



## Service Priorities and Programmes Electronic Presentations

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### **Advanced Pharmacy Aseptic Reconstitution Service for Outpatient-Parenteral-Antimicrobial-Therapy(OPAT)**

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#### **Introduction**

Hong Kong is currently experiencing shortage of hospital beds. In order to reduce avoidable hospital stay, Princess Margaret Hospital piloted the multi-disciplinary OPAT service in January 2013.

#### **Objectives**

OPAT is an outpatient-based management of an infection requiring intravenous antimicrobial without overnight stay in hospital. This is accomplished by administering once-daily antimicrobials, but the choice is limited. With emergence of elastomeric device, antimicrobials requiring multiple-daily-doses can be aseptically prepared by pharmacy in ready-to-administer dosage forms infused over a 24-hour period.

#### **Methodology**

The selection of antimicrobial agents in elastomeric device depends on many factors such as drug stability, lack of oral bioavailable equivalent, pharmacodynamics, and dosing frequency. Antimicrobial stability data is commercially available for ganciclovir, penicillin G potassium, and vancomycin. For injections where the literature has no stability data to offer, pharmacy would prepare the antimicrobials in elastomeric devices for stability testing using ultra-high-performance-liquid-chromatography(UHPLC). Stability studies were conducted on a single manufacturing batch. Also, the test batch must include at least 10 units to obtain a minimum of 162 independent measurements. The results from UHPLC demonstrated that Piperacillin/tazobactam, cefoperazone/sulbactam and ceftriaxone were suitable for OPAT, Cefepime was unstable while the results for flucloxacillin and doripenem were underway.

#### **Result**

From June 2013 to January 2014, a total of 790 elastomeric devices were prepared for 20 patients. This translates into early discharge of patients with 790 bed-days saved and reduced risk of nosocomial infection. Out of 15 patients discharged from

OPAT program, 14(93%) patients completed treatment, 1(5%) patient experienced neutropenia, 2(10%) patients had rash and there was nil mortality incident. All preparations prepared by pharmacy were labeled with lot control, expiry date and storage condition to ensure safe drug administration. Quality assurance on drug compatibility, chemical stability and microbiological stability is guaranteed. In addition to improved clinical safety, centralized pharmacy aseptic reconstitution service reduced nursing time on drug reconstitution and minimized drug wastage from vial sharing during reconstitution. Over 90% patients were satisfied with OPAT program as it improved their quality of life, avoided the inconvenience, complications and expense of prolonged hospitalization. This project will serve as a valuable reference for drug compounding in hospitals, contributing to optimising quality and making patient care ever safer even at home.