

# An ASPEN Guideline-Directed Review of Hospital Discharge Parenteral Nutrition Orders Upon Transfer to the Home Setting

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# Background

Parenteral Nutrition (PN) is an essential therapy for a variety of indications in infants, children, and adults. PN is intravenously (IV) administered nutrition that bypasses the gastrointestinal (GI) system.<sup>1</sup> PN is indicated in those with diminished absorption or loss of nutrients, bowel obstructions, bowel rest, intestinal motility disorders, and the lack of enteral access.<sup>2</sup> While this is a life-saving therapy, it is complex and can be associated with adverse events due to complications of the PN formulation itself and the clinical indications within which it is used.<sup>3</sup>

The American Society for Parenteral and Enteral Nutrition (ASPEN) has published clinical guidelines for Parenteral Nutrition Ordering, Order Review, Compounding, Labeling, and Dispensing to guide clinicians through the complex process of PN therapy. The guidelines were published in 2014 and aimed to address the disparities in education, skills, and applications of PN therapy that could potentially lead to medication errors.<sup>3</sup> Although these guidelines exist, there is a lack of standardization among prescribers for a variety of reasons. The aim of this study was to analyze PN discharge orders for hospital to home transition and compare these orders to the Appropriate Dosing for Parenteral Nutrition: ASPEN Recommendations chart<sup>4</sup> for safe PN order writing.

## Purpose

The purpose of this study was to assess PN orders at hospital discharge for adherence to established guidelines.

### Methods

This study was a retrospective chart review assessing a random sample of 100 adult patients selected during a one-month period. This study utilized the Appropriate Dosing for Parenteral Nutrition: ASPEN Recommendations chart<sup>4</sup> to determine if orders reflected appropriate dosing, with a focus on micronutrients (*Table 1*). The review of non-compliance with the ASPEN guidelines included the number of missing micronutrients and the number of doses outside of the recommended ranges.

### Results

A total of 100 charts were reviewed from various locations across the United States. When looking at ASPEN dosing guideline recommendations for micronutrients specifically, 64 orders had elements that fell outside of the recommendations, including omission of a component.

Twenty-nine orders (29%) were missing a required component for a complete PN order. Of these 29 orders, 20 (69%) were missing one component, 8 (28%) were missing two components, and 1 (3%) was missing three components. Calcium was missing from 22 orders, followed by 5 orders which were missing trace element (TE), and 4 orders were missing phosphate (*Figure 1*).

Nine orders could not be changed due to stability requirements, leaving 55 orders total that were eligible for recommendations by the appropriate clinician. Of the 55 orders, 53 (96%) of the order recommendations were accepted or partially accepted (Figure 2).

# Table 1: ASPEN Guidelines Electrolyte Recommendations<sup>4</sup> Nutrient: Standard Daily Requirement: Calcium 10-15 mEq Magnesium 8-20 mEq Phosphorous 20-40 mmol Sodium 1-2 mEq/kg Potassium 1-2 mEq/kg

Acetate

Chloride

As needed to maintain acid-base balance

As needed to maintain acid-base balance

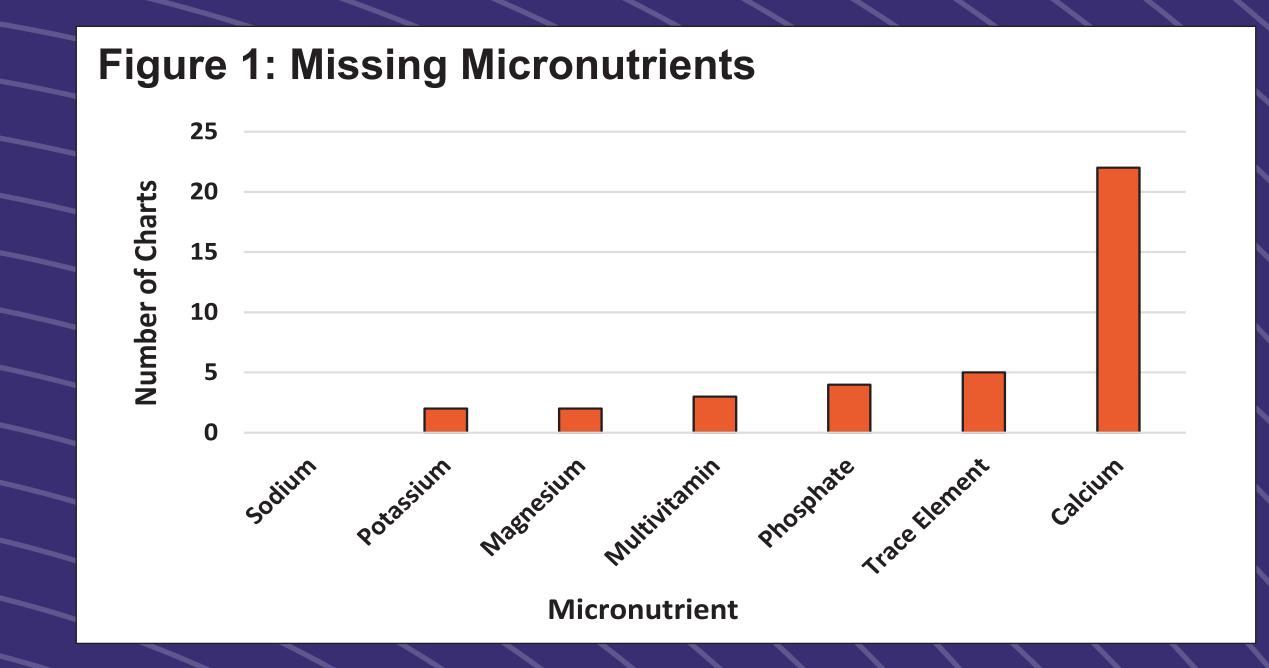
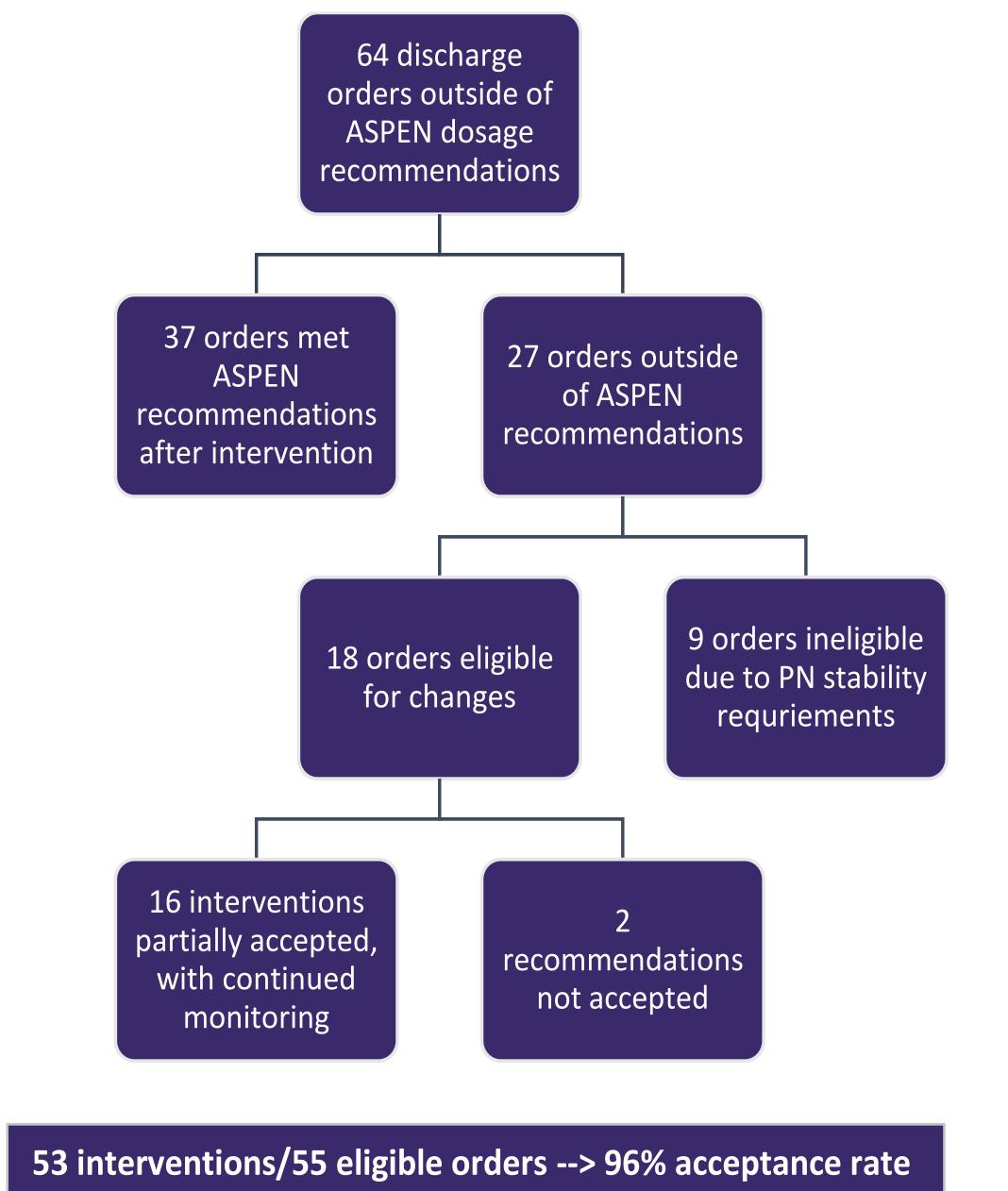


Figure 2: Micronutrient Dosage Interventions



### Discussion

Approximately one-third of the randomly selected charts contained hospital PN discharge orders that were missing components. When analyzing the hospital PN discharge orders more closely, it was determined that 64 out of 100 orders had micronutrients which were outside the recommended range provided by ASPEN Guidelines. Upon transfer to a home setting, discharge orders are reviewed for adherence to ASPEN Guidelines for safe PN writing and recommend appropriate changes.

A potential theory for missing micronutrients or dosages falling outside ASPEN guidelines is drug supply shortages in the hospital setting. A transition in care, such as from hospital to home, is an opportunity for PN orders to be re-evaluated comprehensively, understanding that drug shortages may vary across settings.

### Conclusion

The study results demonstrate that PN orders at hospital discharge do not always adhere to established guidelines when it comes to micronutrients. It is not uncommon for PN discharge orders to have missing ingredients and doses that fall outside the recommended range set by the ASPEN guidelines.

While this study focused on micronutrients, further research is required to examine safe PN order writing for macronutrients. Future research could also include an examination of the reasoning behind why hospital PN discharge orders do not always adhere to established guidelines.

### References

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### Disclosures

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation: Leah Coad; Maria Giannakos; Jessica Monczka: Nothing to disclose.