

Assessing Geriatric Proton Pump Inhibitor Prescribing and Polypharmacy in General Practice with an Educational Intervention by Physiology Students

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Introduction

- Polypharmacy is a rising concern in the Scottish elderly population, with the Scottish Government and others taking steps to try to minimise its impact on health (see Fig. 1).
- Proton Pump Inhibitors (PPIs) are among the most widely sold and distributed drugs in the world and are overprescribed in primary health care settings.
- The older population are at a greater risk of side-effects when taking PPIs due to changes in their physiology during the ageing process.
- As part of the approach to widen the range of Honours projects undertaken by Honours Physiology students, we initiated a partnership with a GP practice to help them assess whether they were prescribing PPIs appropriately to their older population and to improve their understanding of deprescribing of PPI's.
- **We aimed to assess polypharmacy and PPI prescribing in the >75 year old population of Oakley Health Centre, in Fife, Scotland. This project also aimed to observe the efficacy of an intervention in reducing polypharmacy and promoting PPI deprescribing and to evaluate the attitudes of clinicians towards the use of PPIs and polypharmacy.**

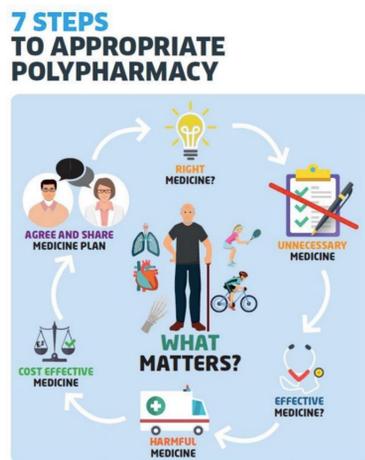
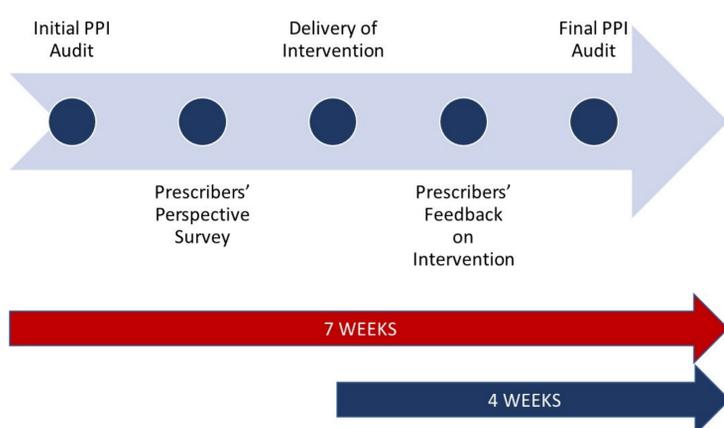


Figure 1. The seven steps to appropriate polypharmacy (Scottish Government, 2018).

Methods & Initial Results

- A two cycle audit of all patients over 75 years of age (n = 270) and an educational intervention were carried out between the 17th of January and the 7th of March 2019.
- The first audit undertaken was pre-intervention, and the second post-intervention, to assess effectiveness of intervention.
- An oral presentation, demonstration videos and an infographic algorithm were created for the educational intervention, presented to ten prescribing staff on the 6th February 2019.
- Two surveys were distributed, one assessing attitudes of staff towards deprescribing and polypharmacy, and one collecting opinions of the intervention and educational resources.



33%

Patients over 75 on PPI therapy

8.5 y

Mean duration of PPI therapy

90%

Patients prescribed >5 medications

2.3%

Co-prescribed omeprazole and clopidogrel against NICE guidance.



Results

- Given the short duration of this project, it was unlikely any significant changes in behaviours would be measured acutely.
- The first audit found 32.6% of patients >75 years old were on a repeat PPI prescription, and the second audit found 32.7% (p>0.05).
- The number of these patients on >5 additional medications was 89.8% in first audit, and 89.7% in second audit (p>0.05).
- Respondents also reported that they had had very little formal education on deprescribing, and that they felt there was a lack of resources to help them in this regard.

60%

Prescribers felt PPIs were over-prescribed.

83%

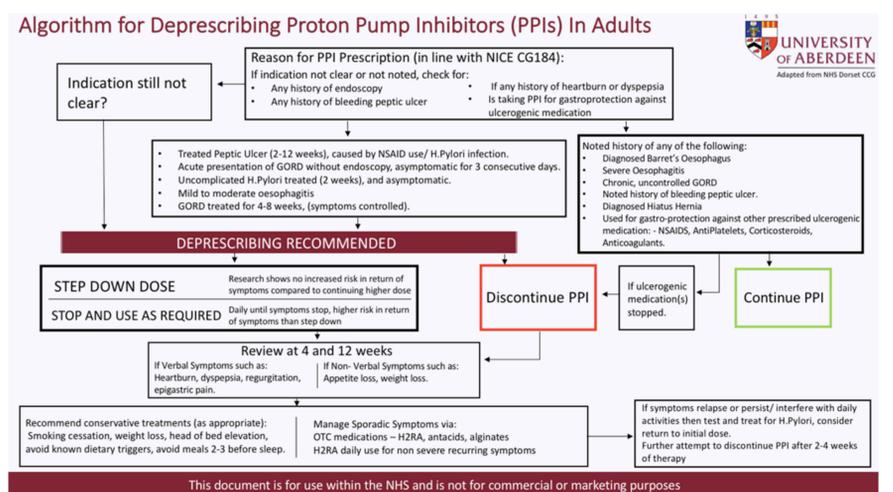
Felt the intervention made them more likely to deprescribe where appropriate

80%

Prescribers who had seen a patient prescribed a PPI for no noted indication.

50%

Prescribers who felt there was appropriate guidance on how to deprescribe medications.



Algorithm for Deprescribing Proton Pump Inhibitors (PPIs) In Adults

Notes/ Guidance

General Deprescribing Principles

- **Treat patient as individual** + involve them in decision making
 - Patients more likely to engage if they understand rationale for deprescribing
- **Taper dose** – Unless severe adverse drug event (ADE) or side effect occurs
- **Rationale** – Patients with multimorbidity are prescribed a large number of medications (polypharmacy)
 - This polypharmacy increases risk of ADE occurring
 - Stopping medication will reduce this risk and improve patient outcomes

Specific PPI Information

- Short PPI course with review with stopping criteria followed has some appropriate indications
- **Risk of long term PPI use:** ↑ fracture risk, C difficile infections, diarrhoea, community acquired pneumonia, vitamin B12 deficiency, hypomagnesaemia, dementia and chronic kidney disease.
- When on-going indication is unclear, risk of side effects may outweigh benefits
- **Tapering dose** – Gradual step-down method reduces risk of rebound acidity + need to re-prescribe
 - Advise patients there may be slight increase in symptoms for a few days
 - Lifestyle changes should be recommended along with reducing dose + frequency
 - Use shared decision making to understand what is convenient and suitable to the patient

References

PPI (ranks as increasing cost in October 2018 Drug Tariff)

PPI (formulation if appropriate)	Standard Dose (Healing) (once daily*)	Low Dose (Maintenance) (once daily)	Double Dose (twice daily†)
Omeprazole (gastro-resistant capsules)	20mg +	10mg +	40mg†
Lansoprazole (gastro-resistant capsules)	30mg +	15mg +	30mg
Pantoprazole	40mg	20mg	40mg
Rabeprazole	20mg	10mg	20mg
Esomeprazole	20mg*	Not available	40mg*

• Posology + administration method can be found in the drug's individual Summary of Product Characteristics (SPC)
 • * Can be sprinkled on food
 • † Standard dose PPI taken twice daily only indicated in treatment of peptic ulcer caused by H. pylori (PPI should be stopped following eradication unless otherwise indicated)
 • * Non-erosive reflux disease / † Reflux oesophagitis

Discussion

- Despite no significant change seen acutely post intervention in this short, time-limited project, the resources created were well received and have been shared with other prescribers.
- This project allowed prescribers who lacked time and resources to identify and deal with those patients who required urgent review of their medications.
- Results demonstrate the scale of local PPI overprescribing and polypharmacy, and a longer-term audit/ intervention has the potential to improve these issues more significantly.
- This project also demonstrates how physiology students may usefully contribute to quality improvement work with healthcare professionals.