The Problem with PipTaz: Using Pharmaceutical Science to Provide Healthcare Solutions

Comisiwn Bevan Commission

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Project Background:

In 2021, the Welsh Government published the Transforming Access to Medicines (TRAMs) plan aimed at transforming hospital services in Wales. It recognises that medicine preparation by nursing staff is resource intensive, taking valuable time away from clinical duties. By adopting automated batch preparation within Technical services, the NHS can improve accuracy, safety and efficiency. The preparation of Piperacillin/ Tazobactam (PipTaz) serves as an example of a product well-suited for this.

In 2024, **130,000 doses** of PipTaz were prescribed within BCUHB with each dose taking approximately 15 minutes for a nurse to prepare. With average patient requires three doses per day, this represents a substantial time burden to already stretched nursing capacity.

Project Aims:

- Determine suitability of the PipTaz SmartPak for the UK NHS market.
- Demonstrate value of multi-dose PipTaz bags by developing a semi automated manufacturing method to produce PipTaz doses safely, efficiently and sustainably.

Project Approach:

- Audit manufacturing site to determine acceptability.
- Conduct Quality Control testing to confirm product specifications.
- Develop and validate a semi-automated manufacturing method to enable sustainable manufacture.

Project Outcomes:

81% reduction in production time when compared to aseptic manufacture

94% reduction in production time when compared to ward manufacture

74% reduction in the number of aseptic manipulations when compared to vials

21 days chemical stability when stored at 5°C ± 3°C

Satisfactory audit and product suitable for UK

Project Impact:

Based on the average annual usage across BCUHB, we can estimate the potential savings in nursing hours if 10% of these doses were prepared in the aseptic unit using a semi-automatic method, compared to preparation by ward nurses below:

Parameter	Before Project	After Project
Approximate annual usage	13,000	13,000
Preparation of 13,000 bags (hours)	3,250 (nursing)	199 (aseptic)
Annual nurse/ operator time saved compared to slowest method (hours)	0	3,051
Ratio of nurse/operator time investment required per workday	16.67	1

Key Conclusions:

This project has successfully demonstrated that the Multidose PipTaz back can be used to provide a sustainable manufacturing service for this drug product with significant potential to support frontline services. Additionally this will mark the first time this product has been evaluated for use within the United Kingdom.

Next Steps:

Carry out a trial manufacturing run for delivery to patients within the A&E departments across BCUHB, to evaluate real world impact of this project.