

Reducing the Inappropriate Use of Proton Pump Inhibitors in an Internal Medicine Clinic

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BACKGROUND

- Proton pump inhibitors (PPI) are one of the most commonly prescribed medications in the primary care setting, and are generally considered to be safe and well-tolerated
- However, literature has shown that PPI use may be associated with a variety of significant adverse outcomes such as pneumonia, *Clostridium difficile* infection, increased fracture risk, drug interactions, electrolyte abnormalities, and increased cost
- The goal of this quality improvement project was to evaluate the incidence and prevalence of PPI prescriptions for non-guideline recommended indications in our internal medicine clinic and to then wean or discontinue their use

INTRODUCTION

- Since release in the 1990s, PPIs have radically changed the management of acid-related diseases, minimizing the role of surgery¹
- Established indications for PPI use include peptic ulcer disease (PUD), GERD, Zollinger-Ellison syndrome, primary prevention of NSAID/anti-platelet therapy-induced ulcers, and eradication of *Helicobacter pylori* infection²
- Various studies have shown that on average, 57% of general medicine wards patients are inappropriately prescribed anti-secretory therapy, primarily PPIs, during admission, while 50% of primary care patients are on PPIs with a lack of established indication¹
- The long-term use of PPIs for gastroesophageal reflux disease (GERD), Barrett's esophagus and non-steroidal anti-inflammatory drug (NSAID) bleeding prophylaxis doubled in the U.S. from 1999 to 2012, with follow-up studies indicating that the number of adverse effects doubled during this period³
- Physicians should regularly reassess the indications for and the efficacy of all prescribed therapies

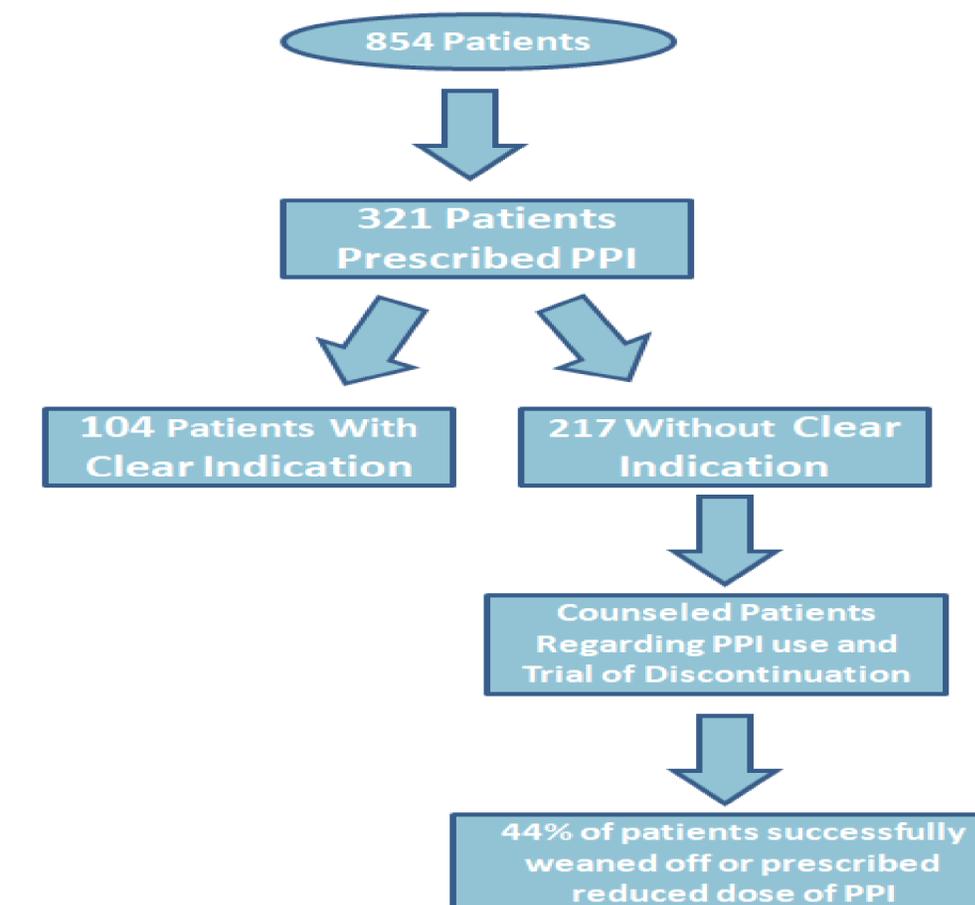
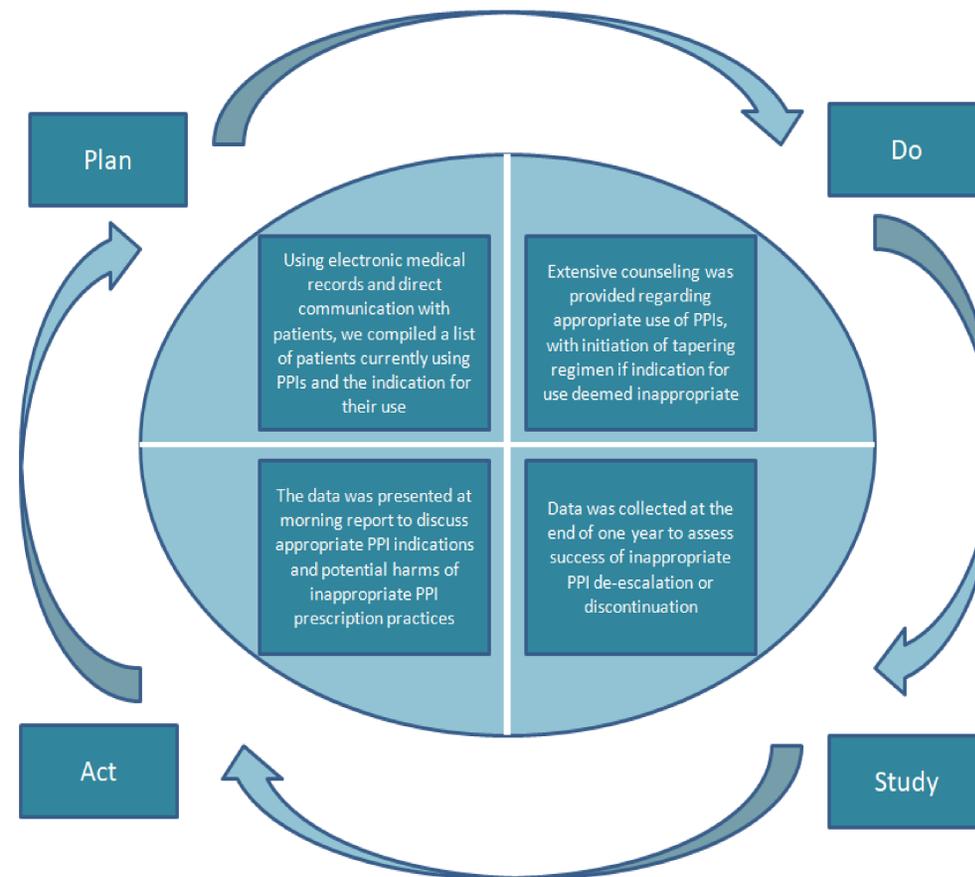
METHODS

- Within our 19 resident cohort, we performed a review of our empaneled patients to assess for active PPI use
- Using electronic medical records and direct communication with patients, we compiled a list of patients currently using PPIs and the indication for their use
- Our goal was to determine if the patient had a valid indication for PPI use per ACG, AGA, and ACP guidelines
- Patients without a valid indication were targeted for intervention

INTERVENTION

- We called our empaneled patients to verify the present indication for PPI use to assess if valid
- Extensive counseling was provided regarding appropriate use of PPIs with tapering of regimen if indication for use was deemed inappropriate
- For moderate to high dose PPI, the dose was decreased by 50% every week until the lowest dose could be achieved with cessation of the medication thereafter, if possible
- Alternative therapies such as H2-blockers were discussed and provided as necessary

RESULTS



DISCUSSION

- Despite a growing appreciation for the potential adverse effects of inappropriately-prescribed PPIs, numerous patients continue to have them prescribed without a clear, definitive indication
- In our outpatient clinic, nearly 40% of our empaneled patients were prescribed PPIs. Nearly 70% of those lacked a defined indication per accepted guidelines
- Counseling patients regarding the potential adverse effects of proton pump inhibitor usage is an effective way to decrease prescriptions. In our cohort of patients, counseling alone resulted in a 44% reduction in inappropriate PPI prescriptions
- In addition to the risk reduction to patient's health, educating providers and patients regarding PPI indications and trials of discontinuation have the potential for immense cost savings – up to nearly \$25K/month in our cycle⁴

CONCLUSION

- PPIs are widely-used and generally considered to be a well-tolerated therapy for acid-secretion disorders
- Recently, concerns have been raised about over-prescription and possible adverse effects of long-term use
- Although patients can be hesitant to discontinue chronic medications even with extensive clinical education, regular discussion and instruction about specific treatments is effective in reducing inappropriate use in the outpatient setting
- Physicians must regularly reassess prescribed therapies for clear and current indications as well as efficacy to ensure appropriate management of disease, reduced pill burden, and minimized drug interactions
- Further areas of interest include developing automated methods to trigger periodic reassessment of current prescriptions in our electronic medical record in order to continue to reduce inappropriate prescriptions for sustainable improvement

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