## Towards zero harm to patients with better workflows and equipment

# Singapore Healthcare Management 2016

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## Introduction

A workgroup, comprising of members from Nursing Division and Division of Operations & Performance Management, was convened to conduct a study on the current process of preparing and administering intravenous (IV) medications, venepuncture and peripheral blood glucose monitoring (BGM) in the wards. The aim was to improve patient safety and efficient by reviewing, redesigning and standardizing work processes.

## **Methodology/Approach taken**



At least 6 types of variations in workflows amongst nurses

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- Possible risk of crosscontamination if thorough wipe down was not performed on shared items such as reusable kidney dishes and trays
- Workflow involved multiple trips to and fro the preparation room

2. Identify equipment for improvement

- Medication Carts and Computerised Physician Order Entry Computers-on-Wheels (CPOE COWs) were identified for improvement
- 3. Redesign & standardise workflows

- Redesigned existing equipment to support one-way clean to dirty flows of items
- Standardised the use  $\bullet$ of disposable kidney to eliminate crosscontamination
- Organisation of items on Carts/COWs to improve efficiency

## 4. Develop prototype

- Worked with Facilities & Management Engineering, Infection Control, Environmental Services, Safety Network and IT to develop the prototype
- 1<sup>st</sup> prototype was piloted in W47A in Jan-16

## 5. Refine prototype

Feedback was collected from the nurses

deeper;

lining of

(instead

waste bin)

bag

Direct observations were made at the wards

## 6. Roll-out

- 2<sup>nd</sup> prototype was finalised with some modifications
- New equipment and work processes were rolled out in W42, W55 and W64 in Apr-16 and subsequently to all other wards

Results

Improved infection control practices as a result of the redesigned work processes. Improved efficiency with essential work requisites made more accessible equipment on (Equates to 126 hours of walking time saved and a cost saving of \$11,934 for nurses per day)

Better staff satisfaction with improved efficiency in performing procedures

### Fig 1: Original Med Cart



Wrappers of used consumables can be thrown in the waste bin conveniently

Sharp box was attached the to Med Cart for easy disposal of sharps

The sharp box and tray which contains requisites were obtained from the prep room.

#### Fig 2: 1<sup>st</sup> Prototype Med Cart



Table top must first be wiped down with wet wipes. IV meds reconstituted were on the clean table top.

Disinfectants such as hand rub solution and wet wipes, and box glove were attached on the right side

redesigned to support one-way Equipment were clean to dirty flows of items during procedures.

#### Fig 3: 2<sup>nd</sup> Prototype Med Cart





Wipes are now available in sachets

Rotating lid design prevents access to container contents

Following feedback from senior management and ground nurses, a 2<sup>nd</sup> prototype was developed with the aim to lighten the weight. The CPOE COW drawer (Fig 4) was also reorganised to hold common requisites.

The tray was usually brought to the patient's bed during the procedure, resulting in possible crosscontamination if no thorough wipe down was performed.

Disposable kidney dish containing the IV meds and requisites were brought to patient's bed. After administration, the kidney dish, used consumables and sharps will be disposed immediately into the respective receptacles by the side of Med Cart.



Fig 4: CPOE COW drawer



Introduction of new equipment i.e. Computerised Physician Order Entry (CPOE) COWs, Medication Cart, etc. results in workflows that are highly varied and may compromise patient safety and infection control practices. A systematic way of reviewing, redesigning and standardizing work processes is key to improving safety and efficiency.