

Pump Infusion Volume versus Enteral Target (PIVET): A Re-Audit

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Introduction

In 2024, an audit in St Vincent's University Hospital identified an 8% discrepancy between infused and documented enteral volumes, with patients receiving 72% of prescribed feed. Suboptimal delivery increases malnutrition risk and length of stay. Subsequently, fluid balance education was added to nursing induction and dietitians were encouraged to use the 'pump history' function on Nutricia feeding pumps routinely during assessment.

The aims of our re-audit was to: (1) compare prescribed, pump-infused, and fluid balance-recorded enteral volumes; (2) assess documentation accuracy following additional training; and (3) evaluate dietitians' compliance with pump history use.

Methods

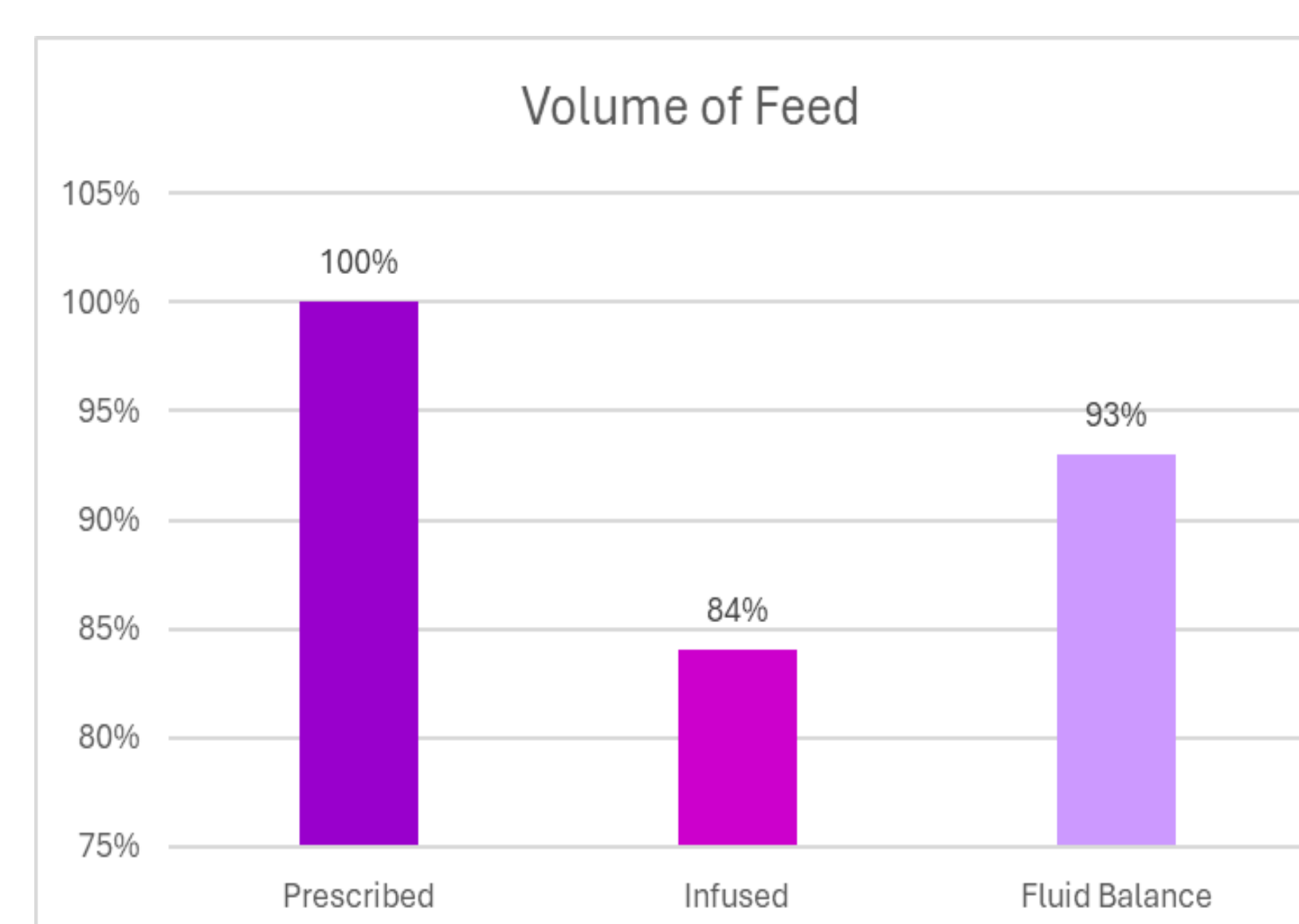
Our re-audit took place between May-July 2025.

This study was carried out prospectively on patients who were enterally fed using a pump (n = 23). One patient was excluded as volume provision was deemed an outlier due to inaccurate rate set on the pump.

The 72 hour pump history of each enteral feeding pump was checked by the dietitian using the 'pump history' function on the Nutricia feeding pump. The volume recorded by nursing staff in the fluid balance within this timeframe was calculated and recorded. The amount of feed prescribed during this timeframe was calculated. These three values were then compared to each other.

The healthcare record was checked to review documentation of pump history and feed adequacy within each dietitian assessment.

Results



The pump history suggested that on average 84% of prescribed enteral feed volume was infused. The fluid balance records suggested that 93% of prescribed enteral feed volume was infused. A visual representation of this can be seen in Figure 1.

Figure 1

From 23 charts audited, 61% of dietitian notes included reference to pump history, indicating a change in practice.

Conclusion

In clinical practice we aim to strive for nutritional adequacy of enteral feed equal to or greater than 80%. This audit demonstrates that this figure is being reached, at 84%. This is an improvement versus previous, when 72% of feed prescribed was infused. We hypothesise that this could be due to 3 reasons:

1. Updated Nutricia pumps were introduced after the last audit, which have increased ease of use
2. Staff were trained on how to use the new Nutricia pumps, which improved competency in pump use
3. Dietitians were trained on how to use feeding pumps, which facilitated identification and troubleshooting of enteral feeding issues in a more timely fashion.

There is a 9% discrepancy in volume infused as per feeding pump history versus the recorded fluid balance volume. This may seem insignificant, however, over a week this deficit can be equivalent to one full day's nutritional requirements. This is relatively stable compared to our last audit, with results differing by 1%.

Although dietitians were encouraged to use pump history for increased accuracy of assessment, 39% of dietitians are not implementing this change.

Recommendations

We recommend that all dietitians use pump history as part of their routine assessment and review of patients. We recommend an anonymous survey amongst dietitians to gather feedback on barriers to undertaking this change in practice and to explore further supports which could be introduced to facilitate implementation of this change.

We recommend ongoing nursing education training on the recording of fluid balance.

Potential further projects could include looking at volume-based and catch up feeding, where appropriate.

Survey

As part of the actions arising from this re-audit, we carried out an anonymous survey amongst the department assessing barriers to change. 14 responses were collected as part of this survey.

93% (n = 13) were aware of the pump history function. 57% (n = 8) report using it as part of routine assessment, correlating with re-audit results. Of the dietitians using pump history, 75% reported that pump history improved time efficiency and troubleshooting and 100% reported improved assessment accuracy.

Barriers to using pump history included: feeding pump not being at bedside, same pump not being used when patient moving wards, dietitian was unsure if pump history was reset when switching between patients.

Further supports needed were: refresher training for dietitians and refresher training for nursing staff on the use of pump history.