

Improving Access to Acute Stroke Trials using Automated Dispensing Cabinets

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Background

An increasing number of investigational products (IPs) for stroke trials requires prompt 24-hour access. Treatment windows for these IPs can range from 4.5 to 9 hours from the onset of stroke.

With many hospitals now utilising Automated Dispensing Cabinets (ADC) particularly in emergency departments, it provides new opportunities for continuous and prompt supply of trial IPs. Traditional methods currently involve storing IPs in the pharmacy after hours room (AHR) and contacting the after-hours coordinator when IPs are needed outside of pharmacy hours.

Aim

To describe the process of implementing IPs into automated dispensing cabinets (ADC) in the Emergency Department and show some benefits and limitations compared to after-hours room (AHR) storage.

Implementation Process

Study Design Considerations for IPs

Since October 2014, five acute stroke trial IPs were considered for either ADC or AHR storage. Three were suitable for ADC while two were placed in AHR.

Suitability of ADC and AH Table

Study Design	Automatic Dispensing Cabinet	After Hours Room
Single-Arm	✓	✓
Multiple-Arm	✓	✓
Open Label	✓	✓
Blinded Study	✗	✓

IPs placed in AHR were for blinded studies where treatment kits are numbered and specifically assigned to subjects.

Blinded study products were not placed in ADC due to space limitations and the associated risk of selection error of specifically assigned products to each randomised patient (tendency for most operators is to select the kit at the front). However, it is possible to use ADC for blinded trials by assigning larger compartments to reduce selection error risks.

Storage of IPs:



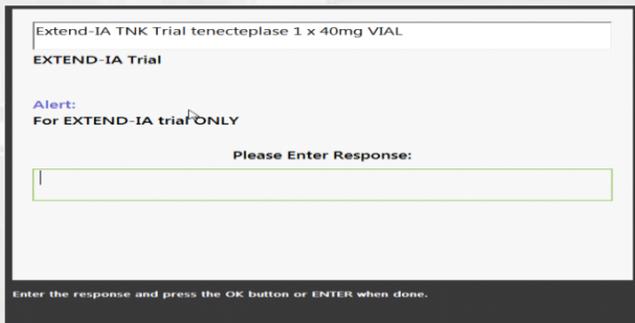
IPs selected for ADC were marked "clinical trial use only" by the trials pharmacist and stored in dedicated compartments. Expiry dates were entered into the ADC by the pharmacist or pharmacy technician restocking the IP.



Preventing Selection Errors

All patients admitted into ED have their details transferred via the Patient Administration System to the ADC to allow nurses to supply them with required medications.

To prevent selection errors each IP had a separate inventory code created. Prompt alerts were also put in place to ensure the correct trial medication was selected by the operator.

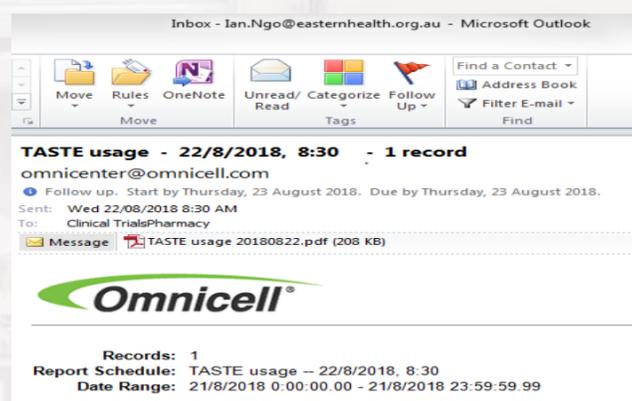


Automated Transaction Reports

ADC was automatically linked to pharmacy e-mails. Each transaction was electronically recorded and an automated emailed report was sent daily to the clinical trial pharmacists as a pdf report.

This report included:

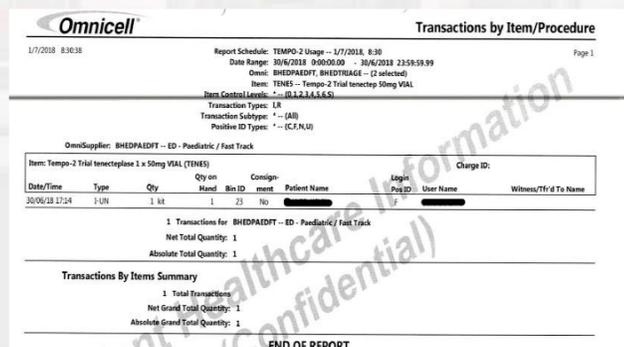
- Date and time IP was removed.
- Patient's details.
- Name of operator (study coordinator, nurse or doctor) performing the IP transaction.
- Quantity of IP taken and current stock on hand
- IPs nearing expiration date.



Accountability and Inventory Control

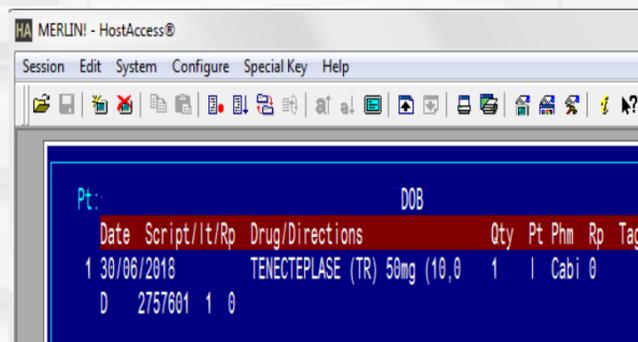
From the generated report the trials pharmacists were able to:

- Complete accountability logs mandatory for each clinical trial promptly and efficiently.
- Monitor expiry dates and maintain IP stock levels and ensure continuous supply
- Check if the correct IP was given to the correct patient



Real Time Dispensing

ADC was also linked to pharmacy dispensary software with each transaction automatically dispensed under the patient's profile.

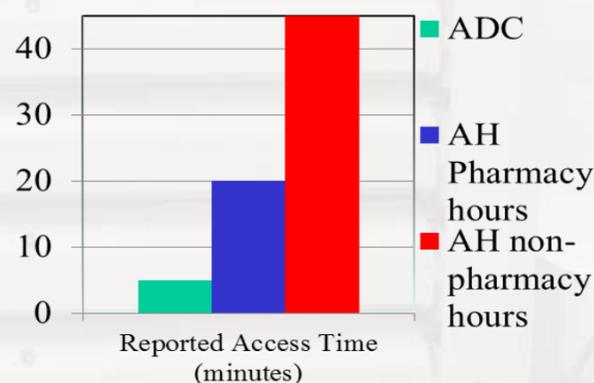


Primary study coordinators were surveyed about the average access time when using either ADC and AHR.

Benefits and Limitations

ADC provided benefits over AHR, including:

- Improved Access Times reported by primary study coordinators



- Automated daily reports provided:
 1. Pharmacist to complete accountability reports mandatory for clinical trials promptly and efficiently.
 2. Inventory control and continuous availability.
 3. Prompted expiry checks.

- Eliminate need for after-hours coordinator to access IPs.
- Unique inventory codes and alerts provide preventative measures for selection-error.

One limitation identified was due to the restricted spaces available, the ADC was not ideal for blinded trials.

Conclusion:

The successful implementation of IPs into ADC provided many benefits. In future, additional trials will be able to utilise ADC as it offers a great opportunity to store IPs where continuous and prompt supply is required.