Service Priorities and Programmes

Electronic Presentations

Convention ID: 225
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Re-engineering the top-up medication storage system in Intensive Care Unit to enhance safety and efficiency of medication administration

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Keywords:
medication safety
medication storage
enhance efficiency
Intensive Care Unit

Introduction

In ICU, frequently used medications were stored in the top-up medication cupboard, which was refilled regularly by pharmacy. It contained a wide range of medications, including antibiotics of different classes. Some top-up medications were also stored in other locations in the unit such as medication trolley and some special drawers. Administrating medications, in particular antibiotics, from the top-up medication cupboard carried risk of medication errors because the gate-keeper role of pharmacy for checking potential adverse events with the medication in the patient was not in operation. Furthermore, extra time and motion was wasted for staff to get the medications stored in different locations in the unit.

Objectives

To re-engineer the top-up medication storage system in ICU to enhance safety and efficiency of medication administration in ICU

Methodology

A quality improvement project was implemented in 2Q 2012. Instead of storage in different locations, all the top-up medications were stored in the locked top-up medication cupboard, which was standardized in the two wards of ICU. The items and stock level of the medications in the top-up medication cupboard were reviewed and revised according to clinical demands. All antibiotics were deleted except one (amikacin). Inside the cupboard the medications were grouped on different shelves according to the classes they belong to. Red tags were attached to some medications to increase alertness of staff, such as “Concentrated electrolytes”,“Short expiry date”. The full medication list was posted on the door of the cupboard. Visual management was used with pictures posted on different areas of the door, indicating the location of different groups of medications.

Result

1. With the quality improvement project, the distance walked by nurses to get top-up medications in both wards was significantly reduced. In one ward, it was reduced by

67.8% (from 566 to 182 meters) and in the other ward 30.5% (from 190 to 132 meters). 2. Only one antibiotic (amikacin) was kept as top-up medication so that newly admitted septic patients could receive timely treatment of antibiotic for survival benefit. The incidence of allergy to amikacin reported was very low and it can cover infections caused by both Gram positive and Gram negative micro-organisms. Removing other antibiotics as top-up medications eliminated the risk of administrating antibiotic to patients with known drug allergy or cross-sensitivity. 3. No adverse events had occurred so far due to delay in medication administration. Optimizing the number of items and stock level of top-up medications reduced wastage due to expired drugs. It also reduced the risk of getting the wrong medication from the pool of top-up medications. In conclusion, re-engineering the top-up medication storage system enhanced safety and efficiency of medication administration in ICU.