



## Service Priorities and Programmes Electronic Presentations

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### **The Impact of Pharmacy Intravenous Admixture Service (PIVAS) on Time, Cost, & Nurses' Satisfaction associated with the Preparation of Intravenous Antimicrobial Therapy in Neonatal & Paediatric Populations**

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#### **Introduction**

Pharmacy Intravenous Admixture Service (PIVAS) in QEH was implemented in 2Q12 to prepare ready-to-administer, individualised intravenous antimicrobial doses for NICU and SCBU, and was later expanded to PICU in 2Q16. There may be distinct time and cost benefits by centralising admixture preparation. In addition, diversion of this procedure to pharmacy may well reduce nurses' stress and workload, and they could fulfill their role more effectively.

#### **Objectives**

1. To determine the actual time and cost savings arising from PIVAS.
2. To evaluate its quality from nurses' perspective by measuring their satisfaction level.

#### **Methodology**

The time required to prepare intravenous doses by PIVAS and traditionally by nurses in PICU (before PIVAS initiation) was measured. Data were collected from 5 PIVAS sessions and 34 ward-based sessions. Personnel costs were determined by multiplying these time data by salary rates of staff involved. Inventory costs incurred in PIVAS and on wards over 3 months were estimated from PIVAS workload reports. The total cost (inventory & personnel costs) apportioned to each dose was therefore identified. A satisfaction survey was designed and administered to nurses to evaluate service performance, fulfilment of nurses' expectations, and its impact on nurses' self-efficacy in patient care.

#### **Result**

Compared to traditional ward-based preparation by nurses, PIVAS significantly

reduced the preparation time required per dose (mean±S.D. time: 90.5±7.16 vs 208±63.9 seconds; P<0.001). For every 100 doses prepared, PIVAS would reduce the preparation time by 196 minutes. Total cost per dose in PIVAS was lower than that of ward-based preparation (\$16.76 vs \$48.15). This could be translated into a cost reduction of \$3,139 per 100 doses prepared. The survey response rates were 82.5% (n=113). On a 5-point scale, average ratings for service performance and fulfilment of nurses' expectations were 3.88±0.29 and 3.87±0.22. Over 80% of nurses regarded PIVAS as being conducive to their self-efficacy. In conclusion, PIVAS was more efficient and economical than traditional ward-based preparation. Substantial time saving and cost reduction could be derived. Furthermore, nurses' feedbacks were generally positive. A future service expansion would be beneficial.