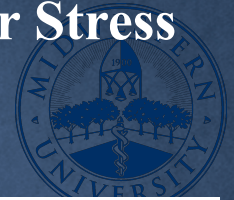


Implementation of an Automatic Electronic Pharmacy Consult for Stress Ulcer Prophylaxis Management in the ICU

Dr. Kathryn Wdowiarz PharmD, BCPS^{1,2}; Maria Ochoa PharmD Candidate¹
¹Midwestern University Chicago College of Pharmacy, ²Edward Elmhurst Health



Background

- High incidence of inappropriate stress ulcer prophylaxis (SUP) in inpatient setting^{1,5}
 - 22% of SUP is initiated inappropriately in low risk ICU patients
- Overuse of proton pump inhibitors (PPIs) linked to risk of *C. difficile* infections (CDIs) and other harmful adverse drug event^{1,2} PPIs considered an independent risk factor for *C. diff*.
- Currently no standardized process at Edward Hospital to manage SUP in the ICU, however pharmacist involvement in SUP management can increase appropriate use⁶

Objective

Describe the development and implementation of a novel pharmacy consult for the appropriate discontinuation of SUP in the ICU

Service Description and Implementation

- Institutional guidelines for SUP were developed in collaboration with the ICU Medical Director and a gastroenterologist
 - Critical care committee
 - Pharmacy and therapeutics committee
- The consult was embedded within two highly utilized order sets for ICU patients
 - Critical Care admission order set
 - Mechanical ventilation and sedation order set
- A process work flow was established

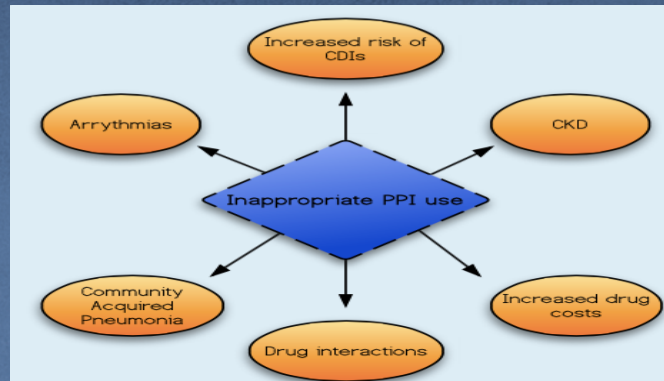


Fig. 1. Risks and adverse events due to inappropriate PPI use^{2,3,4,7}

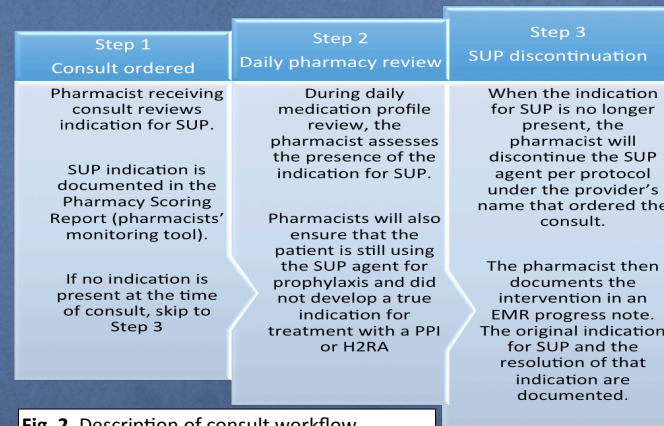


Fig. 2. Description of consult workflow

References

- Barletta JF, Salmaan K, McLaren R, et al. Pharmacoepidemiology of stress ulcer prophylaxis in the United States and Canada. *Journal of Critical Care* 2014, 29:955-960
- Barletta JF, Sclar DA. Proton pump inhibitors increase the risk for hospital-acquired *Clostridium difficile* infection in critically ill patients. *Critical Care* 2014, 18:714
- Heidelbaugh JJ, Kim AH, Chang R, et al. Overutilization of proton-pump inhibitors: what the clinician needs to know. *Ther Adv Gastroenterol* 2012, 5(4):219-232
- Janarthanan S, Ditah I, Adler DG, et al. *Clostridium difficile*-associated diarrhea and proton pump inhibitor therapy: a meta-analysis. *Am J Gastroenterol* 2012, 107:1001-1010
- Murphy CE, Stevens AM, Ferrentino N, et al. Frequency of inappropriate continuation of acid suppressive therapy after discharge in patients who began therapy in the surgical intensive care unit. *Pharmacotherapy*. 2008, 28(8):968-976
- Tasaka CL, Burg C, VasOsdol AJ, et al. An interprofessional approach to reducing the overutilization of stress ulcer prophylaxis in adult medical and surgical intensive care units. *Annals of Pharmacotherapy* 2014, 48(4):462-469
- Lazarus B, Chen Y, Wilson FP, et al. Proton pump inhibitor use and the risk of chronic kidney disease. *JAMA* 2016, 176(2):238-246

Impact

- Improve appropriate prescribing of SUP through pharmacist involvement
- Potential to decrease medication costs and improve patient outcomes
 - Decrease drug interactions
 - Decrease incidence of CDI rates and other adverse events
- Increase ICU pharmacist's role in drug safety

Limitations

- Use of consult limited due to lack of auto checking the consult option
- Ensure all physician groups agree with the use of the consult
- Time needed to train ICU pharmacists

Transferability and Future Plans

- Expansion into Cardiac Neuro ICU including order sets such as intracranial hemorrhage, stroke, TIA
- Inappropriate use of SUP on general medicine floors is widespread-a role exists outside of the ICU
- Consult can later be applied to the discharge medication reconciliation pharmacist role, preventing inappropriate prescriptions