

SMART Pumps

Banupreya D/O Kannathasan, Singapore General Hospital Deborah Koh Ruiwen, Singapore General Hospital Andrea Choh, Singapore General Hospital Teo Kai Yunn, Singapore General Hospital

Background

Studies have shown that Smart Pump technology in infusion pumps is an effective strategy if used appropriately to administer precise dose of medication to the patient. However in SGH, there has been an increase of medication events related to the use of this device.

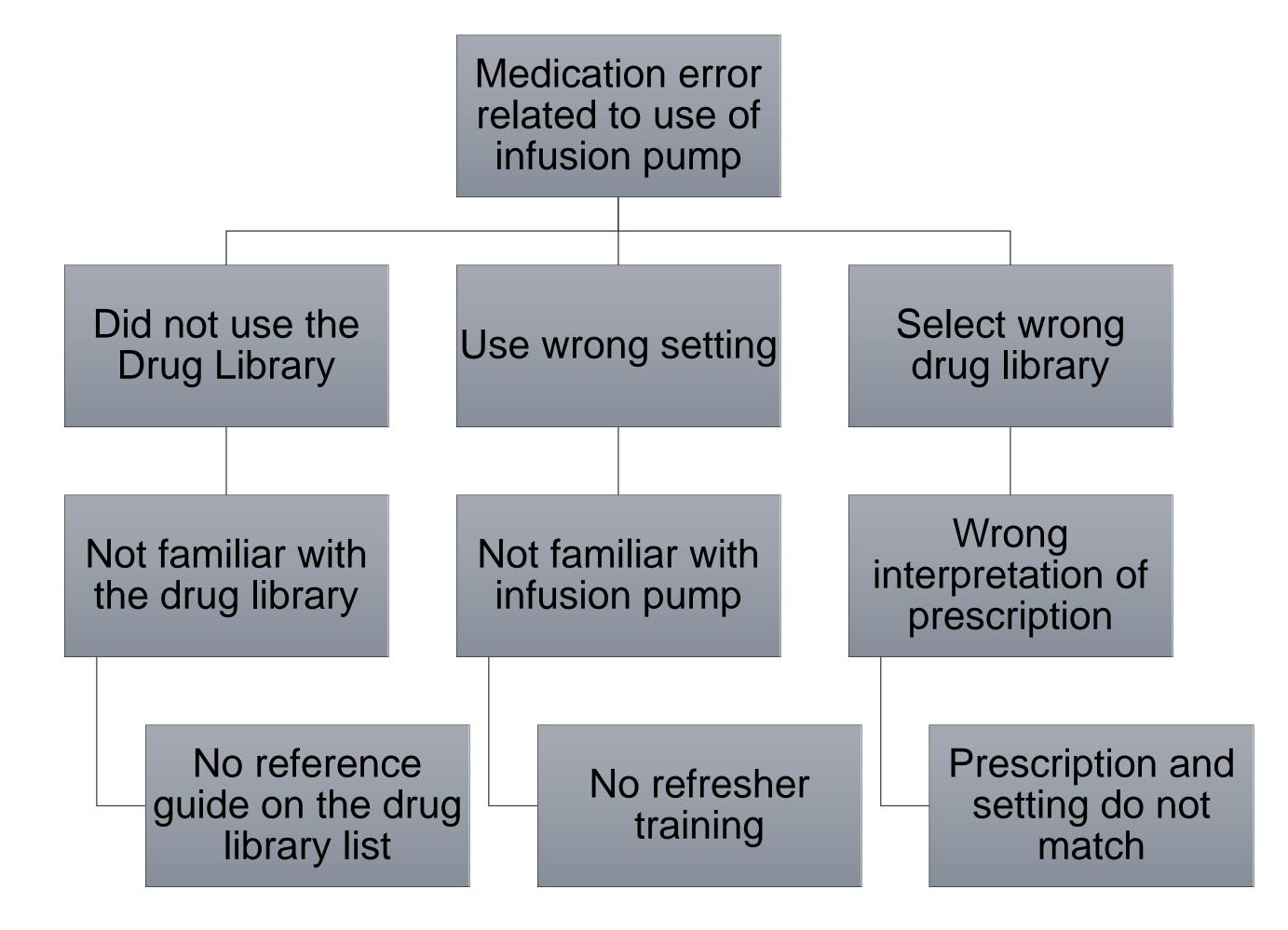
In 2016, there were 22 medication errors. A team of nurses was formed to look into eliminating programming errors related to the use of infusion pumps

Mission Statement

To eliminate medication errors related with infusion pump within a year in SGH

Analysis of problem

Medication error events was analyzed using the 5-Whys diagram



Further analysis of the root causes shows that the nurses were unfamiliar with the use of the infusion pump.

Also the drug library in the Smart Pump was not intuitive and requires the nurse to search in 200 entries and match the prescription

Interventions

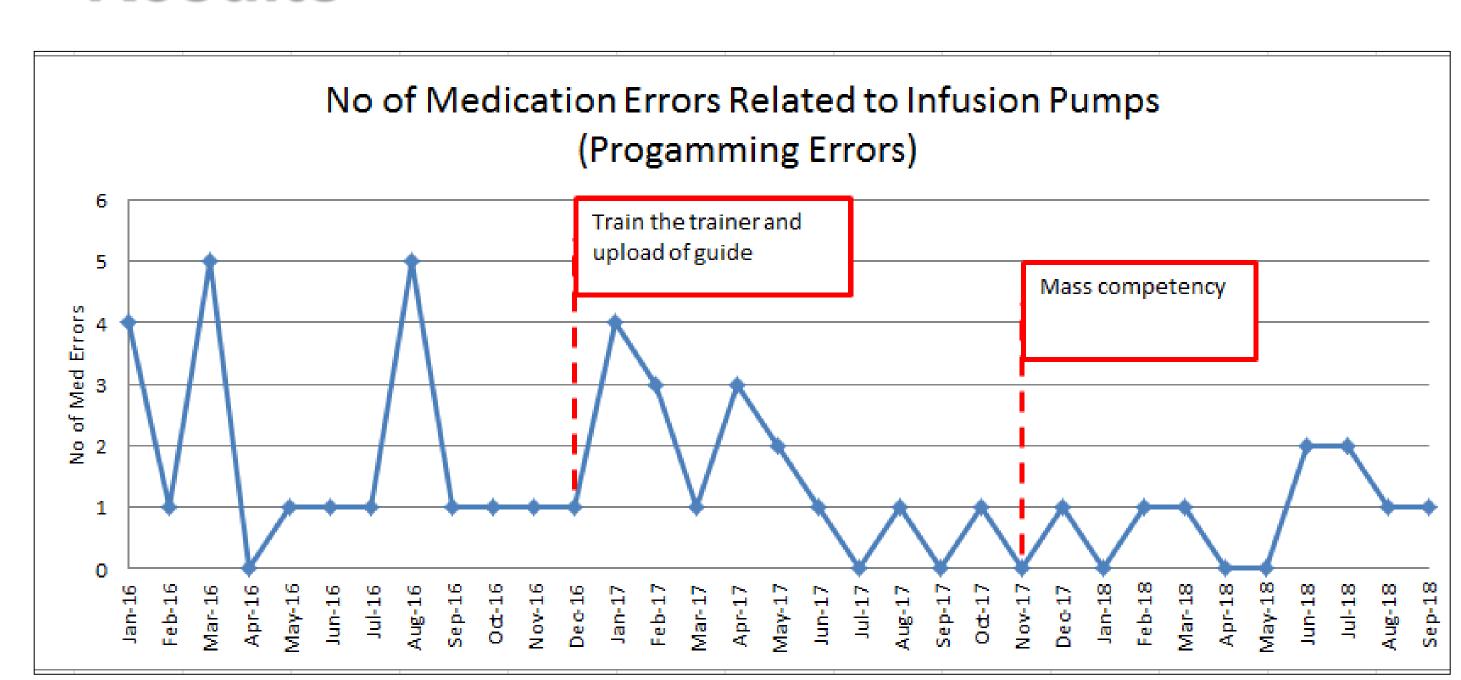
PDSA 1: The team train a group of nurses using simulation on real case scenarios. The nurses will go back to their area to conduct competency assessment to increase the awareness of programming errors.

A guide on the information available in the Drug Library was created and uploaded in the Nursing Intranet for reference.

Drug/Strength	Short Name *Max 8 characters	Care Unit						Alert/Warning
		ICU		GW		Rare		
		Perfusor	Infusomat	Perfusor	Infusomat	Perfusor	Infusomat	
0.2% saline 5% dextrose	PaedDex				1			-
0.45% saline 5% dextrose	D5 S0.45				√			-
0.9% saline 5% dextrose	DSaline				1			-
Acetylcysteine	Acetylcy				V			-
Aciclovir	Aciclo			V	V			-
Adrenaline 4mg/50ml (0.08mg/ml)	Adr4/50	1						WARNING: If conc >8mg/50n confirm with consultant before proceeding
Adrenaline 8mg/50ml (0.16mg/ml)	Adr8/50	√						WARNING: If conc >8mg/50n confirm with consultant before proceeding
Adrenaline 12mg/50ml (0.24mg/ml)	Ad12/50	√						WARNING: If conc >8mg/50n confirm with consultant before proceeding
Adrenaline 8mg/100ml (0.08mg/ml)	Adre8		1					WARNING: For 16mg/100ml, please confirm with consultant before proceeding
Adrenaline 16mg/100ml (0.16mg/ml)	Adre16		√					WARNING: For 16mg/100ml, please confirm with consultant before proceeding

PDSA 2: Mass competency was adopted and done for all nurses. A set of guided questions with steps was given to all assessors so that standardize the teaching and competency done

Results



Although the team did not achieve their mission to eliminate the medication errors, there is a reduction on the average no of the incident per month. The average was reduced from 1.8 to 0.8

Sustainability Plans

Standardization of practice and competency methods have been maintained throughout the structured competency training programme.

The training and guide was widely accepted as nurses felt more confident and their knowledge improved. Although medication errors are still occurring, the team will continue with the competency to ensure that the mission for zero error is achieved