Service Priorities and Programmes

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Adoption Of Centralized Platelet Inventory Program In Reducing Platelet Wastage in Kowloon West Cluster (KWC)

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Introduction

To maintain a safe level of stocks in daily operation, platelet expiration is inevitable due to its perishability and a well-planned inventory system is warranted for minimizing this due to its scarcity.

Objectives

To optimize current inventory of platelets to further reduce expiration rate and yet maintaining sufficient stock to meet the unpredictable and urgent clinical demand.

Methodology

A centralized platelet inventory management is adopted in KWC since 1/3/2014: systematic regular shipping of unused platelets from smaller hospitals (i.e. CMC and YCH) to PMH, replacing the previous two-way transfer. No change in annual platelet inventory in PMH but there is increase in routine platelet inventory in CMC and YCH to meet the fluctuating clinical demand. A real-time communication among the blood banks to ensure the very short shelf-life of platelets can be effectively redirected for clinical use. Data are retrieved from the Laboratory Information System from 1/1/2010 to 31/12/2015. Different periods are compared: Phase 1 (without a proper transfer system during 1/1/2010 to 31/12/2011), Phase 2 (bi-directional transfer of platelets during 1/1/2012 to 28/2/2014), and Phase 3 (centralized platelet inventory program during 1/3/2014 to 31/12/2015). Statistics by Kruskal-Wallis and one-way ANOVA (with post-hoc Tukey test) using $p<0.05$ as significance.

Result

The cluster platelet expiration rate is: 7.7% (6.3% to 9.2%), 5.6% (4.9% to 6.3%) and 2.7% (1.5% to 3.9%) for Phase 1/2/3 respectively, all differences are statistically significance ($p=0.000$). On multivariate analyses, Phase 3 is statistically significant to have lower expired units when compared to Phase 1 or 2 ($p<0.05$); there is no

statistically difference in the number of expired units in Phase 1 and 2 (p=0.093). No difference in the issue rate among the three periods (p=0.802). Significant difference in both the transfer rate and the average transfer units (p=0.000), with transfer rate 0.6% (0.4% to 0.9%), 3.5% (2.5% to 4.4%) and 6.5% (5.8% to 7.2%) and average transfer units are 10 (6 to 15), 59 (43 to 75) and 105 (94 to 117) for Phase 1/2/3 respectively. The adoption of current centralized platelet inventory in KWC has significantly reduced the platelet expiration without change in the issue rate and platelet inventory in the blood banks.