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Cost-Effectiveness Of Centralized Platelet Inventory Program In Kowloon West Cluster (KWC)

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Introduction

A centralized platelet inventory program is adopted in KWC where a concerted transfer system in place to redirect the platelets from smaller to larger hospital and further reduces the inevitable platelet expiration due to unpredictable and urgent clinical demand.

Objectives

To study the cost-effectiveness of this centralized platelet inventory program in reducing platelet wastage using historical period as baseline comparison.

Methodology

A centralized platelet inventory management is adopted with PMH as the base since 1/3/2014, replacing the previous two-way transfer. No reduction in annual platelet inventory in KWC Blood Banks to ensure similar clinical services are provided. Data are retrieved from the Laboratory Information System from 1/1/2010 to 31/12/2015 for analysis. Using the previous period without a proper transfer system (Phase 1: 1/1/2010 to 31/12/2011) as the baseline, bi-directional transfer of platelets (Phase 2: 1/1/2012 to 28/2/2014) and this new centralized platelet inventory program (Phase 3: 1/3/2014 to 31/12/2015) are compared. Additional workload by the blood bank staff in packaging and arranging these transfers is calculated as the direct staff costs using the NAMS of the rank of patient care assistant and medical technologist respectively. Consumable cost is blood bag expenditure. The total costs (direct staff and consumable costs) for different phases are computed. Effectiveness is the reduction in number of expired platelets. The cost-effectiveness ratio is compared between Phase 2 and Phase 3.

Result

The percentage reduction in the expiration rate (when compared to Phase 1) is 24.1%

and 71.4% for Phase 2 and Phase 3 respectively. With the total average monthly cost increment is 31% and 33% whereas the additional average monthly cost is \$6152.5 and \$6237.1 for Phase 2 and Phase 3 respectively. The cost-effectiveness ratio (i.e. the total cost used to reduce each platelet unit) is \$267.0 and \$77.9 for Phase 2 and Phase 3 respectively; hence, Phase 3 is 3.4 times more effective than Phase 2. While the average price of one platelet unit around \$544.7, hence the net savings in Hospital Authority (HA) is \$277.7 and \$466.8 for each unit of platelets reduced for Phase 2 and Phase 3 respectively. So, centralized platelet inventory program is cost-effective in reduced expired platelet units with net savings in HA.