

Evaluating New Automated Compounding Technology in the Home Infusion Pharmacy

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Background

Choosing the right automated compounding device (ACD) requires careful consideration of numerous factors including product design, safety features, speed, ease of use, compounding documentation, and software and hardware platform.

This homecare organization had utilized an existing ACD for 7 years and was interested in determining if new compounding technology was warranted.

Purpose

The purpose of this evaluation was to determine if a new ACD technology offered any improvements in compounding efficiency and safety when compared to the existing ACD.

Methods

An ACD study protocol was developed with consistent methodology for measuring and reporting each ACD feature, safety benefit, and compounding time study.

Time data collection performance measures were:

- time taken to fill a bag
- volume of each bag
- number of bags filled

The current ACD was already in use with a rich history of validated use and an evaluation period of one month was recorded.

Results

No compounding errors were reported but the new ACD technology eliminated any potential manual errors associated with mis-programming compounding volumes through an interface as the existing ACD required manual order programming.

However, compounding benefits were still recorded even though new ACD required an extra step of positive solution barcode confirmation as compared to the existing ACD passive solution check.

Additionally, the new ACD software platform enabled numerous advantages, such as compounding history reports, user security and tracking, compounding inventory reports, live context sensitive help screens, and remote pharmacist software access in comparison to the existing ACD which is non-computer based and requires manual input.

Methods

The second new ACD (B. Braun PINNACLE® TPN Management System) was first implemented with appropriate staff training and a two week trial use before the evaluation period of one month was recorded.

Time data analysis was sent to a third party statistician for statistical analysis to determine compounding times per ACD (taking various bag volumes into account) and if the two ACDs differ.

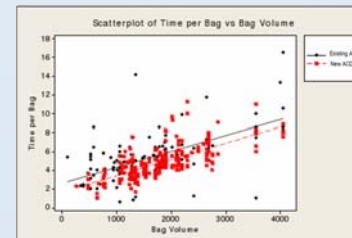
Results

Statistical analysis results from the time data reported the following conclusions:

- The new ACD is estimated to reduce the compound time by 0.86 minutes per bag compared to the existing ACD regardless of the bag size
- With 95% confidence the reduction in time is between 0.51 minutes and 1.21 minutes per bag

A plot of the regression data is shown below in Figure 1. The black line shows the best fit regression line for the existing ACD and the red line for the new ACD.

Figure 1: Effect of Total Volume on Compounding Time



Conclusion

The new ACD technology provided numerous user benefits, safety enhancements, and significantly reduced compounding time as compared to our existing ACD.

With an average of 50 total parenteral nutrition (TPN) patients per day, our organization realized a reduction in compounding time by approximately 43 minutes per day that can be saved in labor, allocating resources to other compounding activities.

Disclosure

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:

Author Rich Monty: Nothing to disclose
Author Kim Templeton: Nothing to disclose