Keeping Smart Pumps "Smart"

Dataset Maintenance, Continuous Quality Improvement & User Compliance

ST VINCENT'S HOSPITAL SYDNEY

Sandhu A. Heywood M. - Pharmacy Department St. Vincent's Hospital, Sydney. Contact: anmol.sandhu@svha.org.au

AIM: To describe strategies in place to maintain the accuracy and integrity of the drug dataset for smart infusion pumps.

BACKGROUND & METHOD: There are compelling reasons to support the implementation of smart pumps with Dose Error Reduction Software. Whilst resources are usually made available for implementation, sufficient consideration may not be given to ongoing dataset maintenance or sustaining optimal user compliance with the safety software. A multi-pronged approach was taken at a tertiary referral hospital to address these post-implementation considerations.

RESULTS: The following describes strategies put in place to maintain the accuracy and integrity of the smart infusion pumps.

Data set maintenance

Since implementation in 2012, 48 dataset updates involving 418 drugs have occurred (average:1.2 updates/month). The Electronic Medication Management (EMM) pharmacist, under the auspices of the Drug and Therapeutics Committee (DTC), update datasets after multidisciplinary consensus and independent check from a second EMM pharmacist. A change report is tabled monthly to DTC. As testament to its quality and utility, the drug dataset has been requested and shared with 19 hospitals across Australia and New Zealand.

AVERAGE OF 1.2 DATA SET UPDATES / MONTH

DATA SET SHARED WITH 19 PUBLIC AND PRIVATE HOSPITALS ACROSS ANZ

WIRELESS DATA TRANSFER FACILITATES REGULAR & EFFICIENT DATASET UPDATES

Wireless data set updates

Wireless technology, allowing for two-way transfer of data to and from pumps has not only been crucial in facilitating regular and efficient dataset updates, but also in collating breached limits to inform ongoing safety improvements. Data sets can be remotely uploaded to the associated Private hospital and Outpatient Cancer Centre.

User compliance audits

Biannual compliance audits consisting of a physical inspection of pumps in use on a given day are performed by nursing and pharmacy representatives. They provide opportunity for timely and positive engagement with frontline staff to discuss improvement strategies. Audits demonstrated an average of 95.1% of drugs and 84.5% of IV fluids were infused with the protection of the Dose Error Reduction Software. Physical inspection of pumps also led to the identification and subsequent resolution of improper technique used for loading of IV sets.

95.1% OF DRUGS AND 84.5% OF FLUIDS INFUSED WITH THE PROTECTION OF DOSE ERROR REDUCTION SOFTWARE

Figure 1: Example of dashboard report showing top 25 alerting drugs between Jan - Nov 2018

High level & deep dive reporting

Both vendor and locally generated reports identify top alerting drugs, "good catches" and importantly hone in on perceived vs. actual practice. High level dashboard reports prove useful springboards for identifying problem areas or practices. More detailed drug specific reports estimate cost savings and are useful in addressing clinical practice inconsistencies or refining the pump's alerting limits to ensure alerts triggered are useful and not contributing to alert fatigue and/or disengagement with the error reduction software.
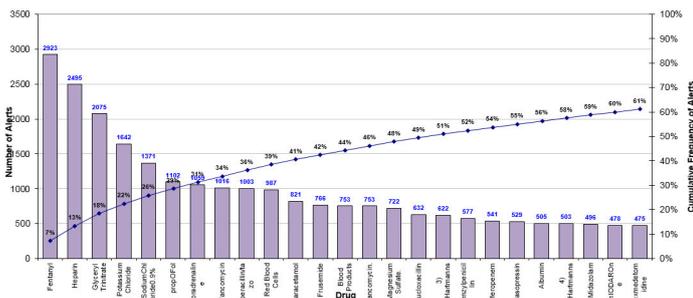
CONCLUSION: These continuous quality improvement strategies have resulted in improved medication safety, pump usability and potential cost savings of $2.7million, reiterating smart infusion pumps are far from "set and forget" initiatives.