

# The Appropriate Initiation of Parenteral Nutrition per ASPEN Criteria in a Community Hospital

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## BACKGROUND

- Parenteral nutrition (PN) is an intravenous method of feeding a patient that bypasses the gastrointestinal tract.
- The American Society for Parenteral and Enteral Nutrition (ASPEN) has published guidelines for the proper initiation of PN because they are high-alert medications that can cause patient harm if misused<sup>1</sup>.
- The decision to initiate PN in patients should be clinically evaluated, as patients who receive PN inappropriately are at risk of complications such as increased risk of infection, metabolic complications related to overfeeding and refeeding, and increased possibility of other errors during preparation or transcription of PN<sup>2,3</sup>.

## OBJECTIVES

The objective of this study is to determine the appropriate initiation of PN according to ASPEN guidelines within the WellStar North Fulton campus.

## METHODS

### Inclusion Criteria:

- Patients ≥ 18 years of age
- All patients who had PN orders from January 1st, 2019 to July 19th, 2021

### Exclusion Criteria:

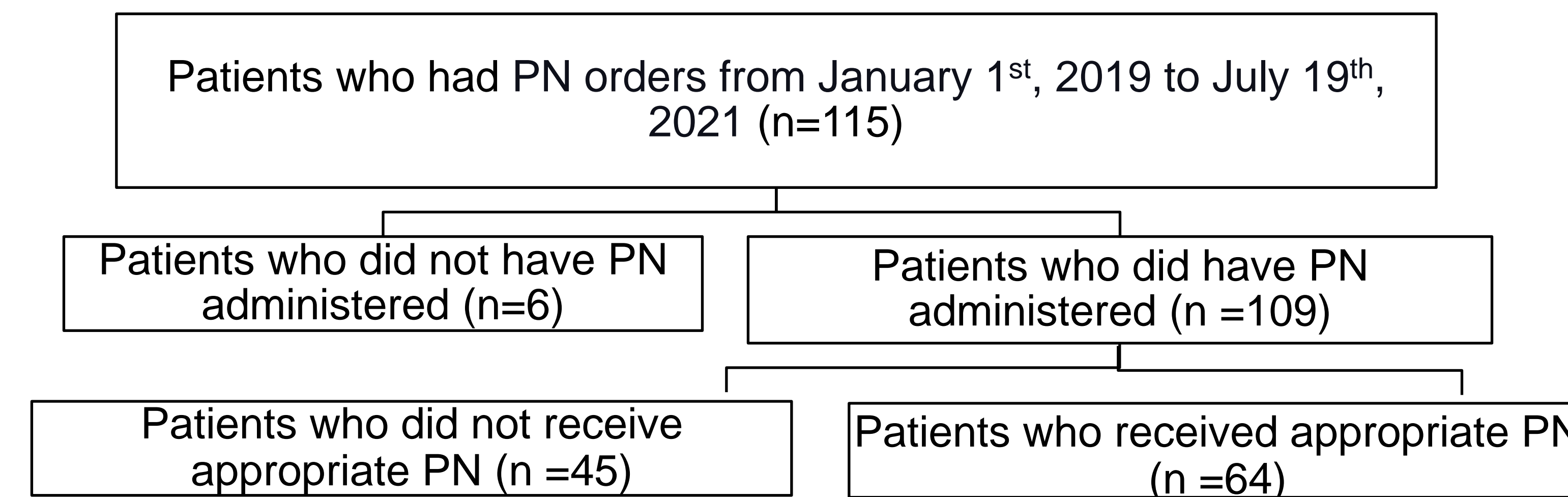
- Patients < 18 years of age
- Patients who had not received PN

### Data Collected:

- Patient demographics: age, gender, admission date, PN administration date and duration
- Appropriate use assessment:
  - Indication
  - Nutritional Status (malnourished/risk of malnutrition)
  - Enteral nutrition status
  - Timing and duration of PN
  - Clinical appropriateness

## RESULTS

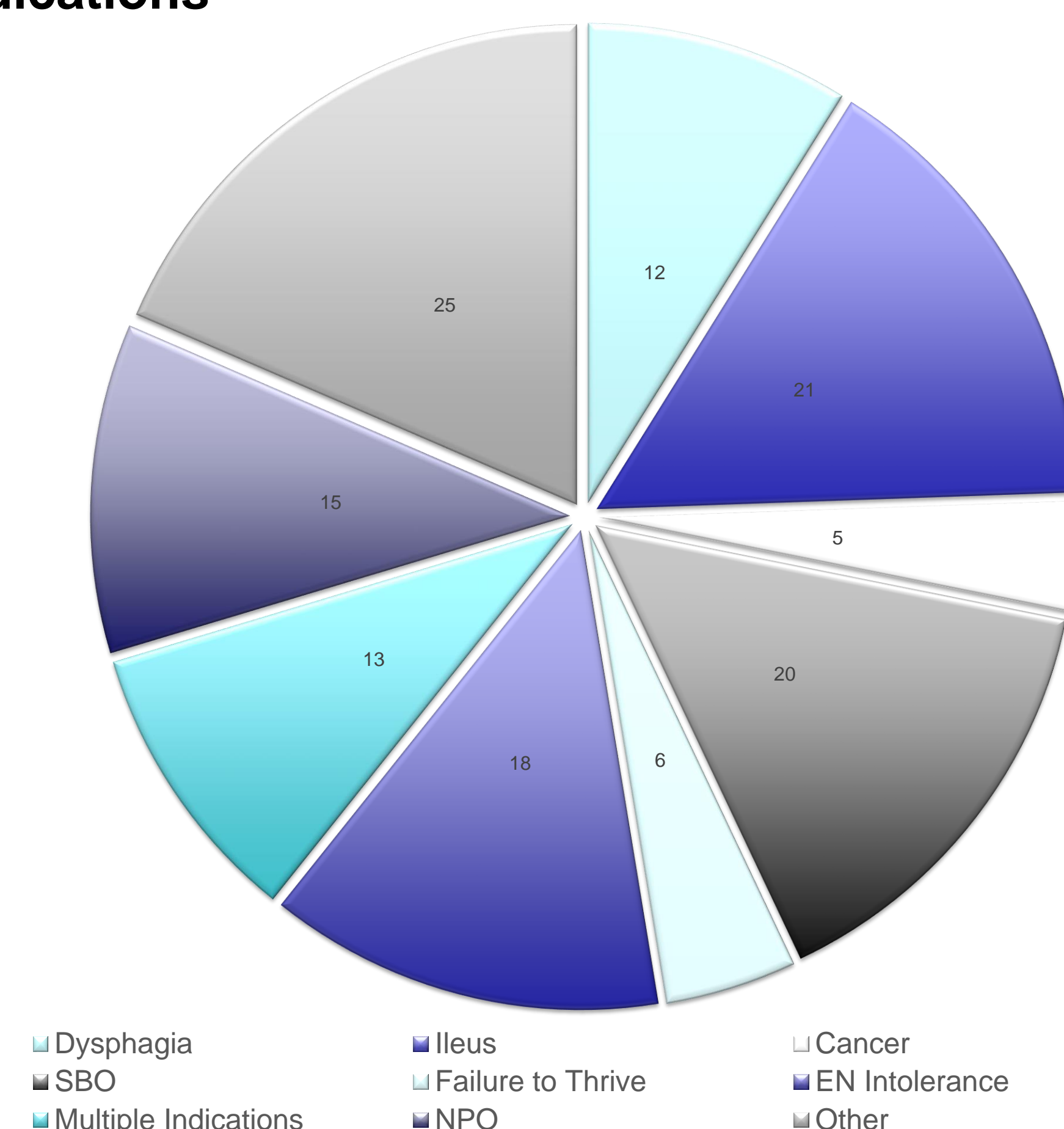
**Figure 1. Patient selection**



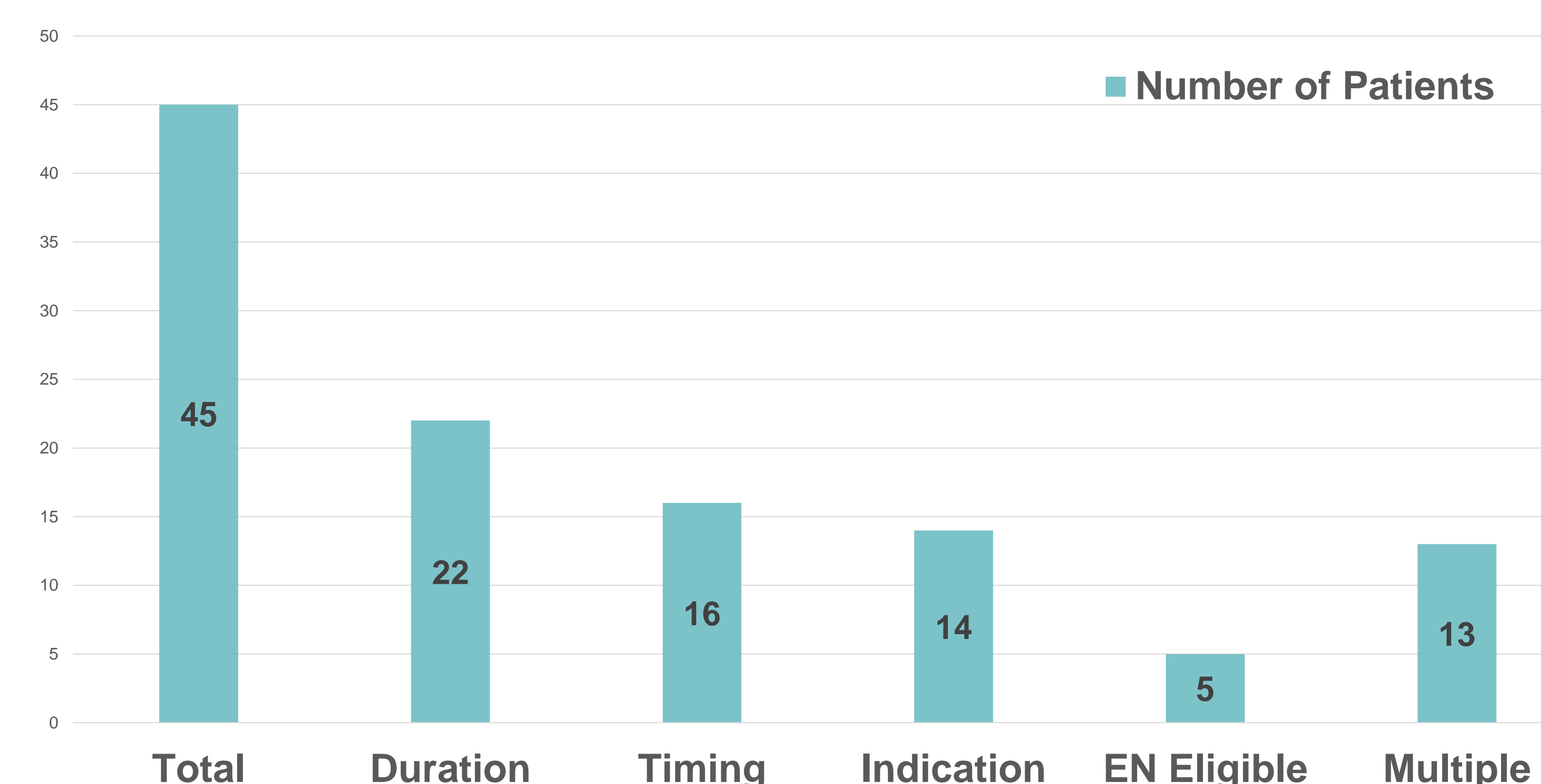
**Table 1. Baseline characteristics**

Gender, n (%)	Mean age, years, (SD)	Mean duration of PN, days (SD)
Female: 59 (54%) Male: 56 (46%)	66.3 (17.8)	7.5 (6.3)

**Figure 2. PN Indications**



**Figure 3. Inappropriate Use of PN per ASPEN criteria**



## DISCUSSION AND CONCLUSION

- During the study time period, a total of 45 patients out of 109 were found to have an inappropriate use of PN per ASPEN criteria (41.3%).
- Missing information in the electronic health record led to uncertain classification of appropriateness in 6 patients. These patients were marked as having an appropriate indication, therefore the overall results are skewed towards being more appropriate. If these patients would be counted as inappropriate, the results would indicate a higher rate of inappropriate use of PN (46.7%).
- The most common reasons for inappropriate use of PN was inappropriate duration (48.0%), timing (35.6%), and indication (31.3%). Additionally, a significant amount of patients had multiple reasons for inappropriate use (28.9%).
- Other PN indications in Figure 2 include nausea/vomiting, necrotic bowel, diverticulitis, acute pancreatitis, gastric perforations and colovesical fistula
- The average PN length was 7.5 days. Amongst patients who had received inappropriate PN, the average PN length was 4.0 days.
- There was a total of 808 days of PN administered during the time period with 217 of these days being classified as inappropriate per ASPEN criteria. This equates to a total loss of between \$10,839-\$13,775 due to inappropriate use of PN.
- Previous single-center studies have shown that prescriber education and order entry restrictions resulted in increased rates of appropriate PN administration<sup>4</sup>. In conclusion we recommend prescriber education by the pharmacy staff and implementation of order entry restrictions in order to improve the appropriate initiation of PN.

## REFERENCES

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