

**Internship Training at
Rockland Hospitals, Delhi
(February 1 –April 26, 2016)**

A study on
Medication Management Process
**MBA Health and Hospital Management
(2014-2016)**

**By
Gunjan Gulia**

**Under the guidance of
Dr. Tanjul Saxena**

RHL is currently running three hospitals-

- » 200-bed facility at Qutub Institutional area.
- » 103-bed facility at Dwarka launched in July 2012 .
- » 505 bed super specialty hospital at Manesar, commissioned in Jan 2013 , operational in April 2013.

Vision: To be the most trusted health care brand nationally and internationally

Mission: To create a network of quality health care service providers up to village levels at affordable costs.

- ***MEDICATION ERROR***- The Council defines a "medication error" as follows: "A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.

Types of Medication Error

- ***Prescription Errors***- The error that originates from written medication orders.
- ***Administration Errors***- An error originating during the process directly associated with the medication administration at the nursing unit.
- ***Transcription Errors***- The errors which originate during transcription of original physician's order into Medicine Administration Record by the MO/JR.
- ***Dispensing Errors***- An error originating when medication is dispensed from the pharmacy

Review of Literature

- The reality that medical treatment can harm patients is one that the healthcare community has come to terms with over recent years .
- Medications are involved in 80 percent of all treatments and impact every aspect of a patient's life
- Prescribing and drug administration appear to be associated with the greatest number of medication errors (MEs), whether harm is caused or not .
- Recent systematic reviews of medication administration error (MAE) prevalence in healthcare settings found that they were common, with one reporting an estimated median of 19.1 % of 'total opportunities for error' in hospitals . A significant proportion of MAEs are associated with actual or potentially harmful effects. (Source-Prevalence & nature of medication administration error in health care setting: a systems review of direct observation evidence, Keers RN, Williams SD, Cooke J, Ashcroft DM Ann Pharmacother 2013 Feb;42(2):237-56)

RESEARCH QUESTION

How to improve patient safety by reviewing medication management process of the hospital by eliminating failure modes from the process?

AIM

To assess various risk points existing in the medication management process of the hospital and to assess the cause and effect of failure modes.

OBJECTIVES

- ✓ To review the medication management process through process mapping.
- ✓ To identify the various failure modes in the process with their severity and frequency.
- ✓ To analyze the causes and effects of various failure modes.
- ✓ To propose recommendations to eliminate the failures from the process in order to minimize medication errors.

METHODOLOGY-

TYPE OF STUDY- Observation analytical study

STUDY LOCATION- Rockland Hospital, Dwarka

SOURCE OF DATA COLLECTION

Primary Data- Direct observation of prescriptions and interaction with nurses.

Secondary Data- Previous patient records

STUDY SAMPLE- IPD January,2016-643

IPD Feb,2016- 683

IPD March,2016- 651

Population frame	1977
------------------	---------------------------------

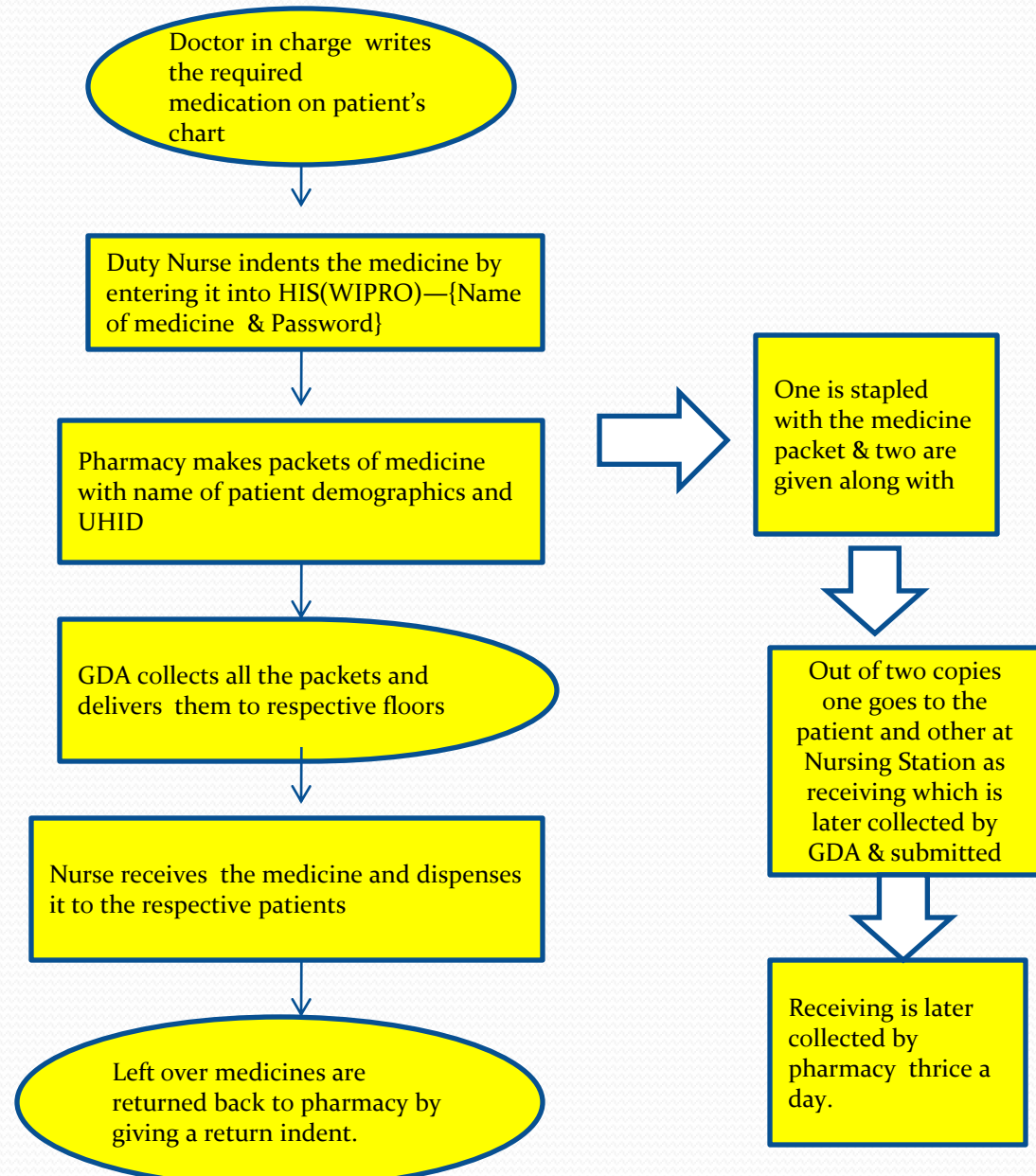
Sample size =266

STUDY DURATION- THREE MONTHS

STUDY TOOL- FMEA(Failure Mode Effect Analysis)

Step- 1

IPD Process



- **Step 2-(Potential Failure Points)**

- FM 1- Incomplete prescription in terms of dose/route/frequency
- FM 2- Allergies of the patient are not known/not mentioned
- FM 3- Medicine is transcribed wrongly in the MAR
- FM 4- The medicine is copied wrongly in HIS and indented wrongly
- FM 5- Wrong medicine/dose/form is dispensed by pharmacy
- FM 6- Medicines are not cross checked against the indented order
- FM 7- Administration time was not proper
- FM 8- After administration of medicine nurse did not sign the record.
- FM 9- The new/changed medicine are not added after the physician's round and the stopped drugs are not signed.
- FM 10- Delay in indenting the medicine from IPD/dispensing of medicines from pharmacy.
- FM 11- The drugs are not returned back to the pharmacy.

Step 3-(Severity Rating)-(Source: NABH CQI Workshop)

Rating	Criteria/Risk	Description(Severity of Failure)
10	Dangerously High	Failure could cause terminal injury or death of patient
9	Extremely High	Failure involves regulatory non compliance and could cause long term disability
8	Very High	Failure causes patients health to be seriously affected & patient has to return for major correction.
7	High	Failure seriously affects patients health leading to high patient dissatisfaction
6	Moderate	Failure causes disruption of daily activities of patient leading to dissatisfaction
5	Low	Inconvenience to patient and provider with failure of being detected
4	Very Low	Inconvenience at subsequent functions: minor rework. Failure detected and corrected at subsequent steps of the process
4	Very Low	Inconvenience at subsequent functions: minor rework. Failure detected and corrected at subsequent steps of the process
3	Minor	Slight inconvenience at next function; minor rework. Failure detected and corrected at next step of the process
2	Very Minor	Slight inconvenience at delivery: minor rework. Failure detected & corrected at delivery
1	None	No noticeable effects

- **Step 4-(Frequency Rating/Occurrence) (Source: NABH CQI Workshop)**

Rating	Criteria/Risk	Description(Probability of failure)
10	Dangerously High	Failure is almost inevitable. More than one occurrence per day
9	Extremely High	One occurrence every 3-4 days
8	Very High	High: One occurrence per week
7	High	One occurrence every month
6	Moderate	Moderate: Occasional failures, one occurrence every three months
5	Low	One occurrence every six months to one year
4	Very Low	One occurrence per year
3	Minor	Low: Relatively low failures, one occurrence every 1-3 years
2	Very Minor	One occurrence every 3-5 years
1	None	Remote: Failure is unlikely, one occurrence greater than 5 years

- **Step-5(Detection Rating) (Source: NABH CQI Workshop)**

Rating	Criteria/Risk	Description(Detection of Failure)
10	Absolute Uncertainty	Controls will not or cannot detect the existence of a failure. No known controls available to detect the failure mode.
9	Very Remote	Controls probably will not detect the existence of failure mode. Controls achieved with indirect or random checks only
8	Remote	Controls have a poor chance of detecting the existence of failure modes
7	Very Low	Controls have a low chance of detecting the existence of failure
6	Low	Controls may detect the failure
5	Moderate	Controls may detect the existence of a failure mode. Error likely to be detected after service delivery.
4	Moderately High	Controls have a good chance of detecting failure mode. Error detection at service delivery
3	High	Controls have a very good chance of detecting failure mode; error detection at subsequent steps
2	Very High	Current controls almost certain to detect the failure mode. Process automatically detects failure mode
1	Almost Certain	Current controls almost certain to detect the failure mode. Reliable detection controls are known with similar processes. Process automatically prevents further processing.

FMEA Matrix
(ROCKLAND HOSPITAL,DWARKA)

S.No	Processes	Failure Modes (FM)	Causes	Occurrence (O)	Effects	Severity (S)	Current Control	Detection (D)	RPN= S*O*D
1	Prescription of Drugs	Incomplete prescription in terms of dose/route/frequency	Rush of patients, Illegible handwriting of doctors.	8	Wrong dosage, wrong route of administration	5	Audit of Prescriptions	5	200
2	Allergies of the patient are identified	Allergies of the patient are not known/not mentioned	Miscommunication b/w RMO & nursing staff. Negligence to put allergy sticker, Distraction	9	Wrong(allergic)drug is given to the patient	7	Allergy sticker is put on patient file/highlighted	3	189
3	RMO enters the drug name on treatment sheet	Medicine is transcribed wrongly in the MAR	Illegible handwriting, Miscommunication, Negligence, Unclear Prescription, Look alike drugs	6	Wrong drug requisition, wrong dose, wrong drug	9	Treatment sheet	4	216
4	Nurse indents the medicine through HIS	The medicine is copied wrongly in HIS and indented wrongly	Illegible handwriting, Miscommunication, Negligence, Unclear Prescription, Look alike drugs	6	Wrong drug requisition, wrong dose, wrong drug	9	HIS	5	270
5	Drugs are dispensed by pharmacy	Wrong medicine/dose/form is dispensed by pharmacy	The drug indented with other dosage form is dispensed & information not conveyed, Incomplete dispense of indent	8	Wrong dose is dispensed	7	Treatment sheet,HIS, Cross checking of order	4	224

S.No	Processes	Failure Modes (FM)	Causes	Occurrence (O)	Effects	Severity (S)	Current Control	Detection (D)	RPN= S*O*D
6	Drugs are verified by the nursing staff on receiving from pharmacy	Medicines are not cross checked against the indented order	Mental slip, Negligence, Non adherent to policies & procedures	7	Wrong drug is given to the patient	9	Treatment sheet, HIS	4	252
7	Nursing staff signs the treatment sheet with the time against the drug name after administration	Administration time was not proper	Not indenting on time, not available on time, time, incomplete prescription, Miscommunication b/w shifts	8	Delay in drug administration	5	Time of drug administration on treatment sheet	5	200
8	Nursing staff signs the treatment sheet with the time against the drug name after administration	After administration of medicine nurse did not sign the record	Mental slip, Negligence, Non adherent to policies & procedures	9	Re-administration/missed drug administration	5	Treatment sheet	3	135
9	After the consultants round treatment sheet is promptly updated by the RMO	The new/changed medicine are not added after the physician,s round and the stopped drugs are not signed	Miscommunication, Negligence	5	Missed drug administration	6	-	6	180
10	Pharmacy makes packets of received indent and sends them to respective floors	Delay in indenting the medicine from IPD/dispensing of medicines from pharmacy.	Negligence, Non availability of Housekeeping staff to deliver the medicines	10	Delay in drug administration	6	-	1	60
11	The drugs not used are returned back to pharmacy	The drugs are not returned back to the pharmacy.	Mental slip, Negligence	7	Overstocking of medicines on patients bedside, patient may take two or more dose of same medicine	2	-	5	170

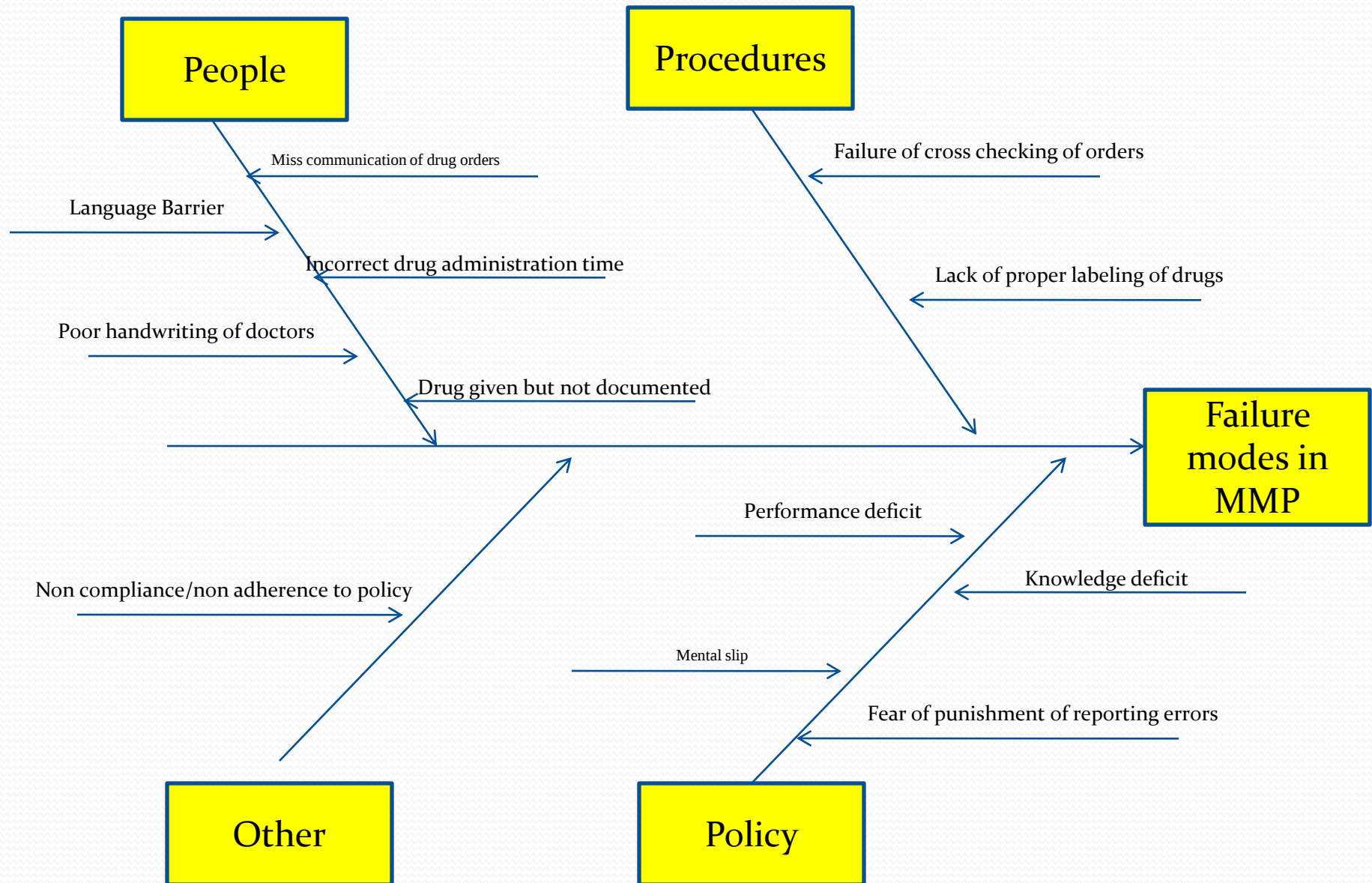
❖ Major four failure modes based on the Risk Priority Number are as follows:

- **FM 4-** The medicine is copied wrongly in HIS and indented wrongly.(RPN=270)
- **FM 6-** Medicines are not cross checked against the indented order(RPN=250)
- **FM 5-** Wrong medicine/dose/form is dispensed by pharmacy(RPN=224)
- **FM 3-** Medicine is transcribed wrongly in the MAR.(RPN=216)

❖ *From the above matrix we can conclude that most common causes of Failure are:*

- Illegible Handwriting- It includes use of incorrect abbreviations, confusion between drugs with similar names, misuse of zeroes & decimal points and unclear prescriptions.
- Delay in dispensing of order from pharmacy
- Improper/Incomplete order is dispensed from pharmacy
- Miss communication of drug orders.
- Cross checking of order was not done by the nurse
- Nurse did not sign the patient sheet after dispensing the medication.
- Medication was not administered on proper time.
- Non adherent to policies and procedures
- Negligence (Performance deficit, knowledge deficit, mental slip)

Cause effect diagram of failure modes in MMP:



CONCLUSION:

- There are number of factors at each step of patient care that contribute to medication errors
- Special focus should be given to the prescription & transcriptase phases of patient care due to large number of errors tracked back to these stages of treatment
- Policies & Procedures are in place, just adherence to them is required. Training & motivation is the need of hour, should be ascribed priority and promptly addressed.
- FMEA is a continuous process and should be improved in phases
- The recommended actions are to be taken along with defined responsibilities.

RECOMMENDATIONS:

- **CPOE(Computerized physician order entry system)-**

Computerized physician order entry (CPOE) is the process of a medical professional entering medication orders or other physician instructions electronically instead of on paper charts. A primary benefit of **CPOE** is that it can help reduce errors related to poor handwriting or transcription of medication orders.

- ***COW(Computer on wheels)-***

Placing computing power at the point of care is a major thrust in the move toward greater adoption of healthcare information technology COWs' purported benefits of mobility, usability, and processor speed have enabled the job to be more efficient by entering patient data, gaining access to patients' electronic medical records, reviewing lab results or radiology reports, checking drug compatibility, or other "charting" tasks.

- **Policy for written orders-**

Hospital has a written policy for medication management which has to be duly followed by the doctors and nurses. Prescriptions of doctors has to complete in all aspects

- **Labeling of drugs-**

All drugs must be properly labelled while dispensing from the pharmacy including the name, date of manufacturing and expiry date of drug.

- **Training & Motivation-**

Fostering motivation among staff by ensuring open & non punitive environment.

- **Adherence to policies & procedures-**

To ensure proper medication administration the health care worker must adhere to the five rights of medication administration:

- the right patient
- the right drug
- the right dose
- the right route
- the right time

THANK YOU