IMSAFE: An Initiative for Medication Safety

Supported and Owned by
Doctors, Nurses, Clinical pharmacist of MICU Fortis, Mohali

CAHO
Committed to Safer Healthcare

World Patient Safety Day 17 September

Introduction

- The medication errors can result in severe patient harm including death
- Most medication errors occur at prescribing & administration
- Most medication errors are preventable
- **High workload, time pressure, interruptions in day-to-day activity of physician and nurses are known patient safety concerns for medication errors

**Medication errors: what is their impact? Mayo Clin Proc Aug 2014 89(18) 1027

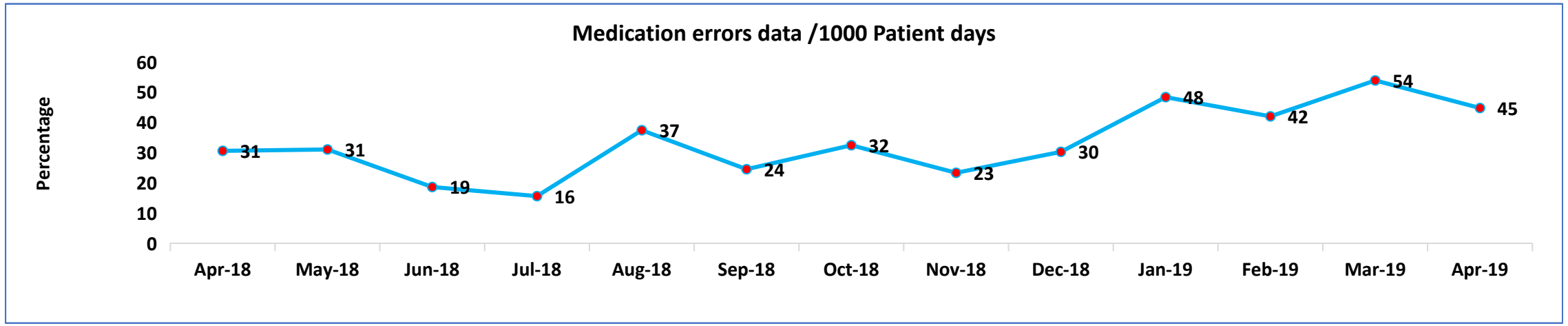
Problem Definition

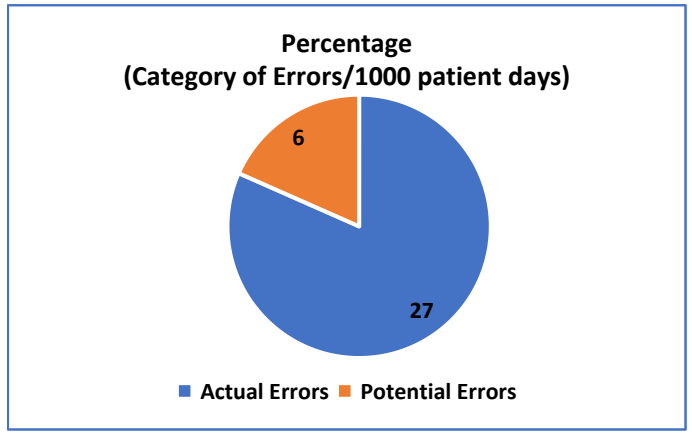
- The bed side staff is a multitasker
- Safe drug administration consumes 25% of the shift time

- Audit by clinical pharmacists revealed ever increasing incidence of medication errors
- Adverse drug events
    - Increased length of stay
    - Financial burden to the family
    - Collateral litigation risk for the hospital

Audit findings

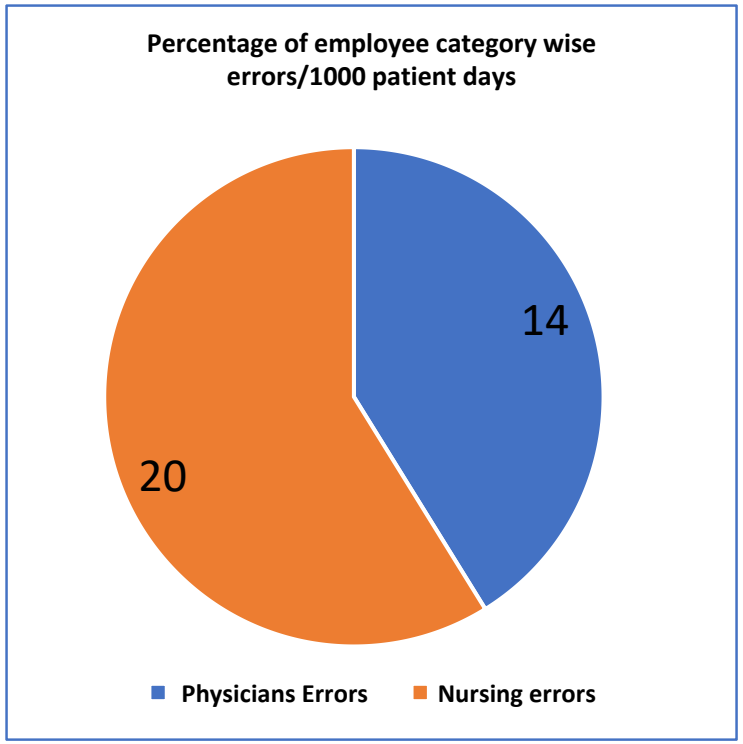
Pre intervention medication errors data

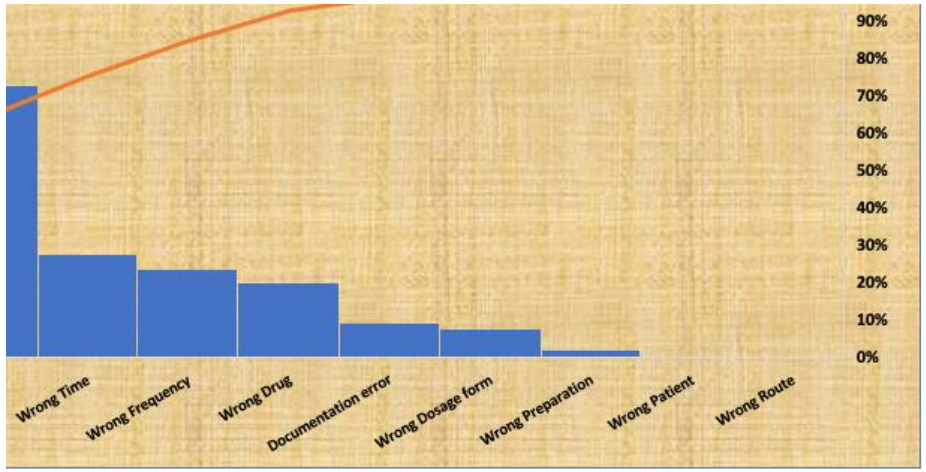




- **In Pre intervention Phase from April 2018 to April 2019 total medication errors per 1000 Patients days was 33%**
- Most of the errors was administration errors

GAP ANALYSIS





Objective

- To substantially decrease the medication errors
- To ensure safe medication environment in our ICU
- To increase the knowledge of nursing staff regarding medication use
- To improve patient care services

Concept Note

- A presumption that if we could somehow decongest the responsibility of the bedside staff by splitting the drug delivery process, we may be able to reduce medication related errors and hence the adverse drug events and simultaneously improve the care at the bedside.

Methodology

- Look out for dedicated preparation and dispensing of IV medications
- Drug preparation room identified and customized (Medication bay)
- Based on prior errors as per the audits -

❑ Process flow created and refined as per the challenges encountered

❑ Prescription diary checklist was created for all patients- modified

- Team meetings & discussions with nursing teams to decrease errors

Methodology

Timeline		
Pre-Intervention Pilot phase	Intervention Phase	Post Intervention Phase
2months (2019)	2 months (2019)	Till date
Project conceived Process flow identified Team discussion and training Audits Corrections	Dedicated nurses allocated from amongst team	Dedicated nurses allocated from amongst team Medication verification nurse (MVN)
CP+PA+NT	Under supervision	Independent

Methodology

Step 1: IV antibiotics
- 100% safe antibiotic & high alert medication practices
- Roster of nurses for 3 shifts per day for 1 month
- Supervised completely in all shifts by Clinical Pharmacists + Duty Doctors

Step 2: Shift In-charges + Doctors were involved in the process flow

Step 3: Continuous audits for challenges / correction

Step 4: All drug infusions were addressed

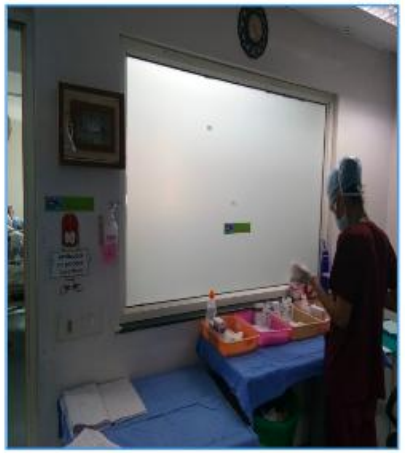
Step 5: Inventories
- Medication nurse was gradually given the responsibility of inventories of high risk drugs including Buffer Stock

Step 6: Other Intravenous Medications/ High alert oral medications

Step 7: TPN & Nutraceuticals were also included

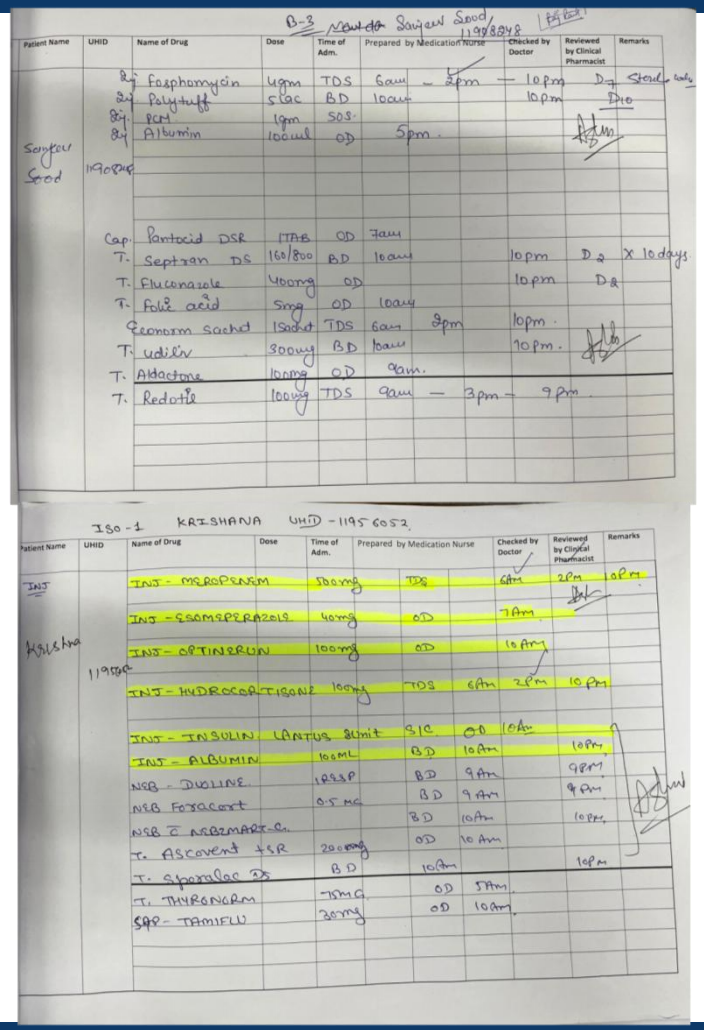
Methodology (….Continued)





- A dedicated nursing staff as MVN
- Round the clock cover
- Clean clutter free medication preparation bay

Methodology (….Continued)



B-3 Name Sanjeev Sood 1198848

Patient Name	UHID	Name of Drug	Dose	Time of Adm.	Prepared by Medication Nurse	Checked by Doctor	Reviewed by Clinical Pharmacist	Remarks
Sanjeev Sood 1198848		Inj. Fosphomycin	4gm	TDS	6am — 2pm	— 10pm	D7	Stop
		Inj. Polytuff	5lac	BD	10am	10pm	D10	
		Inj. PCM	1gm	SOS				
		Inj. Albumin	100ml	OD	5pm.			
		Cap. Pantocid DSR	1TAB	OD	7am			
		T. Septran DS	160/800	BD	10am	10pm	D2	X 10 days
		T. Fluconazole	400mg	OD		10pm	D2	
		T. Folic acid	5mg	OD	10am			
		Ecosorm Sachet	1Sachet	TDS	6am 2pm	10pm.		
		T. Udiliv	300mg	BD	10am	10pm.		
		T. Aldactone	100mg	OD	9am.			
		T. Redotil	100mg	TDS	9am — 3pm —	9pm.		

ISO-1 KRISHANA UHID - 1195052

Patient Name	UHID	Name of Drug	Dose	Time of Adm.	Prepared by Medication Nurse	Checked by Doctor	Reviewed by Clinical Pharmacist	Remarks
INJ Krishna 1195052		INJ - MEROPENEM	500mg	TDS	6Am	2Pm	10Pm	
		INJ - ESOMEPRAZOLE	40mg	OD	7Am			
		INJ - OPTINERON	100mg	OD	10Am			
		INJ - HYDROCORTISONE	100mg	TDS	6Am	2Pm	10Pm	
		INJ - INSULIN LANTUS 8Unit	S/C	OD	10Am			
		INJ - ALBUMIN	100ML	BD	10Am		10Pm	
		NEB - DUOLINE	1P3SP	BD	9Am		9Pm	
		NEB Foracort	0.5 MG	BD	9Am		9Pm	
		NEB Combimart-Q		BD	10Am		10Pm	
		T. Ascovent 4SR	200mg	OD	10 Am			
		T. Sporolac DS	BD		10Am		10Pm	
		T. THYRONORM	75MG	OD	5Am			
		SAP - TAMIFLU	75mg	OD	10Am			

Fortis HOSPITAL Sector 62, Phase VIII, S.A.S. Nagar, Mohali - 160062

Patient's Name.....UHID.....IPID.....
Age..... Gender..... Wt.(Kg).....Height(cm).....DOA.....
Speciality/Consultant Name.....Area.....

IVIG (Human Normal Immunoglobulin)

Dosage Forms: Each vial contains solution for Intravenous infusion
Strength: Each vial contains Immunoglobulin **5 gm/100 ml & 10 gm/100 ml**
Storage- Store at a temperature between 2°C - 8°C.

Prescribed Dose.....

Instructions for Preparation of Infusion, Administration & Monitoring

1. Before Administration

Remove the Inj. Immunoglobulin vials from refrigerated storage and allow to equilibrate to room temperature for approximately 20 minutes before preparation. Do not expose to direct heat. Do not shake the vial.

2. Dilution

NO dilution required. Ready to use infusion

3. Pre-Medication

Inj. **Hydrocortisone 100 mg** IV Stat, Inj. **Avil (Pheniramine) 45.5mg** one ampule IV Stat & Inj. **Paracetamol 300 mg** IV stat (**10-15 minutes prior to each infusion)**

4. Administration

Step 1- Ensure adequate hydration of patient before starting the infusion
Step 2- Use separate IV line and infusion pump for administration
Step 3- Do not administer as IV push or bolus. Do not administer any other medication with infusion
Step 4- Before starting the infusion flush IV line with 5% Dextrose
Step 5- Initially start infusion at the rate 20 ml/ hour for the first 30 minutes. If well tolerated, then increase infusion rate to 40 ml/hour for next 30 minutes after that increase infusion rate to 50 ml/hour
Step 6- Maximum infusion time is 2 hours for 100 ml vial
Step 7- After infusion is completed, again flush IV line with 5% Dextrose

5.Monitoring

Monitor Patient for any Infusion-related reaction (Anaphylactic reaction) which may include:
headache, fever, fatigue, chills, flushing, dizziness, urticaria, wheezing or chest tightness, nausea, vomiting, rigors, back pain, chest pain, muscle cramps, myalgia, diarrhea, rise/fall in blood pressure, influenza like illness, edema, infusion site pain/pruritus/phlebitis/swelling/infusion site reaction, elevation in blood sugar level, volume overload.

ADRs: Renal Failure, Hyperproteinaemia, Thrombotic Events, AMS (Aseptic Meningitis Syndrome), Hemolysis, Transfusion related acute lung injury, Hepatic abnormality, , Anxiety, Insomnia, Amnesia, Dysarthria, Dizziness, Dysgeusia, Burning sensation, Cardiac Disorders, Pruritus, Dermatitis, Rash erythematous, Angioedema, Cold sweat, Dyslipidemia.

Remarks:
.....
.....

Name of Doctor .....**Signature**.....**Date**.....

FHM/IVIG/04/2022/PV-1.0

MEDICATION ERROR REPORTING FORM

1. Name of patient: _____ UHID/IPD No.:_____
2. Date (Error Reported): _____ Date (Error Committed): _____
3. Area/Location/ Specialty: _____ Shift (M/E/N): _____
4. Name of the drug: _____ Generic Name: _____
5. **Diagnosis:** _____

6. **Category of error. Tick (✔) as appropriate**
Potential error (Category A / B) Actual error: (Category C / D / E / F /G /H / I)

7. **Employee category. Tick (✔) as appropriate**
a) Resident Doctor **b)** DNB Resident **c)** Staff Nurse **d)** Pharmacist **e)** Consultant

8. **Location of medication error. Tick (✔) as appropriate**
a) Patients Room b) Wards c) ICU d) IP Pharmacy e) ER f) OT g) Any other_____

9. **Type of error**

I. **Prescription errors**:
- **a)** Incomplete prescription(Yes/No) if Yes Specify _____
- **b)** Prescribed in illegible handwriting
- **c)** Drug allergies not identified
- **d)** Contraindicated drug
- **e)** Unapproved abbreviations
- **f)** Wrong dilution
- **g)** Incorrect prescription
  - drug, dose, frequency, route inappropriate
  - therapeutic duplication/Similar Spectrum
  - Irrational combination
- **h)** Reconciliation error
- **i)** Any other_____

II. **Transcription Error**:
- **a)** Wrong drug
- **b)** Wrong dosage form
- **c)** Wrong dose
- **d)** Wrong route
- **e)** Wrong frequency
- **f)** Missed transcription
- **g)** Wrong formulation
- **h)** Wrong generic name/Incomplete generic name
- **i)** Unapproved abbreviations
- **j)** Special instructions missing
- **k)** Therapeutic duplication/Similar Spectrum
- **l)** Reconciliation error
- **m)** Drug not stopped on drug chart
- **n)** Any other_____

III. **Non- Compliance in drug administration:**
- **a)** Wrong patient
- **b)** Wrong drug
- **c)** Wrong dosage form
- **d)** Wrong dose
- **e)** Wrong route
- **f)** Wrong frequency
- **g)** Wrong time
- **h)** Wrong dilution
- **i)** Wrong formulation
- **j)** Missed dose
- **k)** Expired drug
- **l)** Any other_____

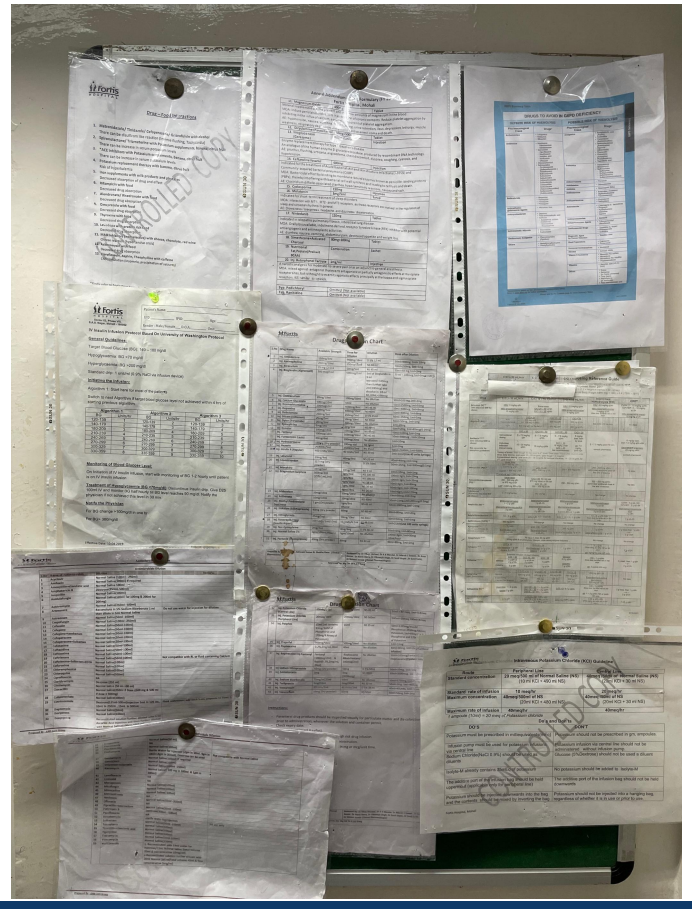
IV. **Documentation Error:**
- **a)** Documented before administration of drug **b)** No documentation **c)** Wrong documentation

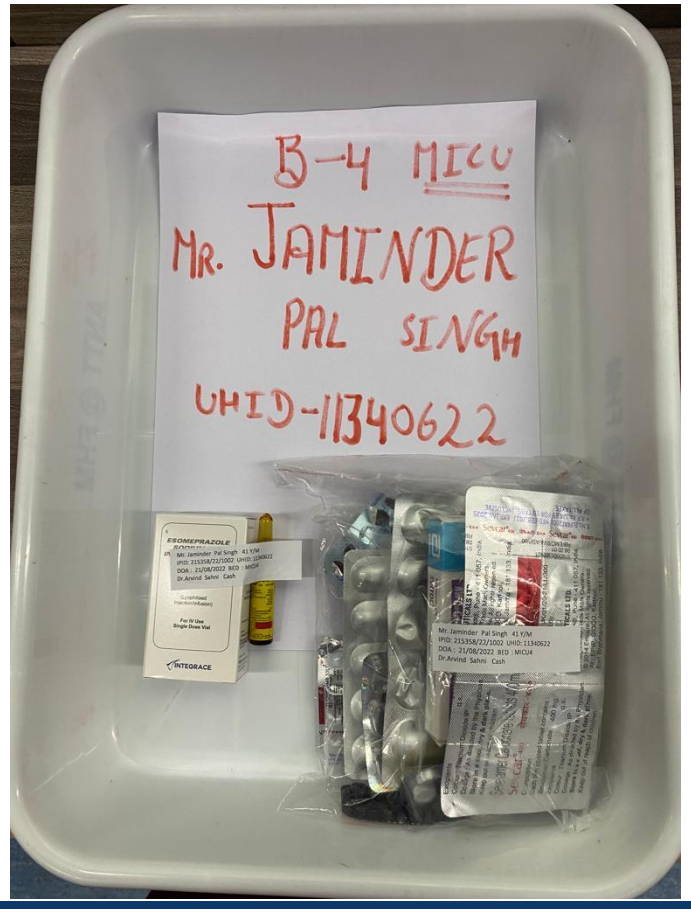
V. **Drug Monitoring Error:**
- **a)** Insulin/conc.KCL/conscious sedation not monitored
- **b)** RFT/LFT/serum electrolytes/blood sugars not monitored
- **c)** Any other_____

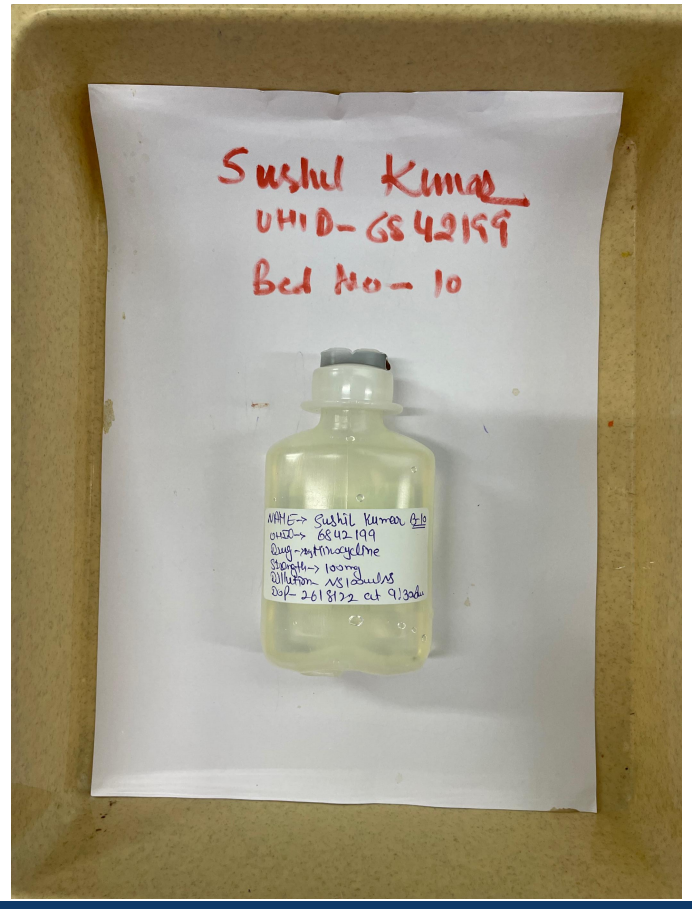
VI. **Indenting error:**
- **a)** Wrong drug indented
- **b)** Wrong dose/strength indented
- **c)** Wrong formulation
- **d)** Wrong dosage form indented
- **e)** Delay indent
- **f)** Wrong combination

VII. **Dispensing error:**
- **a)** Wrong drug dispensed from pharmacy
- **b)** Wrong dose/strength dispensed from pharmacy
- **c)** Wrong dosage form dispensed from pharmacy
- **d)** Expired drug dispensed
- **e)** Wrong formulation
- **f)** Wrong Substitution
- **g)** Delay in dispensing (more than 2-hours)
- **h)** Cold chain not maintained
- **i)** Drug not available in pharmacy
- **j)** Wrong combination

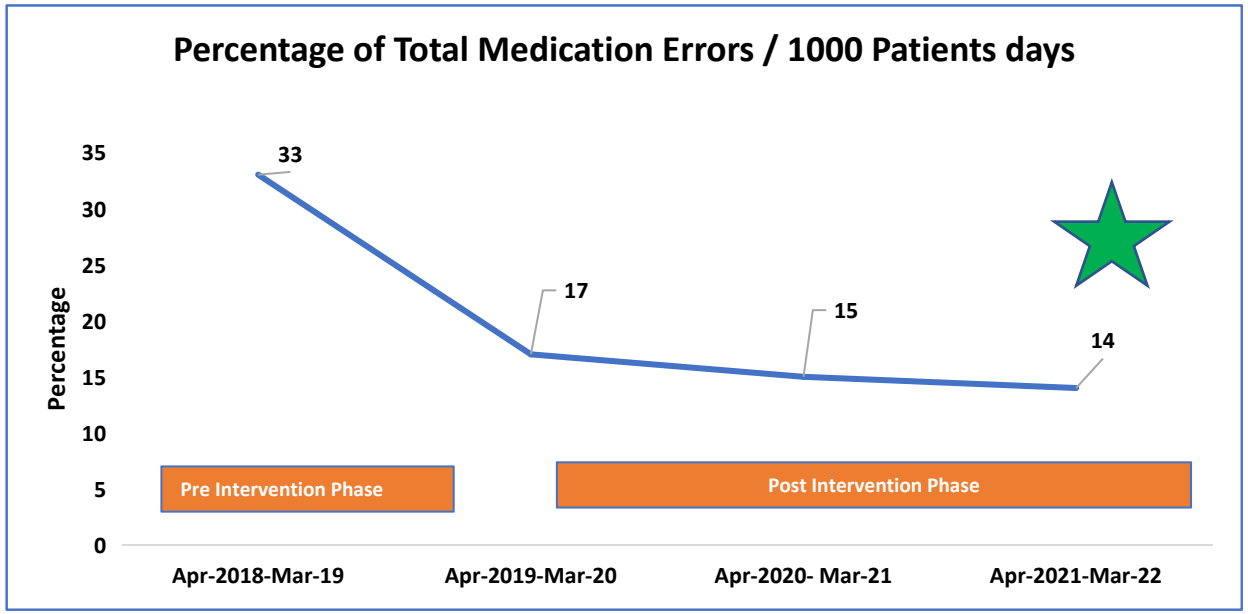
Methodology (….Continued)

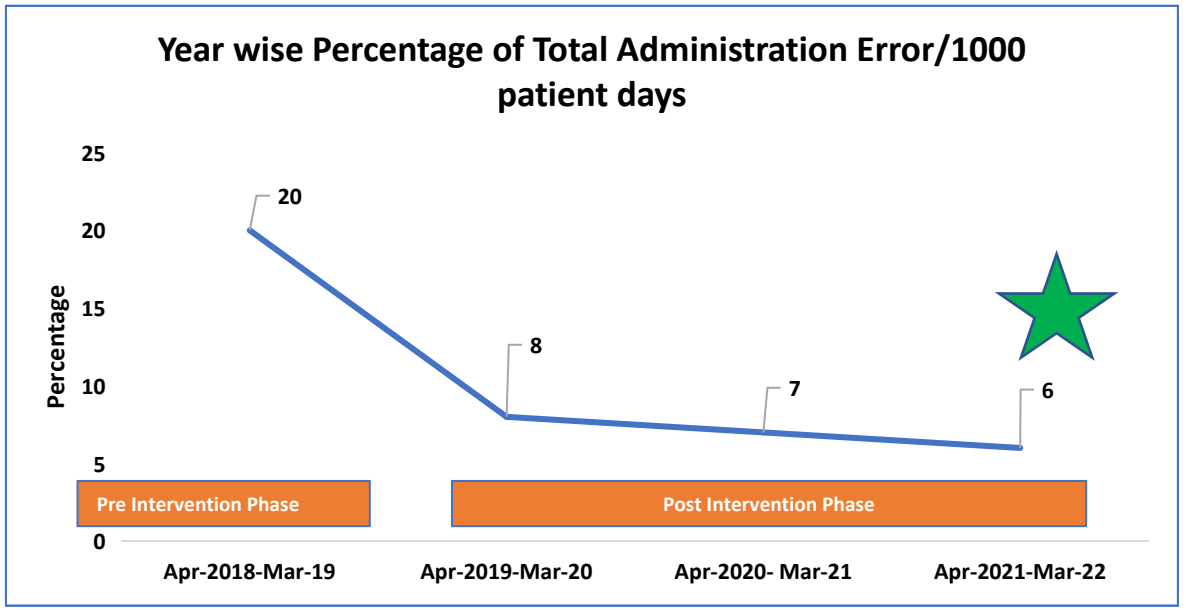






Tangible results

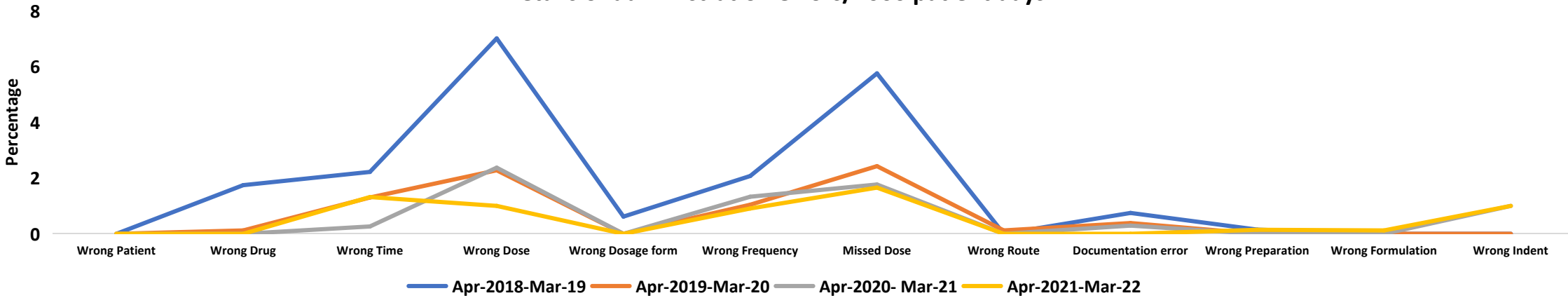


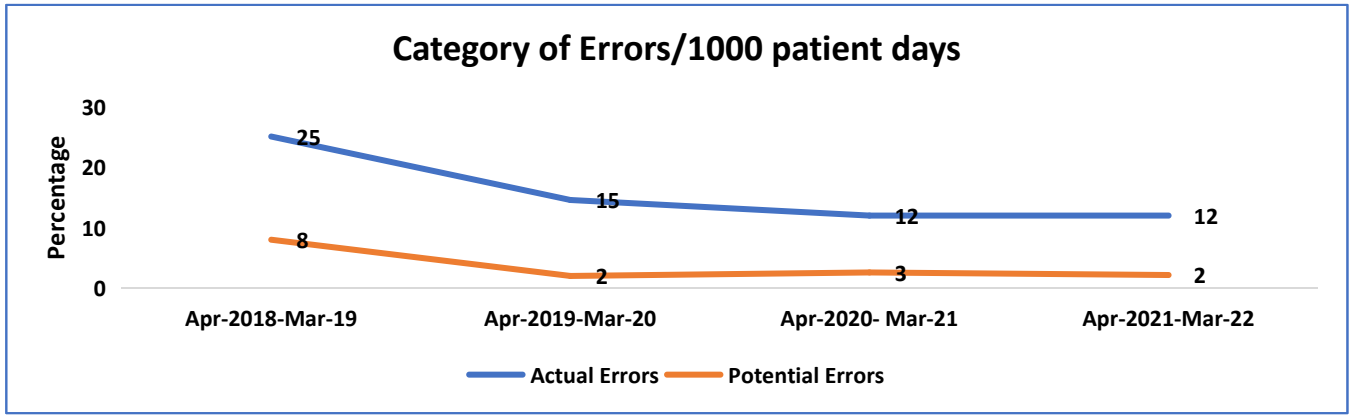


Total Medication errors rate was decreased by 58% from pre intervention Phase

70% reduction in Nursing administration errors from Pre intervention Phase

Tangible results





Intangible Results

1. Smooth drug preparation and administration
2. Substantial Reduction in medication errors
3. Increased sensitivity to safe medication practices
4. Increased time for patient care by bedside nurses – Effective manpower management
5. Administrative skills (managing inventories)
6. Enhance knowledge regarding (drug dose, renal/ hepatic modification/ drug specific patient moitoring)
7. TEAM EFFORT

Intangible Results

Gains during COVID Pandemic

- Easy setup of medications bays in COVID units
- Inventory and formulary kept outside the infected zones
- Standardized medication practices
- Safe medication practices due to dedicated staff
- Efficient manpower utilization

Intangible Results

2.Medication Preparation Area GICU

3.Medication Preparation Area Ward A3

4.Medication Preparation Area Ward A4

During COVID-19 Designated Medication Preparation Areas

1.Medication Preparation Area MICU

Conclusion

- Improved medication delivery process with reduced medication errors
- Controlled management of high alert medications
- Nurse empowerment and Improved knowledge
- A viable and self sustaining model with minimal recurring cost
- Definite value preposition for all stakeholders- patients, healthcare staff, organization

Thank You!