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Optimization of Perioperative Prophylaxis in Penicillin-Allergic Labeled Patients

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Optimization of Perioperative Prophylaxis in Penicillin-Allergic Labeled Patients

Describe role of Submitting/Presenting Trainee in this project (limit 150 words):

The trainee was the primary researcher involved in development of this project, implementation of the QI methodology, and writing of this abstract.

Problem Statement/Question, Background/Project Intent (Aim Statement), Methods (include PDSA cycles), Results, Conclusions limited to 500 words

Problem Statement/Question:

A penicillin (PCN)-allergy label is life-long and has been shown to result in more costly, less effective, and broader-spectrum antibiotics being utilized for surgical prophylaxis. At CMH, 6.6% of surgical patients receiving perioperative antibiotics are labeled PCN-allergic. A common myth is that approximately 10% of patients with a PCN-allergy history will experience an allergic reaction if administered a cephalosporin, whereas recent observational studies have found cross-reactivity rates between 0.17-0.7%. Most of these patients receive a cefazolin alternative unnecessarily. Currently, no process exists to identify and clarify PCN-allergic patients preoperatively. Data from November 2018-December 2019 found ~2.33 patients per week with a PCN-allergy label were scheduled for non-spine orthopedic surgery. Prior studies found that without clarification, 26% of patients with PCN-allergy labels received cefazolin for surgical prophylaxis.

Background/Project Intent (Aim Statement):

The primary aim of this QI initiative is to increase clarification of PCN-allergy labels in patients scheduled for non-spine orthopedic surgery using a phone interview from 0% to 80% by January 2021. Secondary aims include increasing the use of cefazolin for surgical prophylaxis when appropriate and de-labeling patients with misclassified allergies.

Methods (include PDSA cycles):

PDSA 1 established a process where the surgical team could refer patients to a drug safety pharmacist for review of their drug allergy label prior to surgery. PDSA 2 utilized an automated tool to obtain a list of patients with PCN-allergy labels who were scheduled for orthopedic surgery. PDSA 3 implemented allergy clarification phone interviews by the QI team. PDSA 4 refined the patient list and timing of list generation. PDSA 5 included addition of a survey via EMR to clarify the drug allergy.

Results:

PDSA 1 identified 0.4 patients/week. 19 patient allergy-labels were clarified. Of the 15 patients who were recommended to receive cefazolin, 3 did not receive surgical prophylaxis, 1 received a cefazolin-alternative, and 11 received cefazolin successfully.

PDSA 2's automated tool identified 2.4 patients/week. None of these patients were referred for drug allergy clarification with the physician-referral-method (PDSA 1). 75% of patients with previously clarified PCN-allergies received cefazolin, whereas 25% of patients with an "unknown severity" label received cefazolin.

PDSA 3 found 2.8 patients/week. 80% of clarified labels were recommended to receive cefazolin. Patients with a clarified drug allergy label had a significantly higher proportion of

receiving cefazolin (93%) when compared to patients that had not been clarified (26%; OR 3.4286; 95% CI 1.2512 to 9.3953; P = 0.0166).

PDSA 4's refined process allowed clarification of 91% of identified patients, 95% of which successfully received cefazolin. This process increased the percent of patients clarified by 27% (95% CI 9.5048% to 44.7701%; P = 0.0018).

PDSA 5 implemented an electronic allergy interview that was sent to patients to further automate the interview process. 13% of surveys distributed were returned, and 50% of returned surveys required phone interviews for additional clarification.

Conclusions:

Automation of identification of patients with a PCN-allergy label improves percentage of patients referred for clarification. Appropriate clarification and documentation of a PCN-allergy labels increases the use of cefazolin for surgical prophylaxis. Further strategies to standardize this process to replace or supplement phone calls could make the process more efficient.