QLL 31

# REDUCING MEDICATION ADMINISTRATION ERROR IN WARDS, HOSPITAL REHABILITASI CHERAS


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HOSPITAL REHABILITASI CHERAS

KEMENTERIAN KESIHATAN MALAYSIA


## PRIORITISATION OF PROBLEM

| Problem | S | M | A | R | T | Score |
|---|---|---|---|---|---|---|
| **1. High incidence of Medication Administration Error (MAE) in wards in HRC** | **40** | **40** | **37** | **38** | **33** | **188** |
| 2. High incidence of incomplete medication history in referral letter | 30 | 33 | 34 | 33 | 33 | 163 |
| 3. Increasing number of dispensing error involving LASA Medications | 40 | 33 | 34 | 32 | 33 | 172 |
| 4. High numbers of inconsistent dosing regimen in paediatric and geriatric population | 33 | 32 | 33 | 33 | 33 | 164 |
| 5. Lack of Awareness in Reporting Medication Error | 31 | 32 | 33 | 32 | 33 | 161 |

Score 1(low) – 5(highest)

## PROBLEM TO BE STUDIED

**Medication errors reported to the National Medication Error Reporting System in Malaysia: a 4-year retrospective review (2009 to 2012)**

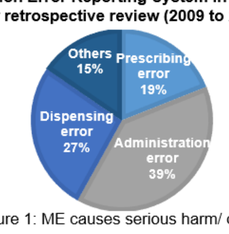
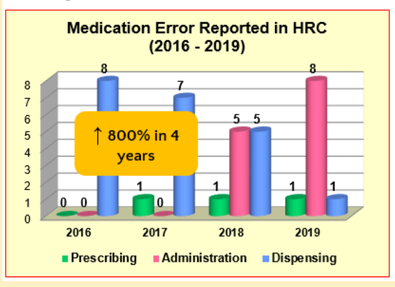



Figure 1: ME causes serious harm/ death




Inappropriate medication administration has a significant impact on patients in terms of morbidity, mortality, adverse drug event, increased length of hospital stay, and increase cost of treatment.

| | |
|---|---|
| **Seriousness** | 9% of pharmaceutical interventions are related to medication administration error (MAE)<br>20% of reported ME were MAE |
| **Measurable** | Measured by percentage of MAE in wards |
| **Appropriate** | Reduce morbidity and harm to patient due to MAE |
| **Remedial** | Remedial action can be carried out by multidisciplinary approach |
| **Timeliness** | Can be evaluated within 1 year |

## INTRODUCTION & LITERATURE REVIEW

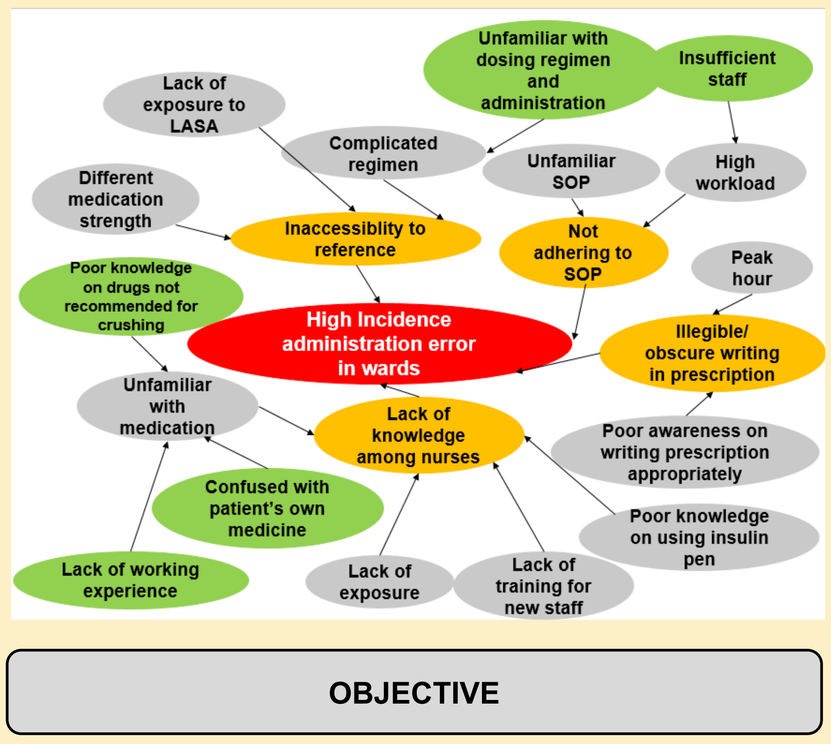
- Hospital Rehabilitasi Cheras (HRC) is the Centre of Excellence and national referral centre for rehabilitation medicine in Malaysia.
- HRC provides comprehensive rehabilitation services and the mean length of stay per patient is about 20 days.
- There were increase of incidences of MAE in wards.
- From previous studies, type of MAE reported were related to dose, drug, time and technique, while the common contributing factors were lack of knowledge, high workload, look alike sound alike medication.

## TERMS & DEFINITION

**Medication error (ME)**: any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in control of the health care professional, patient or consumer.

**Medication Administration Error (MAE) :** Medication error that occurs while administering medication to patient through failures of patient, drug, dose, frequency and route.

## CAUSE EFFECT DIAGRAM




## OBJECTIVE

**General Objective**

To reduce medication administration error in wards

**Specific Objective**

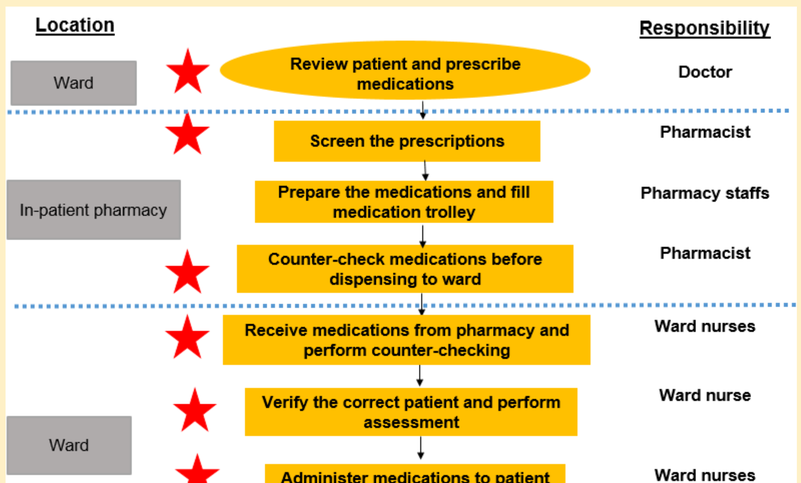
To identify incidence of medication administration error

To identify the factors of contributing to medication administration error

To formulation remedial measures to reduce medication administration error

To evaluate the effectiveness of the remedial measures taken

## PROCESS OF CARE




## MODEL OF GOOD CARE

| | Process | Criteria | Standard | Verification | Cycle 1 | Cycle 2 | Cycle 3 |
|---|---|---|---|---|---|---|---|
| 1 | Review patient and prescribe medication | Medications required prescribed in medication chart | 100% | 100% | 100% | 100% | 100% |
| 2 | Screen prescription | Screen prescription<br>Transcribe prescription<br>Print label | 100%<br>100%<br>100% | 100%<br>100%<br>100% | 100%<br>100%<br>100% | 100%<br>100%<br>100% | 100%<br>100%<br>100% |
| 3 | Prepare medication | Pharmacist screen prescription for 5R- Right patient, Right drug, Right Dose, Right Route, Right Time | 100% | 100% | 100% | 100% | 100% |
| | | Transcribe prescription and generate label | 100% | 100% | 100% | 100% | 100% |
| 4 | Verify the correct patient and perform assessment | Acknowledge and verify right patient | 80% | 30% | 100% | 87% | 100% |
| | | Ensure valid and complete prescription | 100% | 100% | 100% | 100% | 97% |
| | | Perform patient assessment | 100% | 100% | 100% | 100% | 100% |
| 5 | Administer medications to patient | Verify at medication chart:<br>Right patient<br>Right medication<br>Right dose<br>Right frequency<br>Right route (Crushing tablets, dilution) | 100%<br>100%<br>100%<br>100%<br>100% | 100%<br>100%<br>100%<br>90%<br>70% | 100%<br>100%<br>100%<br>100%<br>100% | 100%<br>100%<br>100%<br>100%<br>100% | 100%<br>100%<br>100%<br>100%<br>100% |
| | | Respond Promptly & Politely To Patient's / Caregiver's Questions | 100% | 100% | 100% | 100% | 100% |
| | | Administer medication :<br>Re-verify identity patient | 100% | 100% | 100% | 100% | 100% |
| | | Serve medication via right route | 100% | 100% | 100% | 100% | 100% |
| | | Appropriate administration using device (optional) | 100% | 20% | 73% | 93% | 100% |
| 6 | Documentation of the administration | Verification of administration by another nurse | 100% | 20% | 86% | 100% | 100% |
| | | Sign at medication chart after serving medication | 100% | 50% | 86% | 100% | 93.4% |

Improved by 60% (Pharmacist screen prescription … Transcribe prescription and generate label)

Improved by 30% (Verify at medication chart …)

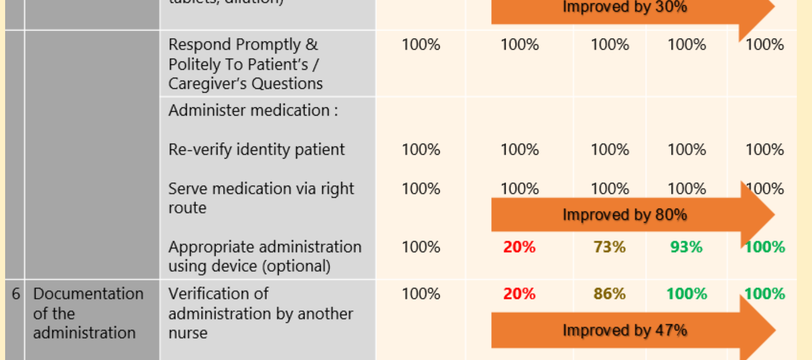
Improved by 80% (Serve medication via right route … Appropriate administration using device)

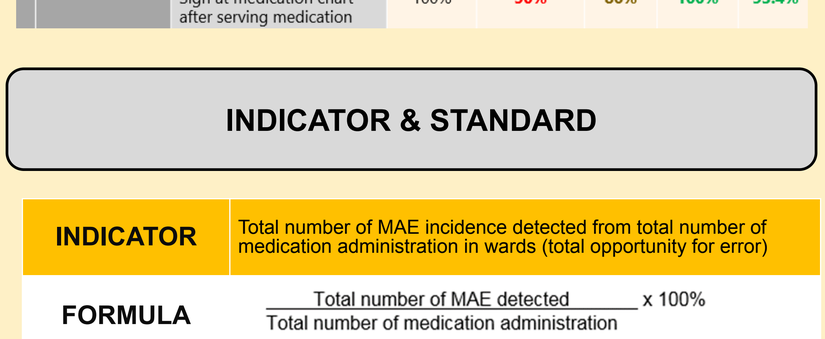
Improved by 47% (Verification of administration by another nurse … Sign at medication chart after serving medication)

## INDICATOR & STANDARD

| | |
|---|---|
| **INDICATOR** | Total number of MAE incidence detected from total number of medication administration in wards (total opportunity for error) |
| **FORMULA** | $\frac{\text{Total number of MAE detected}}{\text{Total number of medication administration}} \times 100\%$ |
| **STANDARD** | 0.018% (Aiming for 75% reduction from baseline, consensus from hospital medication safety committee meeting from past years trending |

## METHODOLOGY

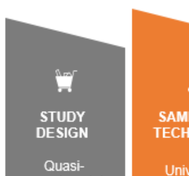



## DATA ANALYSIS AND INTERPRETATION

**Observation of medication administration work process**

- Observation of medication administration process (blinded)
- Tool : checklist of medication administration
- 3 nurses per ward (total 18 nurses)

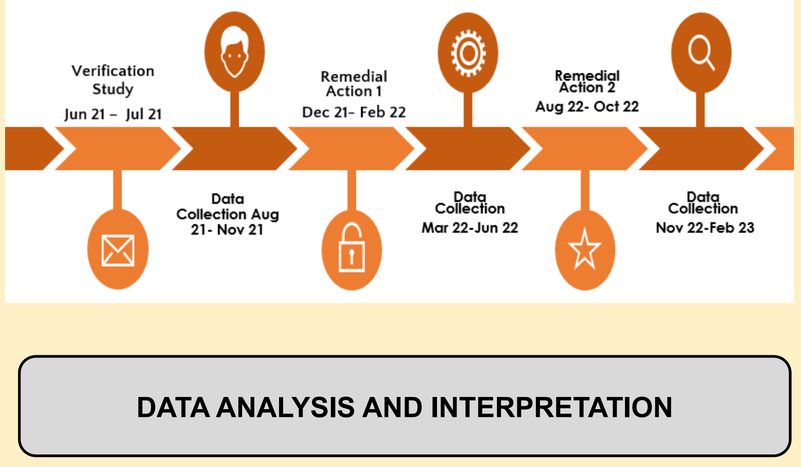


**Survey of contributing factors leads to medication administration error**

- Nurses Perception on Contributing Factors of MAE
- Online survey using google form
- 105 respondents


**Data on reported actual administration administration error performed**

- Actual error – medication administration error reported to Medication Error Committee




## LESSON LEARNT

- Continuous education and commitment from staffs including top management
- Multidisciplinary involvement
- Integration of IT into medication information provision
- Improvisation of strategies: physical training- QR code- link in bio tool

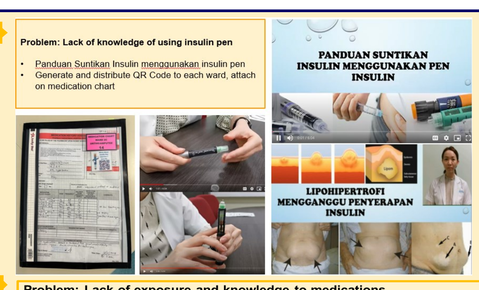
## NEXT STEP

- Expansion to clinician: Doctor Empowerment Pack was created and merged with Nurse Knowledge Pack for knowledge empowerment and quick references for all healthcare providers in the hospital
- Replication to other healthcare facilities in the state is in planning

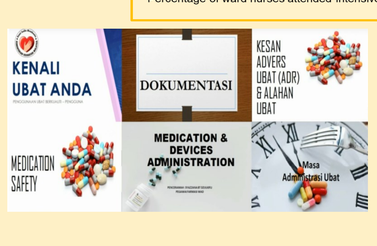
## STRATEGIES OF CHANGE

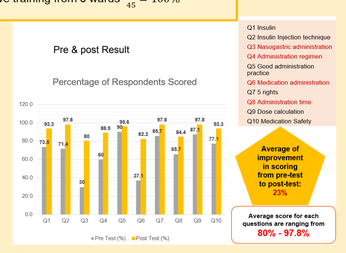
### Cycle 1

1. **Problem: Lack of knowledge of using insulin pen**
   - Panduan Suntikan Insulin menggunakan insulin pen
   - Generate and distribute QR Code to each ward, attach on medication chart



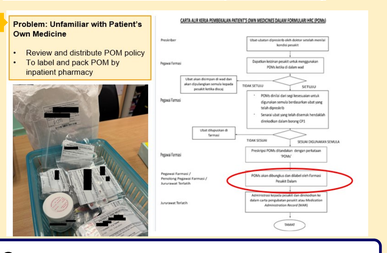

2. **Problem: Lack of exposure and knowledge to medications**
   6 module training for appointed nurse in charge of medication administration in the wards
   Percentage of ward nurses attended intensive training from 6 wards $\frac{45}{45} = 100\%$



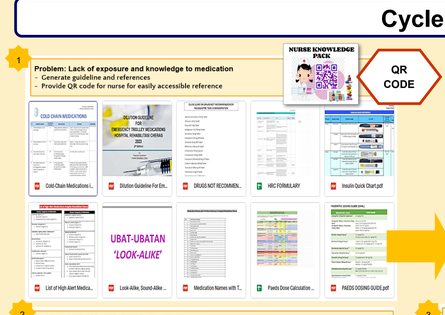

3. **Problem: Look Alike Sound Alike (LASA) medication**
   - Exhibition regarding medication safety for healthcare professionals

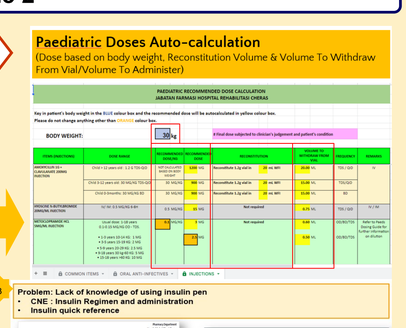
4. **Problem: Unfamiliar with Patient's Own Medicine**
   - Review and distribute POM policy
   - To label and pack POM by inpatient pharmacy



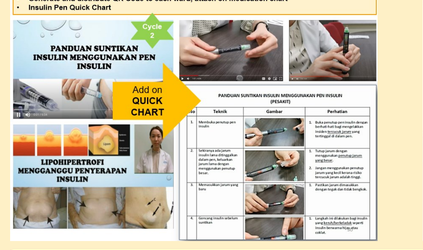
### Cycle 2

1. **Problem: Lack of exposure and knowledge to medication**
   - Generate guideline and references
   - Provide QR code for nurse for easily accessible reference

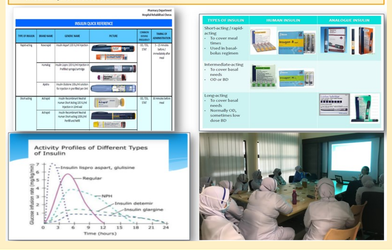



2. **Problem: Lack of knowledge of using insulin pen**
   - Panduan Suntikan Insulin menggunakan insulin pen
   - Generate and distribute QR Code to each ward, attach on medication chart
   - Insulin Pen Quick Chart



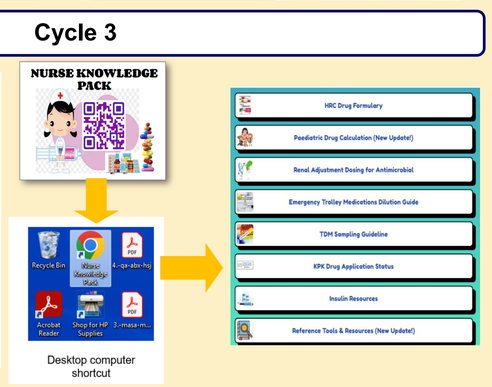

3. **Problem: Lack of knowledge of using insulin pen**
   - CNE : Insulin Regimen and administration
   - Insulin quick reference




### Cycle 3

1. Expansion of Nurse Knowledge Pack to include more information:
   - ✓ List of medications that can be cut or crushed
   - ✓ TDM sampling guide
   - ✓ Renal adjustment dosing for antimicrobial with auto-calculation

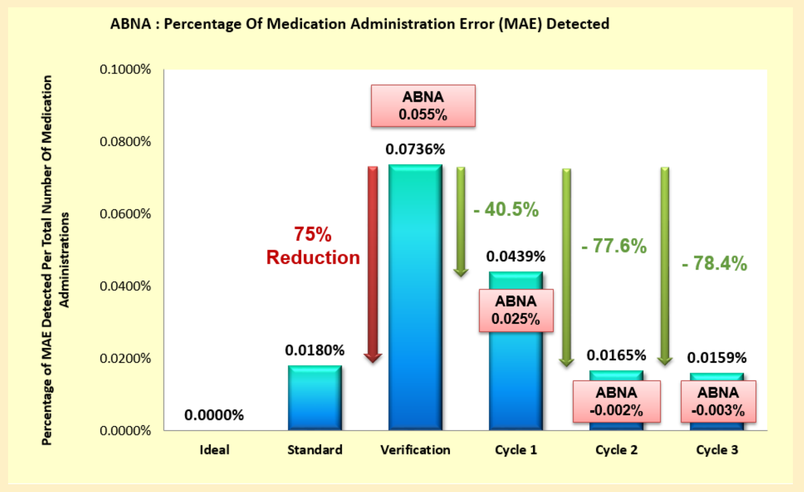
2. Nurse Knowledge Pack was upgraded into a link-in-bio tool that can be accessed using handphone and desktop computer for quick reference



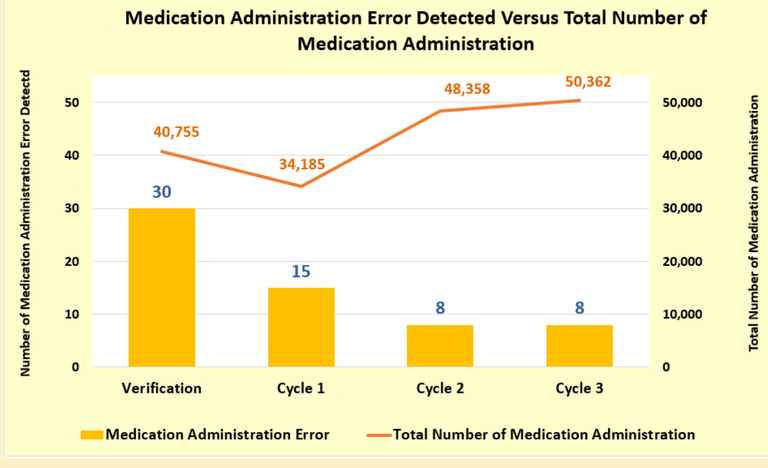

## EFFECTS OF CHANGE

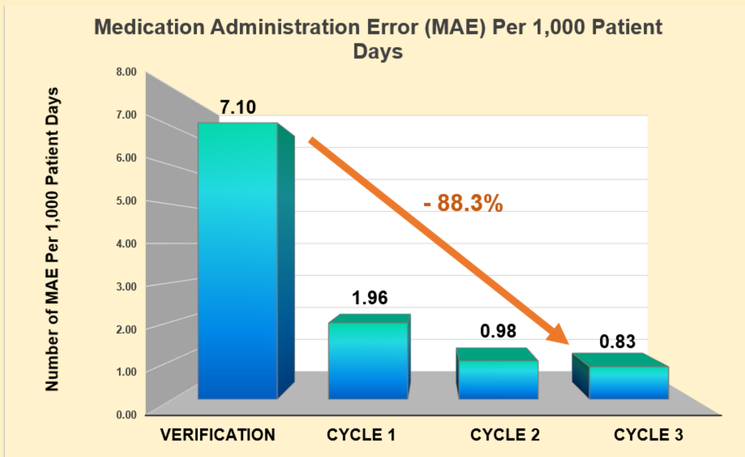
- The percentage of MAE reduced from 0.0736% to 0.0439% (cycle 1), 0.0165% (cycle 2) and finally to 0.0159% in cycle 3 (78.4% reduction).
- Achievable benefit not achieved improved from 0.055% to 0.025%, then reduced to -0.002% and finally to -0.003%.
- MAE has been reduced from 7.10/1,000 patient days to 0.83/1,000 patient days.

## ABNA




## IMPACT





**REFERENCES**

1. Samsiah A, Othman N, Jamshed S, Hassali MA, Wan-Mohaina WM. Medication errors reported to the National Medication Error Reporting System in Malaysia: a 4-year retrospective review (2009 to 2012). European journal of clinical pharmacology. 2016 Dec;72:1515-24.
2. Feleke, S.A., Mulatu, M.A. & Yesmaw, Y.S. Medication administration error: magnitude and associated factors among nurses in Ethiopia. *BMC Nurs 14, 53 (2015). https://doi.org/10.1186/s12912-015-0099-1*
3. Aboshaiqah AE. Nurses' perception of medication administration errors. Am J Nurs Res. 2014;2(4):63-7.
4. You MA, Choe MH, Park GO, Kim SH, Son YJ. Perceptions regarding medication administration errors among hospital staff nurses of South Korea. International journal for Quality in health care. 2015 Aug 1;27(4):276-83.
5. Ojerinde AC, Adejumo PO. Factors associated with medication errors among health workers in University College Hospital, Nigeria. Journal of nursing and health science. 2014 Jun;3(3):22-3.
6. Polisi dan Garispanduan Program Patient's Own Medicines 2018, Program Perkhidmatan Farmasi, Kementerian Kesihatan Malaysia.



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