

We're Bringing Manufacturing Back: Reabsorption of Antibiotic Infusor Manufacturing from a Third Party Compounder

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Introduction

To enable both timely discharge for clinically stable patients, and avoidance of outpatient admissions, the Sir Charles Gairdner Hospital (SCGH) Homelink service manages the treatment of patients requiring continuous antibiotics in an outpatient setting through the use of antibiotic elastomeric infusors which administer these agents at a uniform rate.

SCGH has outsourced the manufacture of these to a third party compounder since Financial Year (FY) 11/12 due to the inability of SCGH Pharmacy's Centralised Intra Venous Additive Service (CIVAS) to undertake this work with existing resources. As the Homelink service has continued to be utilized to enable reduced Length of Stay (LOS) and improve patient outcomes, there has been a progressive increase in the number of infusors procured.

As an initiative to reduce medication expenditure, driven by a challenging fiscal environment, we proposed a three month pilot of the reabsorption of the manufacturing of antibiotic infusors with investment in a 1.0 full time equivalent (FTE) G3 Pharmacy Technician and an automated fluid transfer device (i.e. repeater pump, see Figure 1 for example). Our preliminary analyses projected a reduction in expenditure on infusors of approximately 44% per annum, post deduction of investment costs, representing 0.43% of SCGH's medication expenditure.

Aim

Our primary aim was to reabsorb the manufacturing of all antibiotic infusors from an external compounder to reduce hospital medication expenditure. Secondary objectives included optimisation of LOS and patient discharge.

Methods

Post approval, this pilot was required to be commenced within a two week timeframe to enable realisation of the projected cost minimisation for the last quarter of FY 17/18.

To achieve this, extensive liaison with Homelink medical, nursing and pharmacy staff; state representatives for the third party compounder; SCGH Pharmacy CIVAS; dispensaries; and the SCGH Pharmacy Business Unit was undertaken to:

- Determine the revised scope of work and associated business rules
- Construct new workflow processes and communicate these
- Develop metrics for the analysis of the outcomes of the service change including monitoring of FTE required; number of patients with reduced LOS due to in-house manufacturing; infusors prepared in-house; cost minimisation
- Ensure opportunities for queries and concerns could be addressed



Figure 1. A repeater pump (Added Pharma, 2018)

Sourcing of a repeater pump was one of the more challenging aspects, with no Australian suppliers. It was exceptionally fortuitous that a colleague had recently sourced and purchased a repeater pump from an overseas supplier, which was able to supply a repeater pump and tubing with expedited shipping to meet required timelines.

Results

In Month 1 (Apr 2018), the percentage decrease in medication expenditure was approximately 25% of that projected. This was attributed to the pilot commencing in the last two weeks of the month, and lower than usual patient numbers.

Subsequent months have demonstrated a decrease in medication expenditure per month in line with the original projection of 0.43% for the last quarter of FY 17/18, and 0.60% for the first quarter of FY 18/19 (see Table 1).

In addition, over 97% of all new Homelink patients have had their LOS reduced by 24 hours (i.e. one full bed day) due to the SCGH Pharmacy CIVAS's ability to undertake same day manufacturing for orders received within designated time frames. With the usual average of 50 new patients per month accepted into this service, this would represent at least 582 bed days saved over a 12 month period for SCGH. However, we noted that average patient numbers over the initial three month pilot, and its extension into FY 18/19, have been lower than usual (see Table 1) and number of bed days saved to date is 199.

Workflow and staffing refinements were required over the initial three month pilot period to optimise the service. Regular discussions with stakeholders were held to overcome initial 'teething issues'. These primarily arose due to an incomplete understanding of individual team workflows, competing demands, and resource limitations.

Month	New patients	Percentage reduction in SCGH monthly medication expenditure
Apr 2018	18	0.09%
May 2018	52	0.42%
Jun 2018	31	0.43%
Jul 2018	27	1.07%
Aug 2018	36	0.57%
Sep 2018	35	0.17%

Table 1. New patients and percentage reduction in SCGH monthly medication expenditure per month of the pilot up to the end of Sep 2018. Note that as the pilot commenced mid Apr 2018, the corresponding figures represent only two weeks' activity.

Conclusions

Reabsorption of the manufacture of antibiotic infusors has resulted in the reduction in monthly medication expenditure cost for SCGH, and 199 bed days saved over a five and a half month period. The results of this pilot were presented to the Sir Charles Gairdner Osborne Park Health Care Group Acting Executive Director in the first quarter of FY 18/19, and support has been received to extend this pilot through FY 18/19.

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References

Added Pharma 2018, *SmartPump*, photograph, viewed 31 October 2018, <<https://www.addedpharma.com/aseptic-smart-compounding/smartpump>>

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