**Background**

The 2020 GME QI Initiative for Child Neurology focused on two identified areas for improvement:

1) **Discrete-Text Sig Use for Rescue Medications:** In early 2018, it was noted that order / dispensing discrepancies were responsible for 55% of 32 Neurology medication safety reports filed regarding IN midazolam (a seizure rescue medication). The high use of and variability in e-prescribed free-text sigs appeared to be a primary contributor. Discrete sigs, in contrast, utilize a short selection of predetermined phrases or doses to reduce errors or confusion created by interpretation of a sig.

2) **Admission Med Reconciliation:** In root cause analyses, errors in admission medication reconciliation have been shown to be a cause of unexpected seizures and other adverse events in admitted patients. In the first quarter of 2019, it was estimated that only 63% of the patients admitted to the Neurology primary inpatient service had a review of prior to admission (PTA) medications documented as complete.

**Aims and Metrics**

We aimed to:

1. Increase the percentage of discrete text sigs (compared to total prescriptions) for intranasal midazolam by the CHCO Neurology department to 75% (tier 1) or 85% or greater (tier 2), with free text sig % being collected using Tableau

2. Increase the percentage of Neurology primary team patients receiving a review of PTA medications to 75% (tier 1) or 90% or greater (Tier 2), with % completed being collected using a custom Epic report

**Key Interventions**

- Education was provided to neurology fellows and pediatric senior residents on the QI initiative for PTA med rec and discrete-text sig use (July 2019)
- Education on newly created discrete sig Epic SmartSet for IN Versed (Figures 1, 2) was provided to ED providers (Dec 2018), Neurology nursing and faculty (Feb 2019), Neurology residents (June 2019), and general pediatric residents (Apr and Aug 2019)
- An Epic change request was made to add a variable for PTA med rec completion to patient lists (Figure 3), to allow quick identification of patients on our team that had not had this completed yet (Feb 2020)

**Results and Outcomes**

- As seen in Figure 4, a significant increase in discrete text sig use was seen starting with initial education on the IN Versed SmartSet and adoption of this project for the GME Bonus Program. Although this use fell in the second half of the year, we have averaged above 80% for the majority of the year, a significant change from the prior baseline
- After a PTA Med Review column was added to Epic patient lists, a gradual increase in documentation of completed med review was seen, with a decrease in the month to month variability noted previously in baseline data.
- A concurrent increase (not shown) in discrete-text sig prescriptions for IN Versed in the ED was seen over this same time period

**Lessons Learned**

- It is difficult to make changes in the entrenched workflow of physicians through education alone. A combination of education and alterations to Epic (to accomplish the goals but minimize change to physician workflow) appeared to provide the greatest impact.
- A rotating cast of fellows, attendings, and senior residents made dissemination of our goals and reminders difficult, as each had differences in their personal workflow, which was responsible for much of the variability seen in our results
- While many patients may receive a medication reconciliation at our hospital on admission, few physicians or nurses document in a standardized fashion, making it difficult to obtain accurate measures

**Next Steps**

- The intranasal midazolam order set will continue to be tailored to enable ease of access and speed
- The PTA Med Review column, now that it is built into Epic, may be used by other teams looking to focus on medication safety
- Epic reports with improved identification of Primary Neurology Service patients were created during the course of this project, which may be used in other Neurology-specific QI initiatives