assessment.

	Equality Impact Checklist	**Yes/ No**	**Explain How you have considered impact yes /no and any valid legal and/or justifiable exception**
1	Does the proposal affect one group more or less favourably than another on the basis of:		
	Age - *Consider and detail (including the source of any evidence), across age ranges on old and younger people. This can include safeguarding, consent and child welfare.*	No	This guide is for adults only to review long term prescribing. Paediatric patients are not covered by this guideline. Paediatric patient long term treatment would involve discussion with clinical team and patient's parent/carer using dose as per BNFC. The guide is used to inform guidance, education and advice. Service users will need to be assessed as to their cognitive functions. Additionally children and young people will need to be assessed for their understanding and parents/carers involved where required.
	Disability (including learning disabilities, physical disability, sensory impairment and mental health problems)**,** *Consider and detail (including the source of any evidence), on attitudinal, physical and social barriers.*	No	No negative impacts identified. There is no evidence that this group is disproportionately affected or have a differential need. People with swallowing difficulties are recommended to use dispersible tablets. NHS Greenwich Borough recognises that people may not identify themselves as disabled and may be reluctant to do so. This can however, be a sensitive matter. Specific actions are in place to promote equal opportunity including: provision of reasonable adjustments; equality, diversity and human rights policy and staff training in regard to disability and raising awareness.
	Sex - *Consider and detail (including the source of any evidence) on men and women (potential to link to carers below)*	No	No negative impacts identified. There is no evidence that this group is disproportionately affected or have a differential need. It is essential that medicines are used in a way that is safe, efficient and appropriate to the person taking them. Involving the person or carer in that decision is important and the competency framework emphasises that.
	Gender and Gender Re-Assignment - *Consider and detail (including the source of any evidence), on transgender and transsexual people. This can include issues such as privacy of data and harassment.*	No	No negative impacts identified. There is no evidence that this group is disproportionately affected or have a differential need.

	Marriage or Civil Partnership - *Consider and detail (including the source of any evidence), on people with different partnerships*	No	No negative impacts identified. There is no evidence that this group is disproportionately affected or have a differential need.
	Pregnancy and Maternity - *Consider and detail (including the source of any evidence), on working arrangements, part time working, infant caring responsibilities*	No	Pregnant women are not covered by this guideline. This guideline is for long term prescribing of PPI. Prescribing in pregnancy would involve discussion with clinician and patient of risk benefit ratio,and dosage as per BNF. This guide does not affect protecting the health of mothers and their babies. The beginning of pregnancy to the end of maternity leave is a 'protected period' during which a woman is entitled to special consideration if this is necessary to make good any disadvantage she may otherwise experience.
	Race- *Consider and detail (including the source of any evidence) on different ethnic groups, nationalities, Roma gypsies, Irish travellers, language barriers*	No	This policy has no specific impact on people from protected groups. There is no evidence that this group is disproportionately affected or have a differential need. This guide will benefit everyone because as a standard, this practice will protect the service, employees and the public and for improving the care given to service users. This guide will support staff to practice safely and will support compassionate care for service users irrespective of race.
	Religion or belief - *Consider and detail (including the source of any evidence), on people with different religions, beliefs or no belief*	No	No negative impacts have been identified for this protected characteristic. There is no evidence that this group is disproportionately affected or have a differential need. The competency framework for the involved healthcare professionals needs to be adhered to during the course of practice at all time.
	Sexual orientation (including lesbian, gay bisexual and transgender people) - *Consider and detail (including the source of any evidence), on hexterosexual people as well as lesbian, gay and bi-sexual people.*	No	No negative impacts have been identified for this protected characteristic. There is no evidence that this group is disproportionately affected or have a differential need.
2	**Will the proposal have an impact on lifestyle?** *Consider and detail (including the source of any evidence) (e.g. diet and nutrition, exercise, physical activity, substance use, risk taking behaviour, education and learning)*	No	This guide will not have any negative impact on lifestyle. There is no evidence that this group is disproportionately affected or have a differential need. This guideline may result in patients adopting their lifestyle to improve their condition and leading to medication being stopped prescribing. This would be in line with NHS England guidance. It is essential that medicines are prescribed in a way that is safe, efficient and appropriate to the person taking them.

3	**Will the proposal have an impact on social environment? –** *(Consider and detail (including the source of any evidence)* *(e.g. social status, employment (whether paid or not), social/family support, stress, income Carers and general caring responsibilities)*	No	There will be no negative impact on social environment. There is no evidence that this group is disproportionately affected or have a differential need. This guideline may result in patients having to purchase medication over the counter as per NHS England Scheme. This is if the condition is minor, self-limiting and suitable for self-care.
4	**Will the proposal have an impact on physical environment?** *(e.g. living conditions, working conditions, pollution or climate change, accidental injury, public safety, transmission of infectious disease)*	No	There will be no negative impact on physical environment. There is no evidence that this group is disproportionately affected or have a differential need.
5	**Will the proposal affect access to or experience of services?** *(e.g. Health Care, Transport, Social Services, Housing Services, Education*)	No	Access to or experience of services will not be affected. This policy will benefit everyone who access the service and will help improve the experience and the care given service users.

Policy Author	**Signature:** Alexander Pini **Date:** 15/10/2020	
Equalities Lead	**Signature:** **Date:**	