

Integration of a Post-operative Opioid Calculator into an Academic Gynecologic Surgery Practice

Nicole C. Zanolli, BA¹, William Knechtle, MPH, MBA², Mark Sendak, MD, MPP², Laura J. Havrilesky, MD³, Brittany A. Davidson, MD³

¹ Duke University School of Medicine ² Duke Institute for Health Innovation ³ Duke University Department of Obstetrics and Gynecology

Background.

The opioid epidemic is an immense problem in the United States, one that is fueled by the over prescription of opioids post-operatively. The COVID pandemic has only exacerbated this problem, and the number of opioid-related deaths is increasing nationwide. At our institution, a median of 15 pills were prescribed following surgery with the Gynecologic Oncology division; nearly 40% were never used and thus available for misuse, divergence, or inappropriate disposal. In an effort to help mitigate this problem, we developed and validated the Gynecologic Oncology Postoperative Opioid Predictive (GO-POP) calculator, which uses 7 variables (self-reported pre-operative anxiety, anticipated opioid use, age, operative time, pregabalin administration, education, and smoking history) to guide post-operative opioid prescribing. The objectives of this quality improvement initiative were to development a mobile application using the GO-POP algorithm and evaluate the success of implementing GO-POP using: 1. Pre-operative documentation 2. Documentation of GO-POP use at discharge 3. Number of opioids prescribed.

Methods.

Through a partnership with the Duke Institute for Health Innovation, a mobile application was developed using Tableau to facilitate use of GO-POP in clinical practice. The application pulls relevant patient factors from the electronic health record (EHR) and uses the previously validated algorithm to generate a predicted number of pills a patient may need. To ensure all necessary information was present in the EHR, questionnaires regarding pre-operative anxiety and anticipated need for pain medication were integrated into pre-operative gynecologic oncology appointments. EHR templates were created to facilitate documentation. Relevant providers were instructed on use of the mobile application and GO-POP to guide post-operative prescribing. Information regarding documentation of pre-operative questions, GO-POP use, and opioid prescription at discharge was collected from 11/1/21- 2/25/22. Chi-square and Wilcoxon rank-sum tests were used for categorical and continuous data, respectively.

Results.

A mobile app was created using the Tableau platform. End users were educated on its use in the clinical work flow. 229 patients were included for analysis. GO-POP was used to prescribe post-operative opioids for 72 patients (31.4%). Documentation of pre-operative questionnaires improved from 44.4% to 78.4% ($p < .001$) between the first and last months of the study period. Post-operative documentation of GO-POP use remained relatively stable (66.7% to 82.4%; $p = .059$). Utilization of GO-POP post-operatively improved from 31.7% to 58.8% ($p = .004$). The median number of pills prescribed before and after implementation was 15 vs. 10 ($p < .001$).

Conclusion.

As seen through the increased documentation and use of GO-POP throughout the study period, routine use and uptake of newly implemented tools takes time and requires coordination and engagement across the healthcare team. However, compared to the pre-implementation period, the implementation of GO-POP decreased the number of opioids being prescribed. Given the success, we plan to continue GO-POP use in the Gynecologic Oncology division and hope to expand the use of the GO-POP mobile application to other divisions.