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Improving medication safety by re-engineering the process of medication administration in Intensive Care Unit

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Introduction

Medication errors are an important cause of patient morbidity and mortality and are not uncommon in ICU. Most errors occur during administration stage (median of 53% of all errors). Administration appears to be particularly vulnerable to errors because of a paucity of system checks. The process has inherent susceptibility to human errors especially if medications are administered by only one nurse. In ICU, medications dispensed from pharmacy were put into a medication trolley, which had drawers assigned with bed numbers as well as for top-up medications. A staff would be assigned in each duty shift to refill the medication trolley with the medications from the top-up medication cupboard, which was refilled by pharmacy. For medication administration, the medication trolley would be moved to every bed in sequence by the ward in-charge nurse, who would dispatch the medications from the medication trolley onto the bedside table and then sign on the medication administration record (MAR) of the patient. The bed in-charge nurse would later check the medication, administer the medication to the patient and then sign on MAR.

Objectives

To re-engineer the process of medication administration in order to enhance medication safety in ICU

Methodology

A quality improvement project was implemented since 2Q 2011. Educational sessions were given to all ICU nurses to reinforce the proper practice of medication administration. The process of medication storage, dispatch and administration was revamped. The medication trolley was eliminated. The medications dispensed from pharmacy would be put in a designated drawer of the bedside trolley of the patient. For medication administration, the bed in-charge nurse would bear the primary responsibility. He/she would get the medications either from the medication drawer of the bedside trolley or the top-up medication cupboard. He/she would check the medication with his/her partner nurse simultaneously against MAR and administer the medication right after checking. The bed in-charge nurse and his/her partner nurse would then sign on the MAR.

Result

1) 12.7 man hour per month used to refill and organize the medication trolley was saved. Moreover, the risk of putting a medication to the wrong drawer in the medication trolley was eliminated. 2) The incidence of medication errors reported to the Advanced Incidents Reporting System (AIRS) of Hospital Authority was significantly reduced by 75% (8 cases during 3Q 2010 – 2Q 2011 vs 2 cases during 3Q 2011 – 2Q 2012). 3) The incidence of medication errors reported to the near-miss reporting system of ICU was reduced by 36.4% (11 cases during 3Q 2010 – 2Q 2011 vs 7 cases during 3Q 2011 – 2Q 2012). 4) Diffusion of responsibility during medication administration was eliminated and the proper practice of medication administration with 3-check, 5-rights was reinforced.