



Selection of Opportunities for Improvement

One of the most crucial aspects of patient safety is medication safety.

Medication error (ME) is any preventable event that may lead to inappropriate medication use or patient harm while medication is in control of healthcare professional, patient or consumer (Guideline on Medication Error Reporting, 2009).

There were 2,184 ME reported in Hospital Melaka in 2019, with highest number of ME reported is prescribing error (91.6%).

According to study conducted by pharmacists PPUKM in 2021, 8.6% of pharmaceutical interventions involved renal-dose adjustment. If those prescriptions go undiscovered, it may leads to ME.

This study aims to reduce number of ME involving antibiotics requiring renal-dose adjustment in Orthopedic Ward, Hospital Melaka. Orthopedic ward was selected because no ward pharmacist was assigned there and only Ward D4 remains as Orthopedic Ward during the study.

Key Measure for Improvement

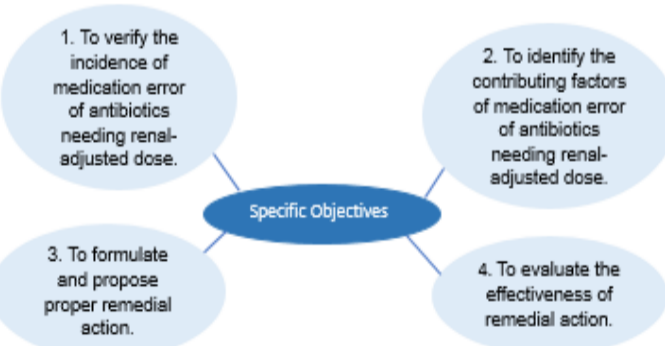
The Malaysian Patient Safety Goals 2.0 state that the number of medication errors resulting in severe damage or death must be zero.

Thus, all types of medication error must be prevented.

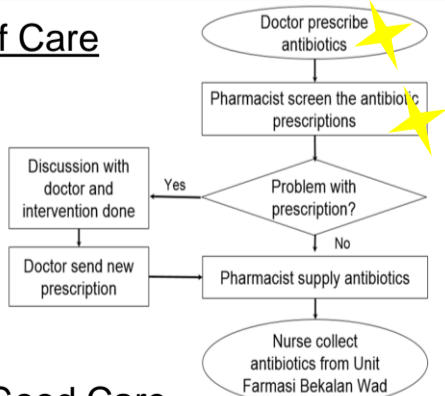
Process of Gathering Information

General Objective

To reduce percentage of medication error involving antibiotics requiring renal-dose adjustment.



Process of Care



Model of Good Care

No	Process	Criteria	Standard
1.	Doctor prescribe antibiotics	Doctor prescribe antibiotics according to 5R	100%
2.	Pharmacist screen the antibiotic prescriptions	Pharmacist screen the antibiotic prescriptions according to 5R	100%
3.	Pharmacist supply antibiotics	Pharmacist supply antibiotics according to 5R	100%
4.	Nurse collect antibiotics from Unit Farmasi Bekalan Wad	Nurse double check antibiotics received from pharmacy	100%

Process of Gathering Information

INDICATOR =	Number of prescriptions of antibiotics requiring renal-dose adjustment, with medication error	x 100%
	Number of prescriptions of antibiotics requiring renal-dose adjustment, that being screened by pharmacist	
INDICATOR	% Medication error involving antibiotics requiring renal-dose adjustment	
STANDARD	0	

Analysis and Interpretation

Date of pre-remedial study: 7-18 Dec 2020
Ward: D4

Number of prescription screened	23
Number of prescription with ME	2 (8.7%)

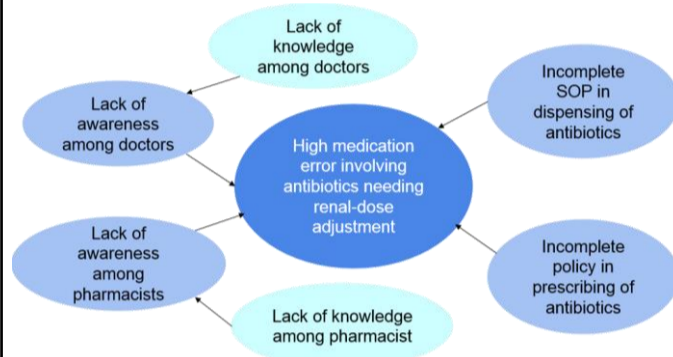


Figure 2 shows the cause-effect analysis from our pre-remedial study.

Strategies for Change (Cycle 1)

Remedial Action 1: Antibiotic Renal Adjustment Quick Guide (Am-read)

Antibiotics	Renal Dosage Adjustment	Ref.
Amoxicillin	CrCl 10-30 ml/min : 500mg BD CrCl <10 ml/min : 500mg OD-BD HD : 500mg OD-BD, serve post HD on HD day PD : 500mg BD	1
<i>H. pylori</i> eradication therapy (1q BD):	CrCl <30 ml/min or HD : 500mg BD	8,9

- To prepare and standardize renal-dose adjustment antibiotics guideline
- To distribute to orthopedic ward
- To place in the patient's medication profile

Remedial Action 2: Amendment of the prescription form by adding in column for creatinine clearance and dialysis status



Remedial Action 3: Educational session

- To create awareness regarding the importance of antibiotics renal-dose adjustment among doctors, pharmacists and nurses.
- CME was done virtually and periodically.

Effects of Change (Cycle 1)

Date of post-remedial study 1: 18-23 Feb 2021
Ward: D4

Number of prescription screened	13
Number of prescription with ME	1 (7.7%)

The contributing factors that lead to medication error in Cycle 2 are inexperienced personnel and inadequate knowledge.

Strategies for Change (Cycle 2)

Remedial Action: Educational session Educate and reinforce to check through patients' renal profile and to use Am-read upon prescribing, screening, dispensing and administering the antibiotics among doctors, pharmacists and nurses.

Effects of Change (Cycle 2)

Date of post-remedial study 2: 8-21 Apr 2021
Ward: D4

Number of prescription screened	13
Number of prescription with ME	0

Achievable Benefit Not Achieved (ABNA)

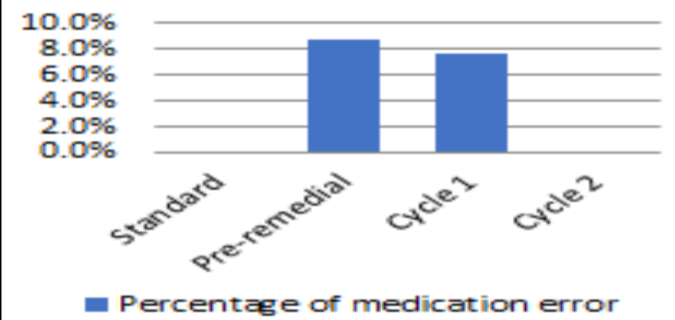


Figure 3 show the percentages of medication error of antibiotic requiring renal - dose adjustment are in reducing trend, i.e 8.7% (pre-remedial), 7.7% (Cycle 1) and 0% (Cycle 2). Zero ME achieved after this study.

Conclusion

All healthcare workers are more alert to check for patients' renal profiles upon prescribing, preparing, dispensing and administering antibiotics to patients.

The Next Step

To standardize prescription form with additional columns for creatinine clearance and dialysis status for all wards in Hospital Melaka and eventually nationwide.

References:
1. Garis Panduan Pembekalan Ubat Farmasi Pesakit Dalam. (2019).
2. Polisi Penulisan Preskripsi Hospital Melaka. (2019).
3. Guideline on ME Reporting, 2009.