# Lessons Learned from the Multidisciplinary Implementation of a Hospital-wide IV based Phenobarbital Withdrawal Pathway

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## Background

Alcohol withdrawal treatment poses significant clinical challenges, given its association with agitation, overlap with other clinical presentations, and potential for delirium tremens which carries a 5-15% mortality rate untreated (Nisavic, 2019). Phenobarbital is effective for alcohol withdrawal, including in general medical and surgical patients (Nisavic, 2019; Nejad, 2020), but there remains a lack of consensus around its use, and the vast majority of studies have been restricted to the intensive care unit (ICU) or emergency department (ED). Moreover, challenges often arise when patients are transferred between departments, depending on the experience of that unit with the treatment plan initiated (eg floor transfer from the ICU or ED). Such challenges risk biasing clinical decision-making based on anticipated patient disposition. Therefore, we desired to create a single phenobarbital-based alcohol withdrawal pathway the was independent of patient location.

## Methods

In March 2021, the CMO office at our institution formed an Alcohol Withdrawal Taskforce with representation from ICU, ED, hospital medicine, psychiatry, trauma surgery, nursing and pharmacy, tasked with the creation of a hospital-wide EMR-based order set that could be implemented irrespective of patient location without affecting patient bed requests (**Figure 1**).

**Figure 1: Key Stakeholders**

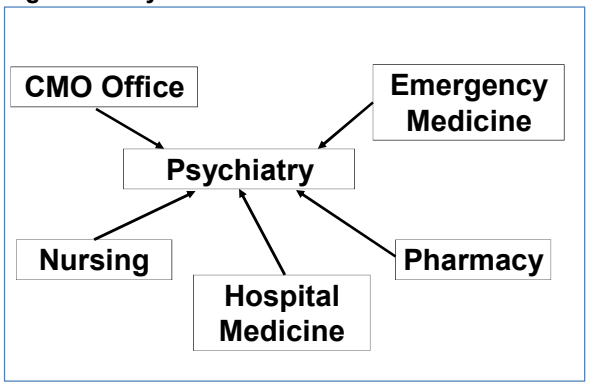
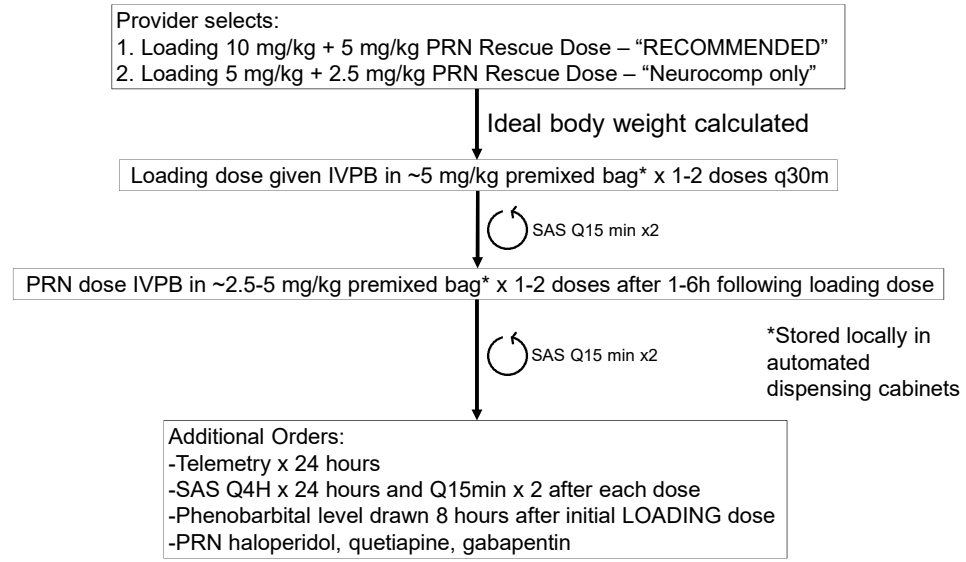



**Figure 2: Implementation Timeline**

March 2021 – CMO office launches "taskforce"
April-June 2021 – Taskforce met x 4
June-Aug 2021 – Nursing education review
Sept-Oct 2021 – Finalizing protocol
Dec 2021 – Provider education roll-out
January 12, 2022 – "Go Live" on med/surg

**Figure 3: Phenobarbital Protocol**




## Results

The Taskforce met regularly over the next few months to address challenges in various key patient care domains (**Figure 2**). Pharmacy introduced pre-mixed bags stored locally as well as dose rounding to improve "door to needle" delays in administration. Dosing route discussions balanced patient safety considerations with IV routing versus patient comfort and staff safety considerations with IM administration. Nursing workflows sought to ensure safety without straining staffing ratios. Adjunctive medication selection involved a multidisciplinary group across multiple hospitals on the same EMR to ensure changes did not compromise workflows in different hospitals. Phenobarbital levels were obtained routinely for real-time quality control and to ensure negative outcomes were properly attributed. Challenges regarding initial and on-going education of new trainees were addressed. After nearly 10 months, this protocol went live in January 2022 (**Figure 3**).

## Discussion

The success of this taskforce relied upon a multidisciplinary consensus-building process involving many stakeholders focusing on "real world" barriers such as medication-delivery, nursing implementation, and the clinical decision-making approaches of various clinical disciplines. While clinical outcomes data are pending, this taskforce fulfilled its mission to implement a unified EMR-based phenobarbital alcohol withdrawal pathway.

## Conclusions and Next Steps

We believe that in addition to improving treatment of alcohol withdrawal, this process serves as a model for the CL psychiatrist in implementing large-scale interventions across a hospital system.

## References

Nisavic M et al: Use of Phenobarbital in Alcohol Withdrawal Management: A Retrospective Comparison Study of Phenobarbital and Benzodiazepines for Acute Alcohol Withdrawal Management in General Medical Patients. Psychosomatics 2019;60:458-467.
Nejad S et al: Phenobarbital for Acute Alcohol Withdrawal Management in Surgical Trauma Patients—A Retrospective Comparison Study. Psychosomatics 2020;61:327–335.

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