Seize the Moment: Clinical Decision Support for Timely Seizure Rescue Medication Orders

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BACKGROUND:

Patients admitted with epilepsy or new onset seizure should have a seizure precaution order and a seizure rescue plan.

OBJECTIVE

The goal of this project was to have appropriate seizure precautions orders for patients with a documented seizure disorder.

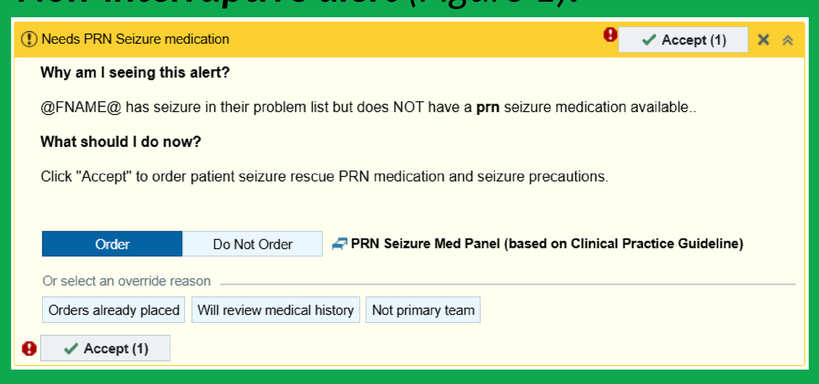
METHODS

- Iterative Clinical Decision Support (CDS) design via *in situ* formative usability testing and background testing
- Pre- post evaluation of alert firings, alert acceptance, and presence of seizure precaution orders across distinct encounters
- Study evaluation period – January 2024 to September 2025; non-interruptive alert in background from April 2024 to June 2024, user facing in July 2024; interruptive alert in background in July 2024, user facing in August 2024

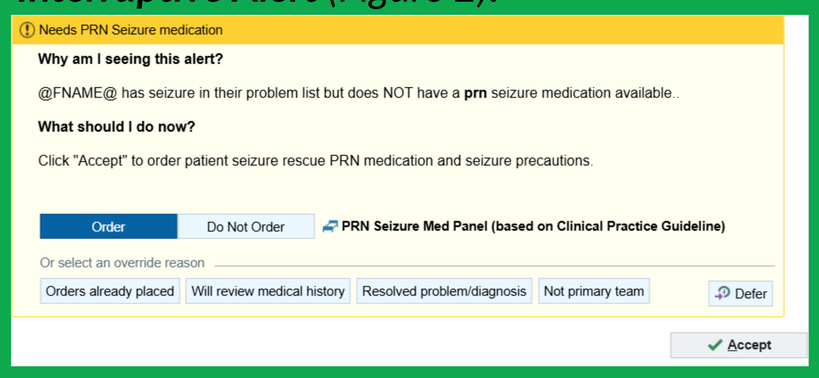
RESULTS

- *CDS:* Non-interruptive alert in the Admission Navigator, an interruptive alert for post-admission, and an order panel [Figures 1-3].
- *Formative Usability:* All providers asserted that ensuring access to seizure rescue medications is sufficiently critical to justify the implementation of an interruptive alert and expressed that the order panel effectively supported accurate medication ordering. [Table 1]
- *Alert Performance:* The non-interruptive alert was initiated about one month before the interruptive alert. From September 2024 to September 2025, the non-interruptive alert had an orders action 16% (472/3020) of the time and the interruptive alert had an orders action 30% (2185/7343) of the time (p<0.01). The non-interruptive alert has a repeat alert frequency of 1.7 per encounter with the interruptive alert repeat frequency at 5.2 per encounter. The order panel has been used 808 times during the same period. [Table 1]
- *Process Measure:* The presence of a seizure precaution order improved from January 2024 – July 2024 average of 47% (1433/3036) to September 2024 – September 2025 average of 58% (3441/5938). P<0.01 [Table 1]

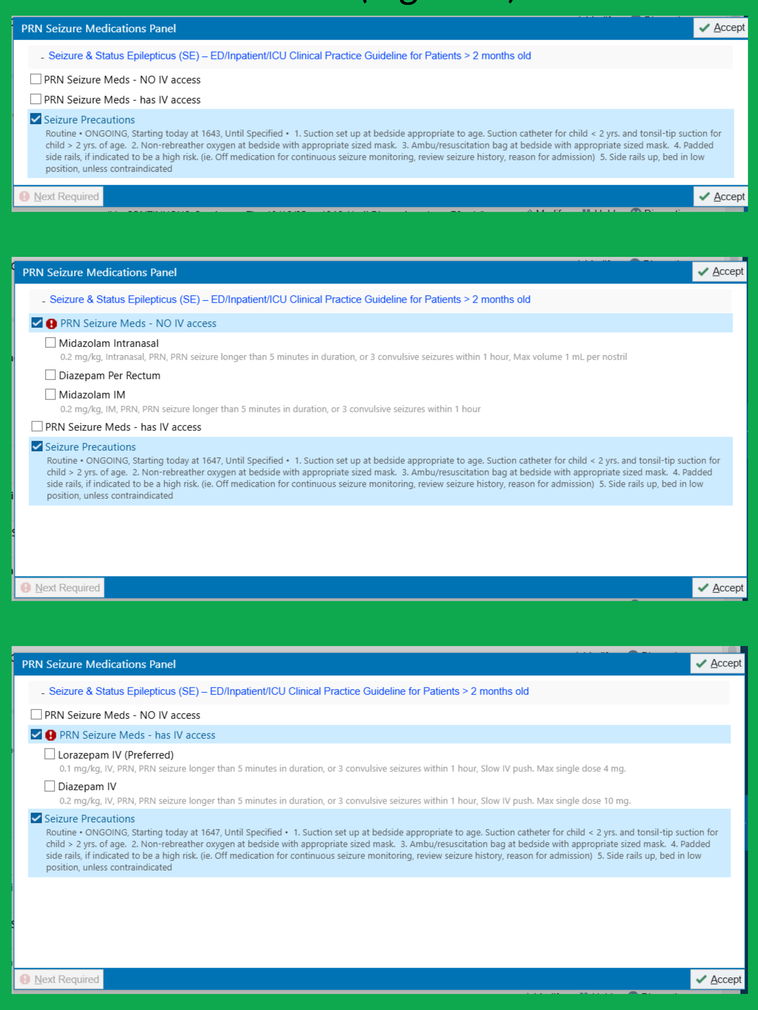
Non-interruptive alert *(Figure 1)*:



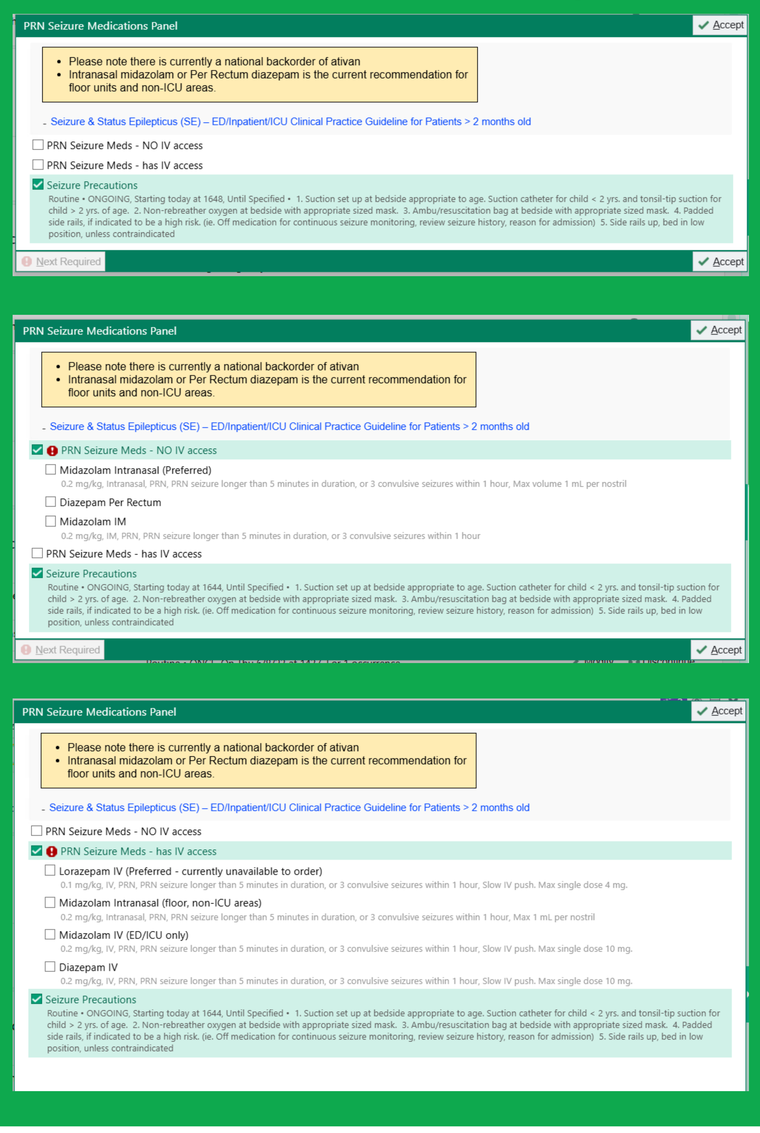
Interruptive Alert *(Figure 2)*:



Seizure Order Panel*(Figure 3)*:



Updated Seizure Order Panel *(Figure 4)*:



DISCUSSION

- *Impact of Lorazepam (Ativan) Shortage:* The alternative medication alert suggested an incorrect alternative medication requiring an update the medication order panel. [Figure 4].
- *Intensive Care Unit (ICU)*: Due to ongoing negative feedback, ICU access to emergency rescue medications without EHR orders, and practice preferences the Neonatal ICU was exclude from alerts in July 2025 and Cardiac ICU was excluded in August 2025. The Pediatric ICU requested to keep the alert active
- *Mismatch between Stated Behavior and Actual Behavior*: The mismatch between providers' perceived preferences and their actual decision-making behaviors illuminates the complex relationship between alert design, clinical workflow integration, and provider actions, indicating a need for further research and refinement of CDS strategies to enhance responsiveness and ultimately improve patient outcomes.

Alert Performance *(Table 1)*:

	In situ Formative Usability		Alert user facing 09/24 – 09/25	
	Perceived CDS	Placed Appropriate Orders	Single Orders Action	Repeat Alert Frequency/ encounter
Non-interruptive Alert	1/8	0/8	17% (244/1452)	1.7
Interruptive Alert	4/4	3/4	32% (1043/3267)	5.2

References upon request