Better than Benzos: Decreasing Benzodiazepine Use in Elderly Patients

Category of submission (select as many as apply):

Choosing Wisely
Reducing Disparities
Resident/Fellow Project

IOM Domains that this project addresses (select as many as apply)

Safety
Patient Centered

Please share how you defined your project. Consider addressing the questions below. (Max 500 Words)
What was the identified Quality Gap? - What was the improvement target? - What was the timeline of the project? - Who were the stakeholders? - What was the stakeholders' input? - What was the method for collecting stakeholder input? - What was the potential for significant impact to the institution? - What was the potential for significant impact to society?

Management of the acutely agitated patient is a common scenario faced by emergency medicine (EM) providers. Benzodiazepines are frequently used in these situations (Wilson et al., 2012). However, given their deliriogenic potential, the use of benzodiazepines can be problematic in elderly patients who are at increased risk of delirium (Fosnight, 2011). In light of this, our team of resident physicians implemented a quality improvement project between July 2020 and June 2021 with the aim to reduce the percentage of elderly patients (ages 65 and over) who received benzodiazepines in the Emergency Department (ED) by 10% (from 2.39% to 2.15%). To accomplish this goal, we collaborated with a multidisciplinary team from neurology, geriatric medicine, anesthesia, and pharmacy to establish protocols for pharmacologic and non-pharmacologic interventions to address behavioral disturbances in elderly patients. This multidisciplinary approach to improve care for geriatric patients fits within our department's current engagement in a nationwide enrollment of academic emergency departments for geriatric-focused emergency care. Ultimately, our team believed that by limiting the side effects of pharmaceutical interventions elderly patients receive in the ED, they will have shorter hospital stays, fewer adverse events, and fewer readmissions. Mindful practice of demographic-specific medical intervention is the future of medical practice, and we chose to start with this particular segment of the population in hopes of improving outcomes, decreasing hospital costs, and upholding patient dignity and safety. Wilson MP, Pepper D, Currier GW, et al. The Psychopharmacology of Agitation: Consensus Statement of the American Association for Emergency Psychiatry Project BETA Psychopharmacology Workgroup. West J Emerg Med. 2012

Feb; 13(1):26-34. Fosnight S. Delirium in the Elderly. Geriatrics, Pharmacotherapy Self-Assessment Program. American College of Clinical Pharmacy; 7th edition (2011).

Please describe how you measured the problem. Consider addressing the questions below. (Max 500 Words)
What data sources were used? - Was a numeric baseline OUTCOME measure obtained? - What defined the sample size? - What counterbalance measures were identified? - What numeric baseline COUNTERBALANCES were obtained? - Was the outcome measure clinically relevant? - Was the outcome measure a nationally recognized measure?

We used data from Tag.bio, a data analytics company based at UCSF, to obtain data on UCSF patients ages 65 and over who received a benzodiazepine (diazepam, lorazepam, or midazolam) during their ED visit. Patients were excluded if they were prescribed a benzodiazepine by non-ED admitting providers as part of admission orders. We also excluded patients with primary or secondary ICD-10 codes of "seizure" or "alcohol withdrawal," and patients with chart documentation that demonstrated seizure, withdrawal, or palliative care as the indication for administration, since benzodiazepine use in these situations represents standard care. As a secondary outcome, we monitored the percentage of patients over 65 years old who received an antipsychotic medication (olanzapine, haloperidol, quetiapine, ziprasidone, or risperidone) during their ED stay. We expected this value to rise as providers were educated about alternative medications. Our baseline data from the 2020 fiscal year showed that benzodiazepines were administered in 138 (2.39%) of 5,770 encounters involving elderly patients discharged from the ED. Antipsychotics were administered in 73 (1.27%) of these encounters.

Please describe how you analyzed the problem. Consider addressing the questions below. (Max 500 Words)
What was one factor contributing to the gap? - Were multiple factors contributing to the gap? - Was a structured root cause analysis undertaken? - What was the appropriate QI method or tool used for root cause analysis? - Was a root cause analysis performed prior to identifying potential solutions? - What was the rationale for selecting intervention(s)? - Did the project use a QI method or tool for selecting intervention(s)?

Our team utilized the Fishbone and Five Whys techniques to identify factors contributing to benzodiazepine use in elderly patients. We identified ease of use as a primary contributing factor. Benzodiazepines are on the medication order "quicklist," making them easier to order than non-pharmacologic interventions such as reducing tethers (e.g. pulse-ox or telemetry cables), turning off lights, and employing activity aprons. We also determined that clinicians were more familiar with the dosing and effects of benzodiazepines compared to alternatives such as quetiapine. Nurses were typically more comfortable with benzodiazepines, as well, and rarely used non-pharmacologic methods or alternative medications. Non-pharmacological methods were also seen as time-consuming and ineffective by many team members. Lastly, clinicians expressed a lower degree of expertise and familiarity with alternative medication side effects, interactions, and need for an ECG prior to administration.

Please describe how you improved the problem. Consider addressing the questions below. (Max 500 Words)

What was the implementation of intervention(s) (date/time of go live)? - Was the target measure re-measured afterwards with comparison graph? - Was a structured plan for managing change used? - Was the project counterbalance re-measured with a comparison graph? - Was the counterbalance adversely affected? - Is the improvement in target outcome measure shown? - Was a statistical significance demonstrated in the outcome measure?

Based on our gap analysis, we utilized multiple interventions to decrease benzodiazepine use in our elderly patient population. We began by gathering a multidisciplinary group of clinicians from Geriatrics, Neurology, Anesthesia, Pharmacy, and EM to create evidence-based strategies that address behavioral disturbances in the elderly. We then created a multi-modal education campaign including signage in the ED, on-shift teaching points, promotion at educational conferences, and inclusion in our department's quality improvement newsletter and information platform (Elemeno). Simultaneously, we worked closely with nursing leadership to ensure nurses were actively engaged in the process. We increased the number of non-pharmacologic options to treat behavioral disturbances, including activity aprons, and built an EPIC order panel that allows clinicians to quickly and easily order appropriate interventions. Later in the process, we performed monthly chart reviews to determine the causes of continued benzodiazepine administration and better tailor our education and outreach. We identified anxiolysis for advanced imaging as a major contributor to benzodiazepine administration and, as a reaction plan, created an additional educational intervention to address this issue. Following implementation of one plan-do-study-act (PDSA) cycle, benzodiazepine administration in elderly patients discharged from the ED improved from 2.4% (138 out of 5770 encounters) in FY2020 to 2.1% (91 out of 4323 encounters) in FY2021, a decrease of 12.5%. Antipsychotic use increased from 1.3% in FY2020 to 1.6% in FY2021, an increase of 23%. These results demonstrate that quality improvement science can alter physician practice patterns and decrease benzodiazepine use in acutely agitated elderly patients.

Please describe the control phase of your project. Consider addressing the questions below.

What were the lessons learned from the project? - Was there communication to stakeholders of the summary of the project, and lessons learned? - Was a process owner identified? - Did the process owner acknowledge ownership of ongoing monitoring? - What control measures were identified? - What was the reaction plan for deficiencies identified in the control measure? - Was there at least one year of sustained monitoring demonstrated? - Was the project successfully diffused in scholarly form (i.e. poster, manuscript, etc)?

Through this quality improvement initiative, we learned two important lessons: 1) the importance of recurrent behavior reinforcement, and 2) the challenges of changing or stopping a particular behavior, particularly one with minimal immediate, tangible consequences such as complicated or recurrent hospitalizations. Throughout the project, we sent periodic reminders to residents and faculty about the initiative through educational conferences, on-shift teaching points, educational conference presentations, and newsletters. These notifications decreased in frequency from March through June, during which time benzodiazepine administration increased, demonstrating the importance of recurrent reminders. Prior quality improvement interventions undertaken by our

group have focused on encouraging providers to initiate a new behavior, such as implementing fascia iliaca blocks for patients with hip fractures. Conversely, in this project we encouraged providers to discontinue their practice of prescribing benzodiazepines. We found it considerably more difficult to affect a negative change than a positive one. By providing alternative pharmacologic and non-pharmacologic options, we encouraged shifts in behavior by facilitating positive change. Overall, our efforts were successful in reducing benzodiazepine use, which we believe will play a role in decreasing hospital costs and improving patient outcomes and safety. Following one year of sustained effort to reduce benzodiazepine administration to elderly patients, our guidelines have been adopted by our UCSF age-friendly ED initiative and incorporated into a broader geriatric-focused program. We are hopeful our intervention will continue to raise awareness about the potential harms of benzodiazepine prescription in elderly patients and empower providers with strategies to provide excellent care for this population.

Attachments

Betterthanbenzos_data

Betterthanbenzos_flyer

Betterthanbenzos_orderpanel