

## Medication Errors in Hospitals Training: A Practical Approach to Pharmacy Practice

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**Abstract :** A critical review of quality indicators defined by NABH(National Accreditation Board for Hospitals and Healthcare Providers) of pharmacies of three leading hospital in Indore gave an insight to reasons and solution to occurrence the medication error and hindrances to effective pharmacy practice. A change in staffing and regular updating the staff brought a positive change for the concern. This approach can be useful across the organized health care system.

**Keywords :** Pharmacy Practice, NABH, MOM, LASA.

### Introduction

Because of increasing population, diseases, medicines and their brands and related knowledge with documentation, it is humanly not possible for a single healthcare giver to remember everything and coordinate at every level.

In such situation importance of effective pharmacy practice emphatically advocated by authorities like WHO and PCI<sup>1,2</sup>. We can define the Pharmacy Practice which is a knowledge based review and implementation of a prescription and desired communication with patient, doctor and paramedical staff along with inventory management<sup>3-5</sup>. But In India, following major factors put resistance to it:

- 1) Government hospitals recently has started paying good but unable to attract meritorious student due to non-management position and no carrier opportunity.
- 2) Private hospitals are not willing to pay extra for both-- pharmacist and pharmacy practice.

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- 3) Government hospitals recently has started paying good but unable to attract meritorious student due to non-management position and no carrier opportunity.
- 4) Private hospitals are not willing to pay extra for both-- pharmacist and pharmacy practice.
- 5) In both the organization pharmacist is not on any key position in hierarchy to promote the same, so pharmacy is merely considered to be a unit counting tablet/capsules and at the end CASH<sup>5,6</sup>.

With the help of pharmacist who are presently perusing career in hospital pharmacy, we can demonstrate the value addition in health care thru effective practice of pharmacy<sup>3-5</sup>. For this purpose, pharmacist in existing pharmacies (Government and Private) should come forward to inculcate the culture of rendering knowledge-based pharmacy services thru conducting on the job training for the staff and cross-pollination across in organized manner. To substantiate this concept, we are sharing the findings of our experience with three hospitals.

## Material and Methods

As pharmacy consultant we have participated in the planning and implementation of SOP for Management of Medication (MOM) as per NABH module in following hospitals (for the period given in brackets).

- 1) Bombay Hospital, Ring Road, Indore- A tertiary care 600 bedded hospital.  
(From Feb 2018 to Jan2019)
- 2) Bhandari Hospital & Research Center, Indore- a 150 bedded secondary care hospital.(from Jan 2018 to Dec 2018)
- 3) Sri Aurobindo Institute of Medical Sciences, tertiary care teaching hospital, Ujjain Road, Indore (From Jan 2019 to Jan 2020)

## Policy:

We first prepared the MOM module as per Good Pharmacy Practice. Then started updating Pharmacy of the above three hospitals as per NABH norms. The entire department including pharmacy department started documentation of the activities too. Certain key result area were defined as quality indicators like dispensing error, stock out, no. of inpatient and outpatient prescriptions, procurement and rejection versus formulary, drug information enquires. These were recorded on daily basis by pharmacy staff on designed formats with individual responsibility.

## Format:

For evaluation of dispensing error was prepared, which is submitted on daily basis after recording relevant data.

## Staffing:

Bombay Hospital retail pharmacy already had sufficient number of 9 pharmacist to handle the implementation of prescription (Prescription >clarification> retrieval of medicine>checking of medicines against bill >distribution). Pharmacist were assisted by billing staff and service staff.

In the beginning process in first quarter, we observed that in retail pharmacy of Aurobindo Institute and Bhandari Hospital, dispensing errors were significantly higher and pharmacy operations were also not organized and staff was also reluctant to respond to improve on quality indicators after initial training sessions.

While in Bombay Hospital participation to install effective system was good, but no participation in other two. So, we have decided to reorganize the staffing by increasing the number of qualified pharmacists with one year plus experience as per following details and assigned the functional responsibilities to every staff:

### Training:

Training sessions were arranged twice a week by experts/seniors on any of following topics:

- a) Review of prescription
- b) Errors due to LASA (Look Alike Sound Alike) drugs
- c) Storage of medicines
- d) Drug- drug Interaction/food-drug interaction
- e) Patients counseling
- f) Releasing of medicine against bill
- g) PTC and formulary
- h) Drug information services.
- i) Indent process
- j) Inventory management.
- k) Dispensing error
- l) Applicable laws
- m) Reconciliation of discharge summary
- n) Identification of Prescription error
- o) Medication Administration error
- p) Communication with Pt./Dr./nurses

Apart from above Pharmacy Head was asked to take 20 min on the job training daily after lunch when staff from both shifts is available on:

- 1) New product included in formulary (drug, indication, dose, storage and placements. Caution and alternates /substitute available).
- 2) Day to day difficulties in operations.
- 3) Issues/Complaints reported.
- 4) Answer to question / problem raised by staff.
- 5) New system or instructions

**Table 1: Re-Structuring of Pharmacy**

S. No.	Hospital	Pharmacy Head		Staff					
		Before	After	Before 1 <sup>st</sup> QTR			After 1 <sup>st</sup> QTR		
				Pharmacist	Billing	Service	Pharmacist	Bil ling	Ser vice
1	Bombay Hospital	Pharmacist	Pharmacist	9	5	3	9	5	3
2	SAIMS	Non Pharmacist	Pharmacist	Nil	11	1	6	5	1
3	BHRC	Non pharma	Pharmacist	1	7	2	3	5	2

Following changes in quality indicators related to dispensing error were recorded over one year with above mentioned implementations of training:

**Table 2: Change in Dispensing Errors**

Hospital	Staff Change & Training	End of QTR	Average Rx/day	Dispensing Error (no./day)					
				Strength	LASA*	Wrong Dosage Form	**Misc	Reading error	Total
Bombay Hospital	NO	1 <sup>st</sup>	488	6	5	4	3	4	22
	No change in staff + training	2 <sup>nd</sup>	520	4	3	4	2	3	16
		4 <sup>th</sup>	496	2	1	1	1	1	6
SAIMS	Staff same	1 <sup>st</sup>	556	8	7	8	10	6	39
	change in staff + training	2 <sup>nd</sup>	580	4	3	5	4	5	21
		4 <sup>th</sup>	554	2	1	2	2	2	9
BHRC	Staff same	1 <sup>st</sup>	278	5	5	3	6	4	23
	change in staff + training	2 <sup>nd</sup>	290	4	3	3	3	2	15
		4 <sup>th</sup>	284	2	1	2	2	2	9

**Table 3: Communications: Drug Information and Prescription Error**

Hospital	Staff Change	QTR	Average Rx/day	Query Answered on Drug Information		Query Raised From Pharmacy On Prescription Error		
				Received	Answered	Clarification***	Interaction@	Reconciliation
Bombay Hospital	NO	1 <sup>st</sup>	488	2	1	----	----	-----
	Staff No change + Training	2 <sup>nd</sup>	520	2	1	2	1	1
		4 <sup>th</sup>	496	2	2	4	2	4
SAIMS	Staff same	1 <sup>st</sup>	556	--	----	1	---	----
	Staff change + Training	2 <sup>nd</sup>	580	0.5	0.25	1	---	---
		4 <sup>th</sup>	554	2	2	4	2	3
BHRC	Staff same	1 <sup>st</sup>	278	---	-----	-----	-----	-----
	Staff change + Training	2 <sup>nd</sup>	290	----	-----	-----	-----	-----
		4 <sup>th</sup>	284	1	1	1	1	2

**Explanations:**

SAIMS - Sri Aurobindo Institute of Medical Sciences

BHRC -Bhandari Hospital &amp; Research Center

Change in staff =Induction of pharmacist as per Table no.1

QTR = 3 Months Period when multiple exposure to training session

Average Rx /day=Total no of IPD+OPD prescription in quarter/no. of days in quarter

\*LASA= Look Alike (similar packing) and sound alike (similar brand name with diff. medicine)

\*\*misc= includes expiry/ mis-labeled /incomplete/wrong medicine/wrong delivery /substitution

Reading Error wrongly read-- correctly written indent from ward or OPD prescription

Drug information query from medical /paramedical staff related to pharmacology no availability

\*\*\*Clarification =due to hand writing / anything wrong about strength/dosage form/duration

@interaction = drug-drug or food-drug interaction

## Discussion:

This was not a planned study and data were retrieved from documentations generated as a part of corrective activities for NABH accreditation for three hospitals. Therefore statistical analysis was not applied, because every single medical error (prescription/ dispensing/ administration) has an impact on a human life. The objective is to detect the level of occurrence of such errors and correction after identifying the factors. All the three hospitals have good infrastructure and reputation in health care segment in Indore region. Still a care full and conscious effort revealed that there are good number of incidences related to medical errors<sup>7,8</sup>.

We have shown data for three quarters only....

- As data for 1s quarter can be considered as base line
- Data for 2<sup>nd</sup> quarter to show difference in impact of training on pharmacist and non-pharmacist.
- 4<sup>th</sup> quarter data for fair assessment (or comparison) of corrective measures in similar conditions for different institutions.

The data shown in tables are self-explanatory, that initially pharmacy staff was neither active nor equipped to address the issue of occurrence of medication error nor they were involved in imparting the drug information. As a result dispensing error related to strength, dosage form ,LASA, were most common and communication among pharmacy, medical and paramedical staff was lacking on account of absence of coordination and lack of confidence in pharmacy. These finding were in line with findings in different studies conducted for the purpose<sup>4,7,8</sup>.

In Bombay Hospital since pharmacist was already in place, impact of training session was quick in second quarter itself.

In other two hospitals we thought that for Pharmacy Practice Pharmacist should be there first, so Management agreed to appoint experienced pharmacist and to conduct regular class room training along with on the job training which were duly documented. This brought a significant reduction in errors from second quarter onwards also improvement was there on communication with other departments on anticipated prescription/administration error. Because

- Qualified pharmacist was better to learn and revise knowledge imparted to them.
- Efforts had positive impact on their self-esteem and job satisfaction.
- Success stories and appreciation thereafter motivated them for coordinated team work for practice of pharmacy

## Conclusion

For effective pharmacy operations ,considering the appointment of qualified pharmacist and continuous training through CMEs, on the job training and conference participation is the good answer, which corporate hospitals having in-house pharmacy should adapt.

Hospitals having outsourced pharmacy can also think to arrange similar chargeable activities for pharmacy staff duly agreed in their contract with pharmacy owner.

Accrediting bodies like NABH, PCI, MCI etc. should not accept eye-wash approach of institution under consideration for accreditation.

Pharmacy head should be made accountable for his professional duty (academic duty also) and ethics.

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