Prescription audit

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Prescription

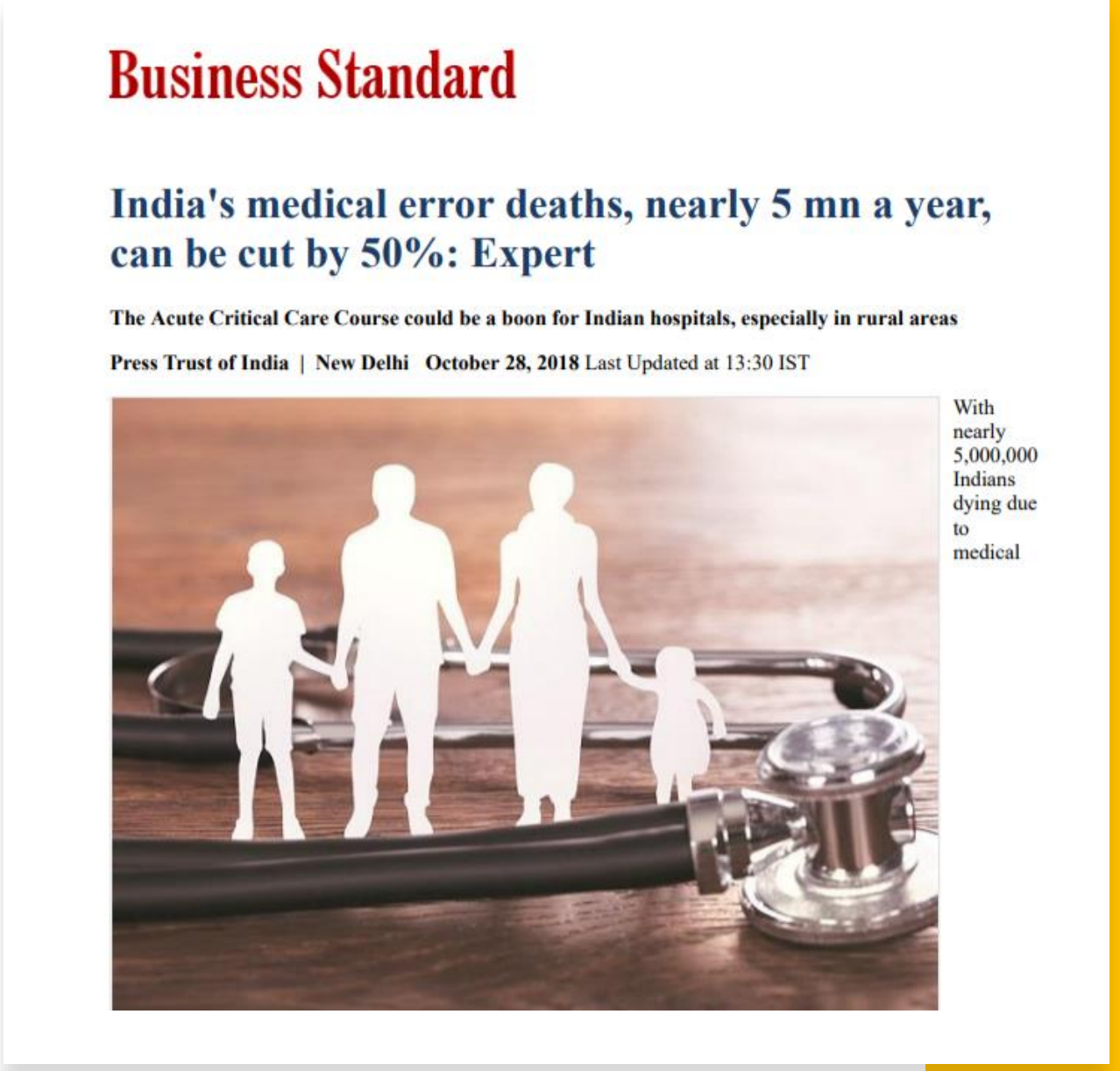
Prescription is a physician's order (medicolegal document) that needs to be followed as it is – should be complete & correct.

Every component of prescription has a meaning that enables a pharmacist/nursing staff to dispense and administer medicines appropriately.

Wrongly/Inadequately written prescription can lead to severe morbidity and sometimes mortality due to Medication errors (MEs).

The Cost of Poor Prescription Writing

- **Poorly written prescriptions may be one of the main reasons there are so many medication errors today. Look at some of these commonly quoted statistics:**
- **Medication errors occur in approximately 1 in every 5 doses given in hospitals.**
- **One error occurs per patient per day.**
- **Approximately 1.3 million injuries and 7,000 deaths occur each year in the U.S. from medication-related errors.**
- **Drug-related morbidity and mortality are estimated to cost $177 billion in the U.S.**



Business Standard

India's medical error deaths, nearly 5 mn a year, can be cut by 50%: Expert

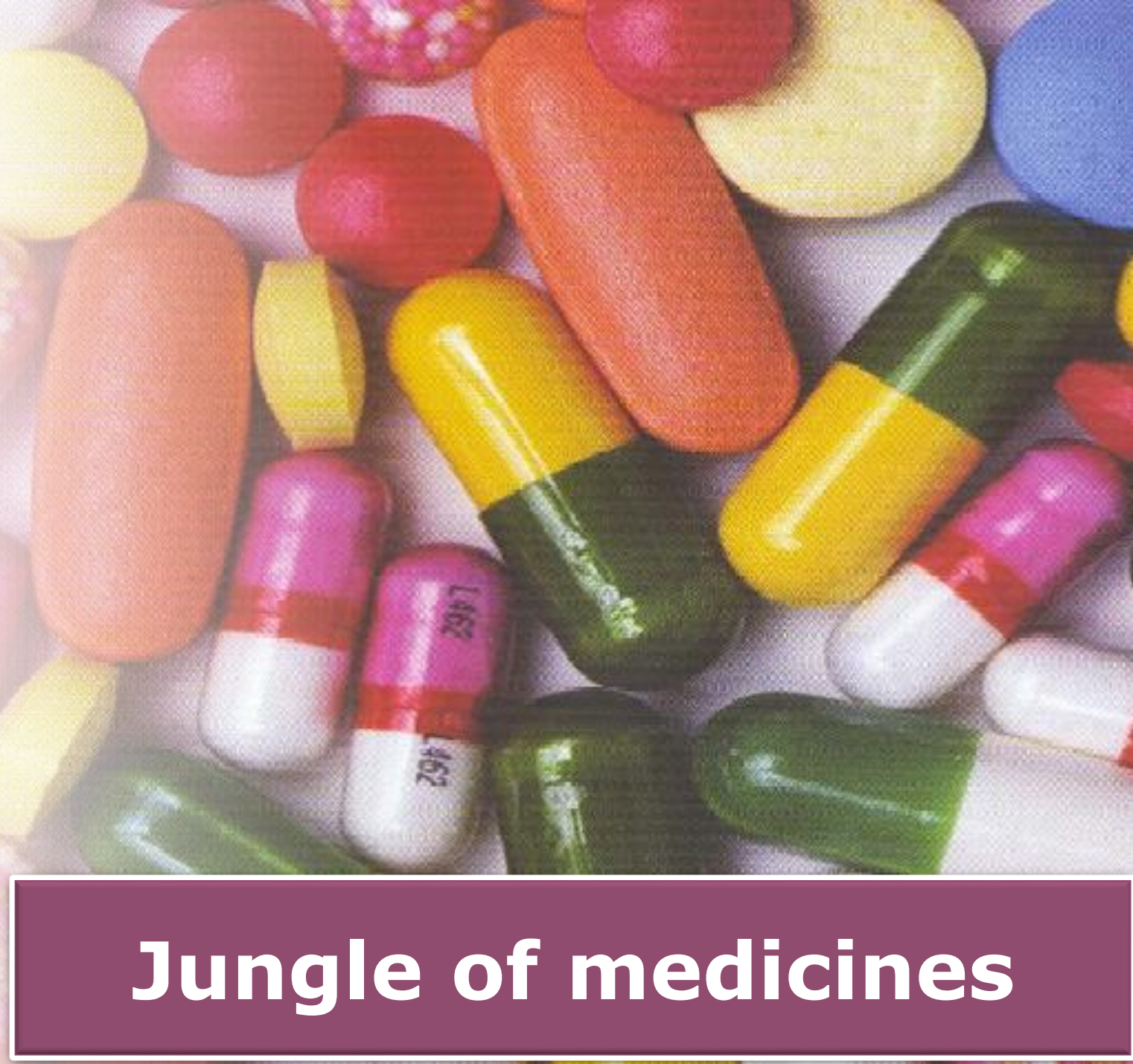
The Acute Critical Care Course could be a boon for Indian hospitals, especially in rural areas

Press Trust of India | New Delhi October 28, 2018 Last Updated at 13:30 IST

With nearly 5,000,000 Indians dying due to medical

Potential for medication error is significant

- Access vs. excess paradox
- Free over-the-counter availability
- Thousands of medicines in market
- Contributing factors
  - Illegible handwriting
  - Incomplete knowledge of drug names
  - Similar clinical use
  - Issues with medicines labelling, packaging and nomenclature



Jungle of medicines

Drugs available as different formulations/ One letter difference in the brand name

Confusion caused by same brand name but with different contents

A tragedy waiting to happen?

Look alike and Sound a like (LASA) Medicines

PLAVIX (clopidogrel) PAXIL (paroxetine)

Lante Vs. Lantus

PAM and PAN

Daonil vs. diavol

Glynase Vs. Zinase

Lasix Vs. Lorax

Incidal vs. Incedral

Arkamin vs. Artamin

Celin vs. Celib

Prilosec® vs. Prozac

Erox Vs. Erix

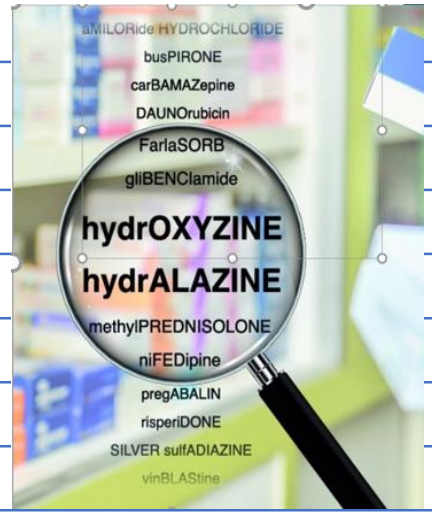
Lamisil vs. Lamictal

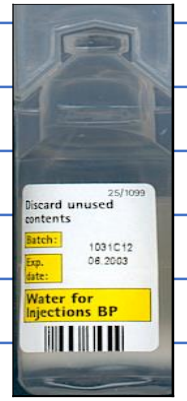
Celebrex vs. Celexa

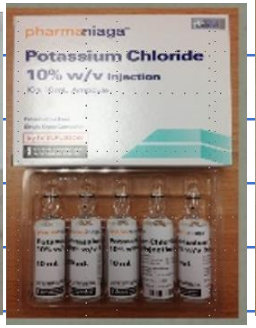
Zosyn vs. Zofran

Isoprin Vs. Isoptin

Thousands more, some reported, most not







LASA pairs of oral dosage forms

Urgency for Identifying LASA medicines

Medication errors can occur at any stage

Dosage error
Dose preparation error
Wrong time error
Wrong rate of administration error
Wrong administrative technique/route error
Wrong patient error
Omission error

Who is at most risk?

High –risk situation

- **High-risk setting** acute/serious patients, use of complex medicines
- **High-risk patients** Very young, elderly, patients with concomitant liver, kidney disease
- **High-alert medications** Associated with high risk of severe harm if used improperly

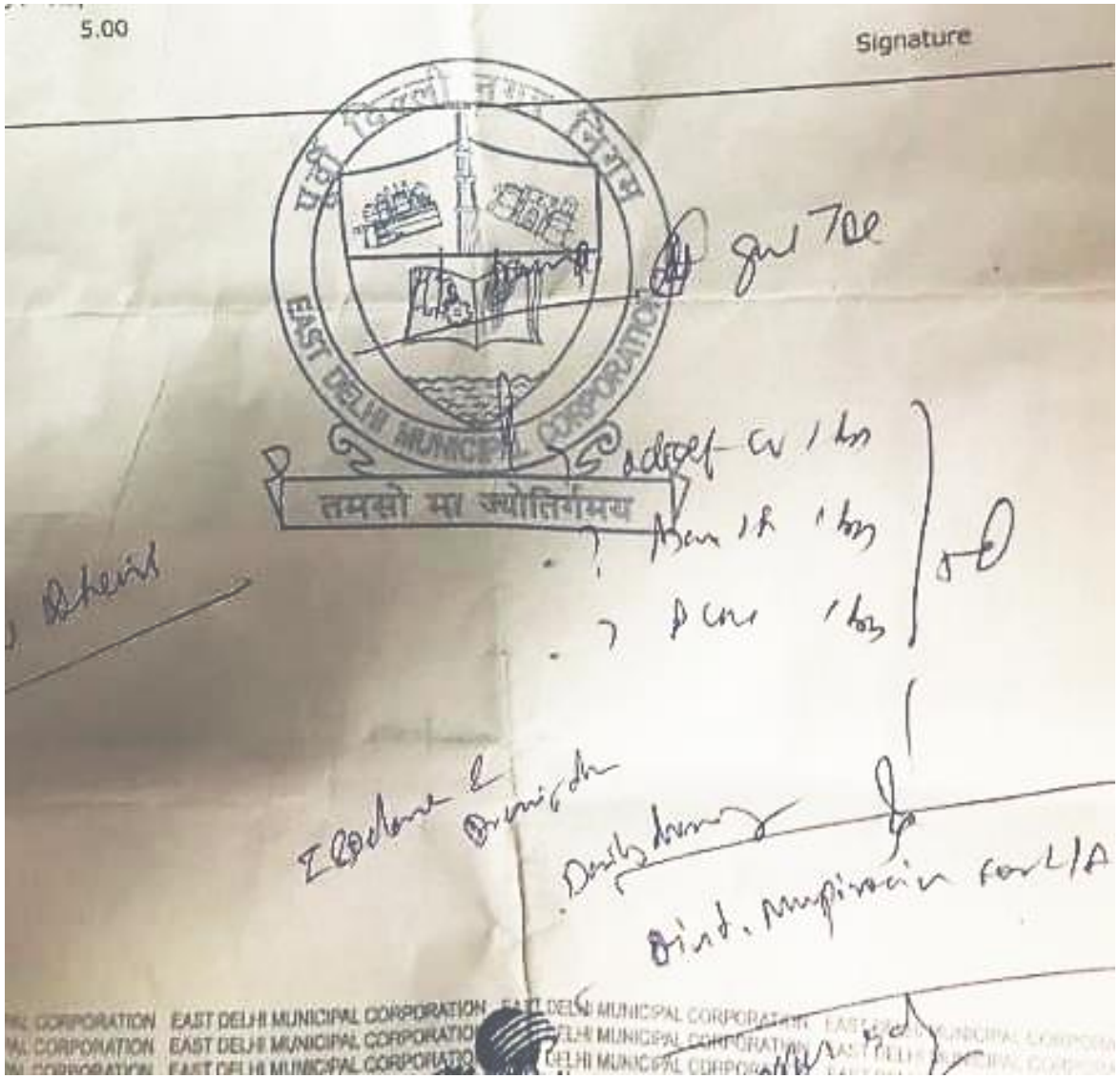
Polypharmacy

- **Poly pharmacy** Use of >4 medications
- Increase the likelihood of ADRs, drug interactions and medication errors

Transition of care

- Increase risk of communication errors leading to omission or duplication of medicines

Can you read this?



Nor can I!

Parts of prescription

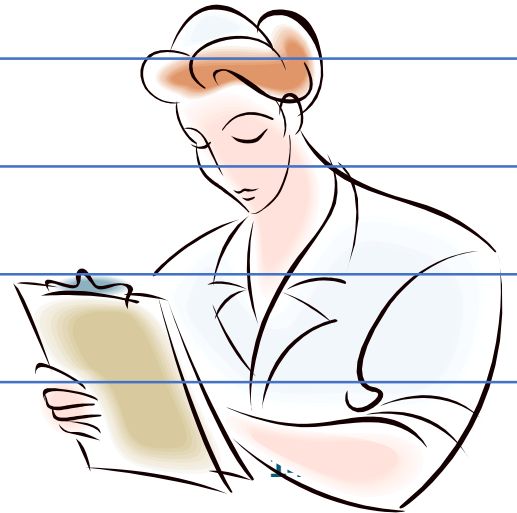
1. Superscription
2. Inscription
3. Subscription
4. Transcription

Prescriber's name	**license classification (Professional degree)**			**Registration No.**
Address **Office telephone numbers**				
Patient's name	**Age (DOB)**	**Gender**	**Date**	**Registration No.**
Address				
 **Drug name, strength, frequency and duration** **Total quantity to be dispensed** **SIG:**				
REFILL	**TIMES**			
OR **UNTIL**				
CHILD PROOF CONTAINER				
WARNING			**PRESCIBER'S SIGNATURE & Date**	
			Presciber's other identification data	

Breaking Down the Prescription Format

Incomplete / incorrect prescription is an important source of medication errors

- Prescriber’s identification
- Patient identification
- Date
- Prescriber’s Signature
- Name of medication
- Dosage form
- Dose
- Frequency
- Route of administration



Patient identifier

- **Patient identifiers are the *first* things to write on a prescription**
- **Patient Name and Address**
  - **Full name - first and last name**
    - **Middle initial may be helpful**
  - **DOB –will be helpful in further identifying the correct patient to prevent medication errors**

Joint Commission on Accreditation of Healthcare Organizations (*JCAHO*)

National Patient Safety Goals, at least two patient identifiers should be used in various clinical situations especially for medication administration.

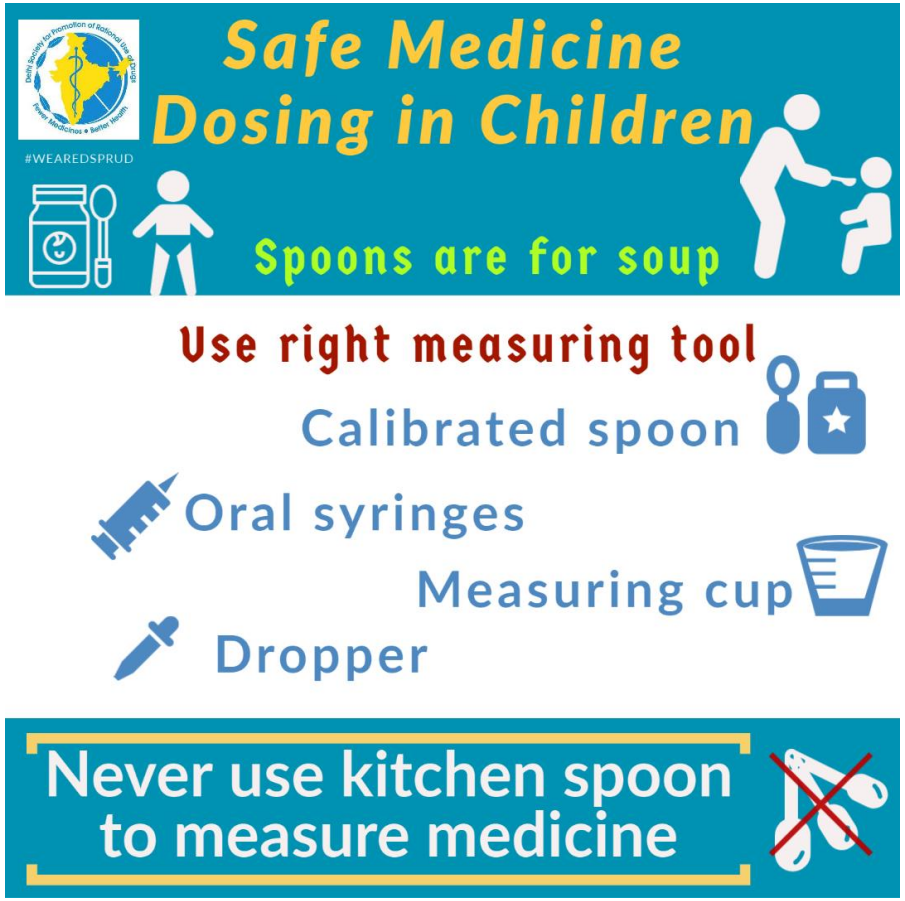
Contents of the Prescription - Date

- Date the prescription is issued or written
- Allows the determination of the life of the prescription to validate refills
- Ensures continual patient supervision
- Promotes patient follow - up

Medication details

- **Name of the medicine - Brand or generic?**
- **Strengthen of the medicine** - Many, if not most, medications come in multiple strengths.
- Amount to be taken – frequency
  - SOS
- Route of administration – should be English or vernacular
- **NO Latin abbreviations**

Prescribing for children



- Doses for oral liquids be expressed using only metric weight or volume, e.g mg or mL. If mLs are used it should be associated with a concentration or total dose in milligrams.

Steps to Enhance Prescription Safety

Where & how do errors occur

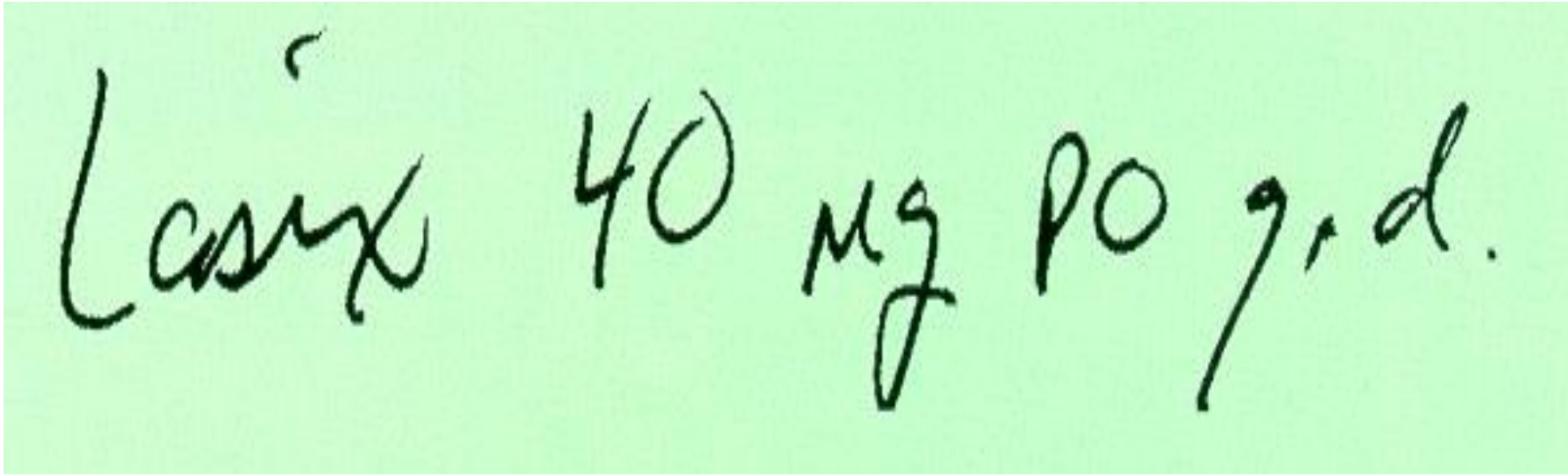
Use of Error prone abbreviations, symbols and dose designations

Abbreviation	Intended meaning	Misinterpretation	Abbreviation	Intended meaning	Misinterpretation
@	at	2	1.0 ml	1ml	10ml
+	Plus/and	4	.5mg	0.5mg	5mg
µg	microgram	mg or ng	100000 units	1,00,000	10,000/ 1,000,000
IJ	injection	IV	U or u	Unit	0/4
IU	Internationa l units	IV	X3d	For 3 days	3 doses
OD	Once daily	Right eye	q1d	daily	4 times daily
10 mg		1 if written poorly	qhs	Nightly at bed time	Qhr or every hour

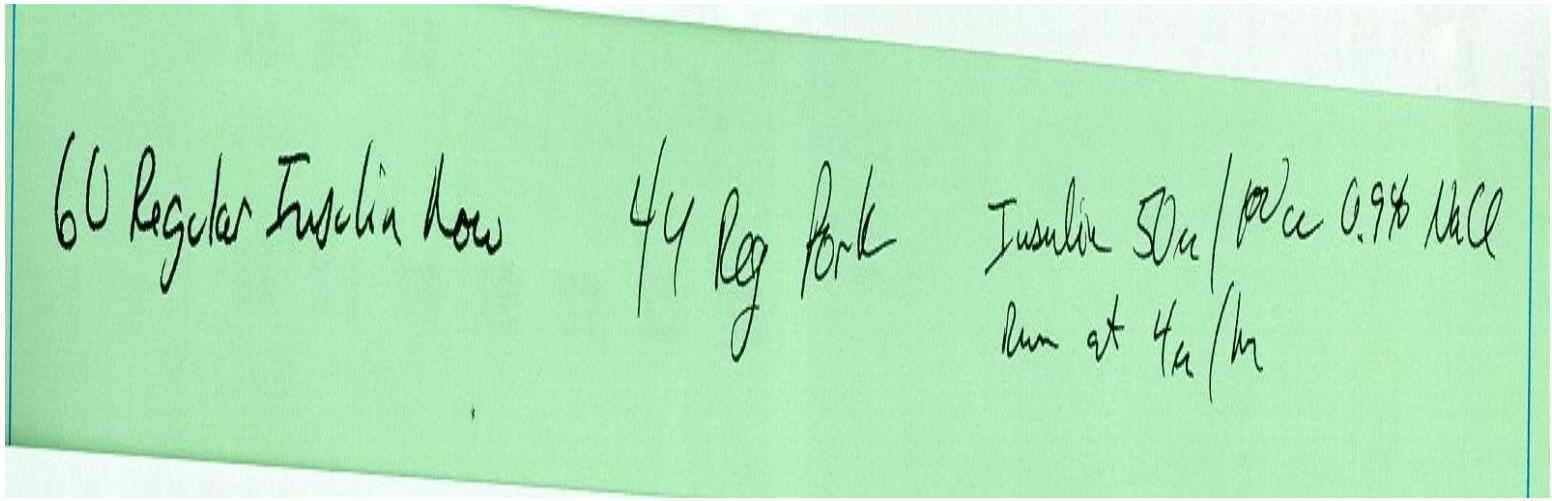
MEs from Misreading Letters and Numbers & Abbreviations

- **The symbols “>” and “<” -<10 mistaken as ‘40’**
- **Space between drug and strength**
  - **Tegretol300 mg misread as Tagretol 1300 mg.**
  - **Inderal40 mg misread as inderal 140 mg**
- **Abbreviation - mg. or ml. with a period following the abbreviation can be misread as the number if written poorly**
- **Mixups: between "l" and the number "1; "O" &"0,"; "Z" & "2,"; "1" & "7."**
- **Use of abbreviations “D/C”, “TCA”, “CST”, or discontinue 1, 2, 5, rest to continue.**

Standardize a list of abbreviations, acronyms, symbols, and dose designations that are not to be used throughout the organization



- **The abbreviation "q.d." can sometimes look like "q.i.d"**
- **QD and QOD (every other day) are on the JCAHO "do not use" list. So you need to write out "daily" or "every other day."**



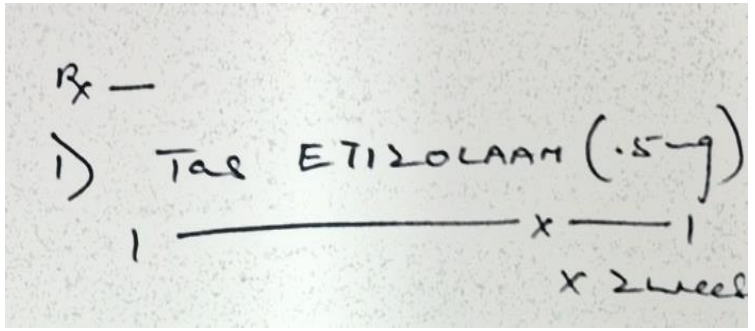
- **A handwritten “U” can look like a zero or 4**
- **Always write out “Unit”**

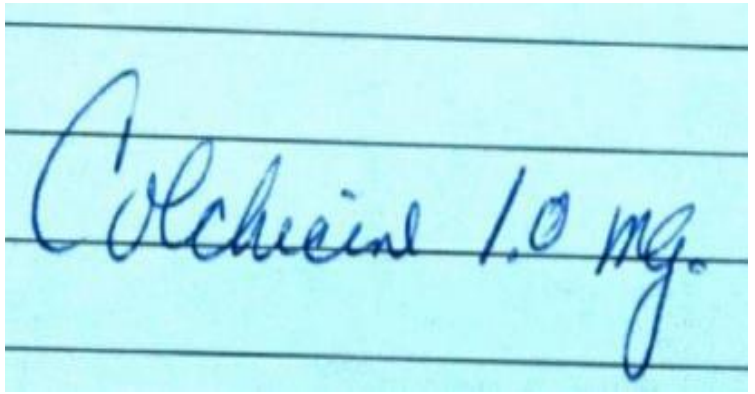
Abbreviation for drug names

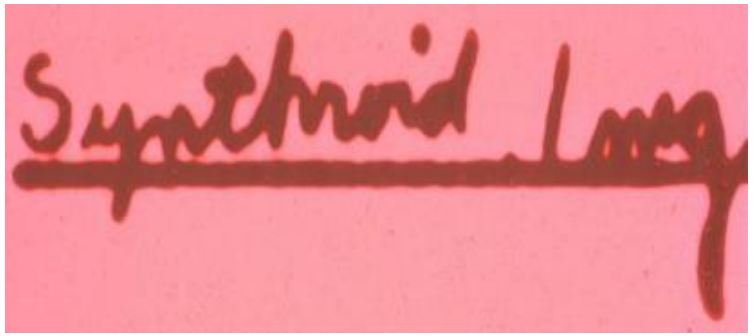
- 'Hydrochlorthiazide 50 mg' misread as "hydrocortisone 250 mg."
- Resist the temptation to abbreviate drug names – PCM, CPM, CPZ, CBZ, MS, MSO_4, $MgSO_4$
- Stemmed drug names
- "Nitro' drip for nitroglycerine mistaken as sodium nitroprusside infusion
- "Norflox" for norfloxacin mistaken as norflex (Orphenadrine)
- "IV Vanc" for vancomycin mistaken as INVANZ (Ertapenem)

Decimal point

- **“Lead don’t trail”**
- **.5 mg can read as 5 mg; write 0.5 mg**
- **Avoid decimal if possible – write 125 mcg” instead of 0.125 mg.**
- **Never write -1.0mg; write 1 mg**







Some Misconceptions

When tab. is written that means medicine has to be taken by oral route (Tablet can be administered by sublingual or rectal route also).

If inj. is written that means it has to be given intravenously (injectable medicines are given by Intra-muscular, subcutaneous, IV infusion & IV bolus also).

If strength of any dosage form is not written that means it is only available in one strength (manufacturer may start supplying another strength).

If SOS is written that means the medicine can be repeated when the patient develops the acute symptoms (There is a definite time interval before which the drug cannot be repeated).

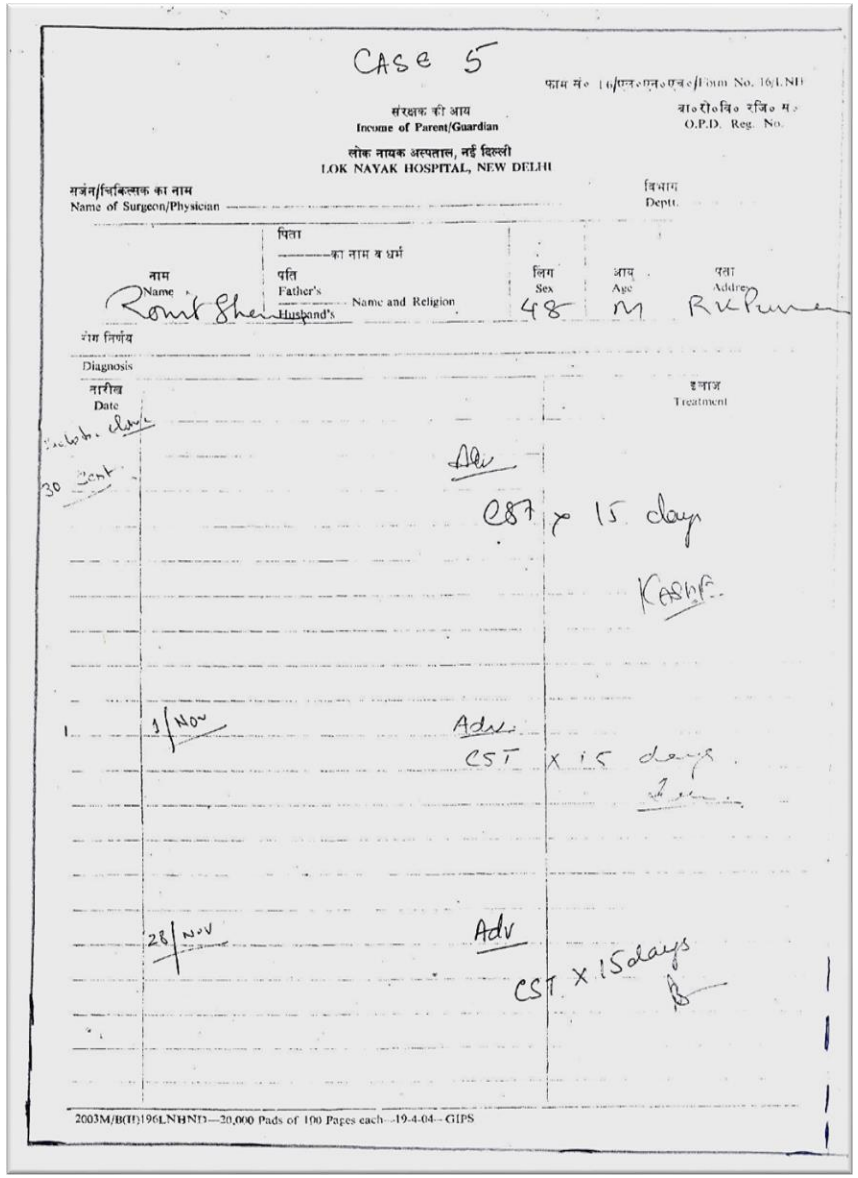
Medication details to be shown on prescription

- When medicine to be taken on S.O.S basis, mention minimum interval & maximum dose to be taken per day
- Mention time of each medication to be taken.
- State dose and dose frequency; in the case of preparations to be taken "SOS" a minimum dose interval should be specified.
- Avoid vague instructions such as "Take as directed" or "Take/Use as needed" as the sole direction for use.

Tab. Paracetamol 500mg, 1 tablet
Orally as and when required
(maximum four times a day but not earlier than 4 hours)

Details to be shown on Prescription

- In case there are more than one injectable, clear instructions on route, speed, reconstitution and mixing or not mixing of two should be written.
- In case of hypersensitivity reaction, clear instructions on test dose should be written.
- **Do not write repeat, write fresh prescription.**


CASE 5

फार्म सं० 16/एल०एन०एच०/Form No. 16/LNH

संरक्षक की आय
Income of Parent/Guardian

बा०रो०वि० रजि० सं०
O.P.D. Reg. No.

लोक नायक अस्पताल, नई दिल्ली
LOK NAYAK HOSPITAL, NEW DELHI

सर्जन/चिकित्सक का नाम
Name of Surgeon/Physician

विभाग
Deptt.

नाम Name	पिता / पति का नाम व धर्म Father's / Husband's Name and Religion	लिंग Sex	आयु Age	पता Address
Rohit Sher		48	M	RK Puram

रोग निर्णय
Diagnosis

तारीख Date	इलाज Treatment
Inj. Adv 30 cent	
	Adv CST × 15 day Kashf.
1/Nov	Adv CST × 15 days
28/Nov	Adv CST × 15days

2003M/B(II)196LNHND—20,000 Pads of 100 Pages each—19-4-04—GIPS

Instructions on the prescription

Route of administration

For oral dosage forms- “take” or “give”

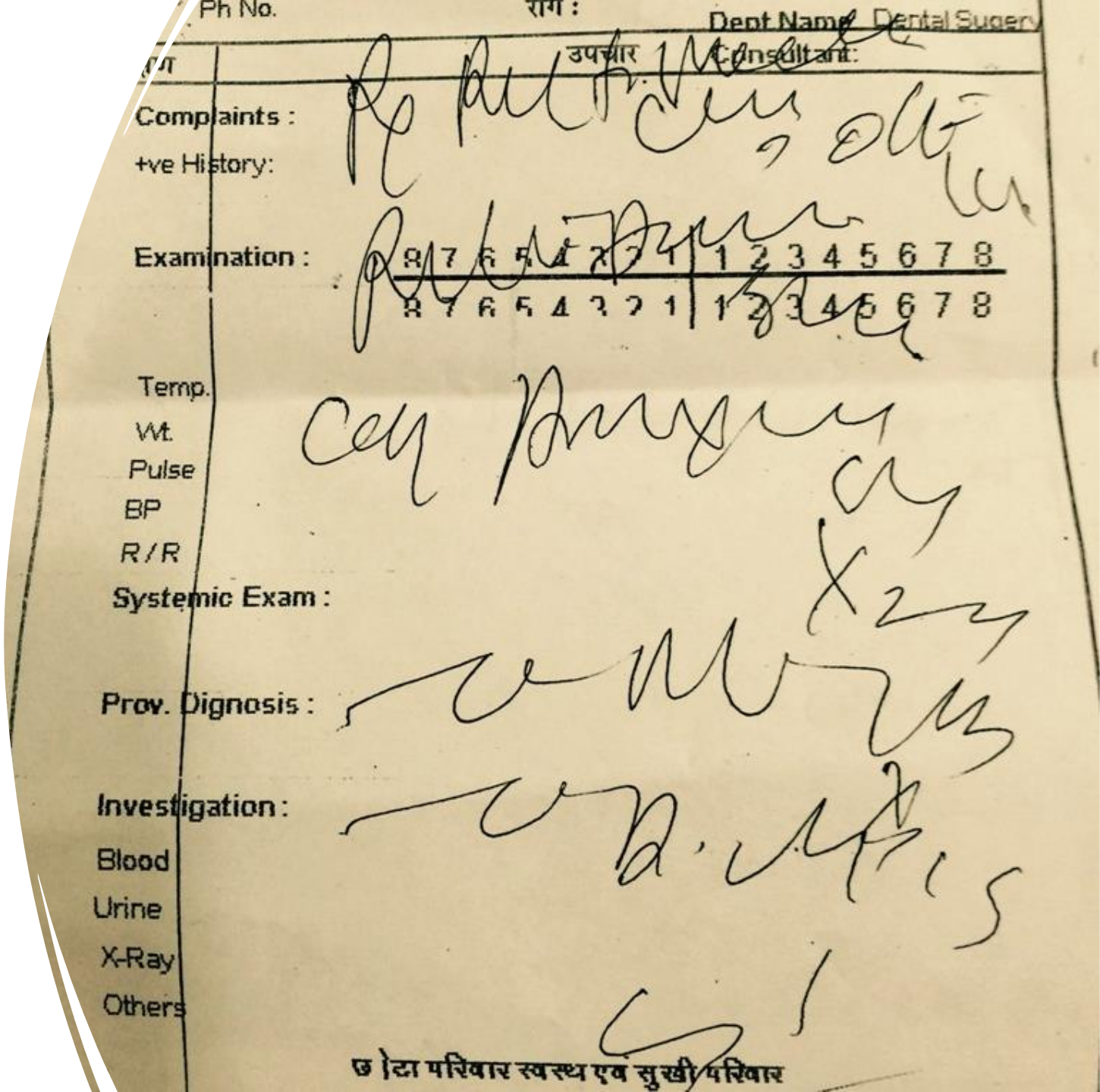
For externally applied products - “apply”

For suppositories - “insert”

For eye, ear, nose drops -“place” is preferable to “instill”

Counsel patient on each aspect of medication

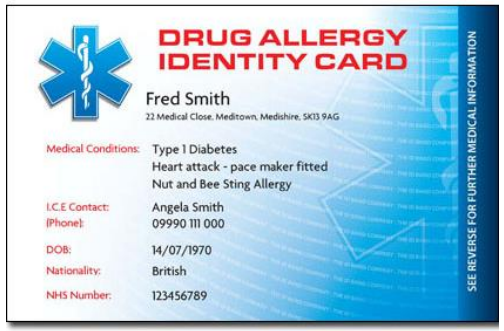
Counselling is often seen as the last attempt in catching errors that occur in prescription writing

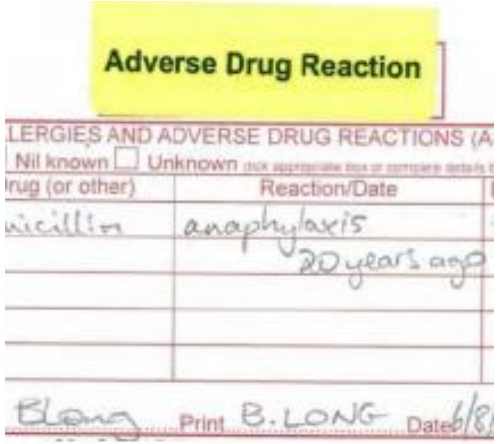


Adequate and appropriate patient information

Adequate and appropriate patient information about the patient at the point of prescribing including

- **medical history**
- **known allergies and their reactions,**
- **diagnoses**
- **list of current medications**
- **prescription monitoring program data, and**
- **treatment plan to assess the appropriateness of prescribing the medication.**





AUDIT

- Audit is a way of improving the care of patients by using a multi-disciplinary approach, when appropriate, to look at what you are doing and see if you can do it better
- A systematic, logical review of care
- Patient focused

What is prescription Audit?

- The word “audit” means any exercise that tends to look at input versus output and at the infrastructure that governs both.
- Prescription audit is a very useful tool, can be used to generate data in several aspects of medication.
- Collecting information on existing practice together with information on appropriate practice is essential component to improve healthcare.

Purpose of prescription Audit

Completeness of prescription: Check the prescription/drug chart for each drug viz. legibility, drug name, strength, dose, dosage form, route of administration, frequency, duration.

Detecting medication errors: Detect prescription error, administration error, interview the nurse in-charge & counter check with the patient.

Purpose of prescription audit

Prescribing practice of practitioners: Current trend & preference as for as treating a disease, rationality of each drug, adherence to Standard Treatment Guidelines (STGs)

Drug Utilization: Audit is focused in specific groups of drugs viz., antihypertensive & antibiotics. Analysis is carried out to find out preferred drugs amongst these groups in a particular hospital.

Purpose of prescription Audit Contd….

Drug use evaluation related to health facility: Availability of drug in hospitals (public set up), patient's knowledge about use of medicines & adherence to hospital formulary.

Detecting ADRs: Tracer drugs can be used for tracking ADRs viz., administration of antihistamine, Corticosteroids, sudden withholding a drug indicating allergic reaction or organ toxicity.

Core & Complimentary drug use indicators

Prescribing indicators

- Average number of drugs prescribed per patient
- % Patients receiving injections
- % Patients prescribed antibiotics
- % Drugs prescribed as per EML
- % Drugs prescribed by generic names

Patient care indicator

- % drugs prescribed are actually dispensed
- % patients having correct knowledge about how to take medicines

Facility Indicator

- % availability of key drugs

Complimentary indicators

- % prescription having drugs as per STGs
- % patient receiving ≥10 drugs
- % prescription complete in all respect
- **IPD**
- % drugs administered on time
- % patient developed ADRs
- % surgical patient receiving antibiotics as empirical therapy
- % Patient received perisurgical antibiotic prophylaxis

Objectives

To assess the prevalence of antibiotic prescription in a health care facility

To assess the extent of injection use

To assess the extent of polypharmacy

Methods

Study design: Cross-sectional or prospective; convenient/random/systematic selection

Study population: All the patients attending OPD of the public health facility from the period

Inclusion criteria (IPD): Current prescription and the last refill in case of multiple orders

Exclusion criteria: Prescription of the referred and admissible patients

Prescription audit sample size & Sampling method

OPD

- **Sample size – at least 100 or 30 prescriptions from each department- total of 600 prescription from each facility**
- Select from all different OPDs proportionate to the size

IPD

- **10% randomly selected from ICU & in-patient department (IPD) of the hospital over a period of one month.**

One time prescription auditing

Data collection can be done by pharmacists

Use pre-designed questionnaires

Data collection

- **Source of data**
  - **Prescription slips or OPD cards**
  - **Daily OPD data for the study period from the record or registration section**
- **Process of data collection:**
- **Exit interview/review of the prescriptions slips or OPD cards after medicine has been dispensed from the hospital pharmacy**
- **Data extraction tool: A paper-based structured proforma to capture information from the OPD cards**
- **Data entry and analysis by using MS Excel**

Study variables

Profile of the patients (age, gender)

Prescription order profile

Drug and dosage profile

- Average number of medicines prescribed
- Different antibiotics prescribed
- Proportion of generic medicine prescribed
- Proportion of injectable prescribed
- Essential drugs prescribed
- Proportions of route, dosage and advice correctly given

Detailed Prescribing Indicators Form

Detailed Prescribing Indicators form

Location: _____

Investigator: _____ **Date:** _____

ID#	Date	Name	Age	Sex	Prescriber
Health Problems	Health Problem Description		Code		
	1				
	2				
	3				
Drugs	Name and Strength		Code		Quantity
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8,				
	9				

Simple Prescribing Indicators Form

PRESCRIBING INDICATOR FORM

Location: _____

Investigator: _____ Date: _____

Seq. #	Type (R/P)	Date of Rx	Age (yrs)	# Drugs	# Gen-erics	Antib. (0/1)	Injec. (0/1)	# on EDL	Diagnosis (Optional)
1									
2									
3									
30									
Total									
Average									
Percentage					% *of total drugs*	% *of cases*	% *of total cases*	% *of total drugs*	

* 0=No 1=Yes

Patient Care Indicators Form

PATIENT CARE FORM

Location: _____

Investigator _____ Date: _____

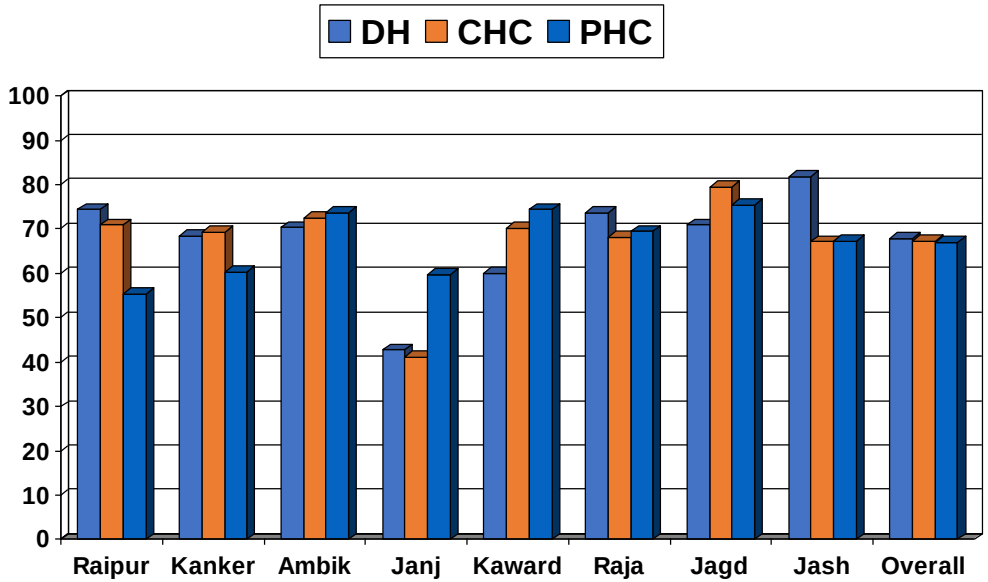
Seq. #	Patient Identifier (if needed)	Consulting Time (mins)	Dispensing Time (secs)	# Drugs Pre-scribed	# Drugs Dis-pensed	# Ade-quately Labelled	Knows Dosage (0/1)
1							
2							
3							
30							
Count							
Total							
Average							
Percentage					%	%	%

* 0=No 1=Yes

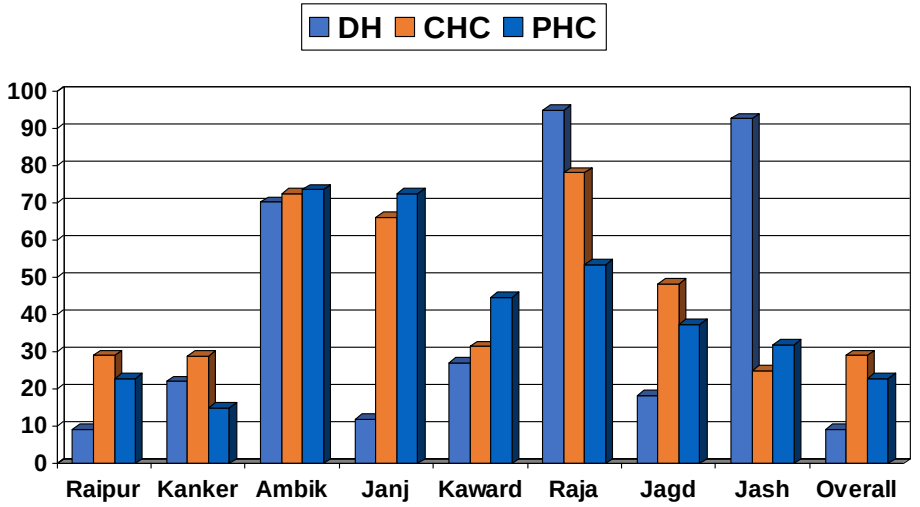
How to Fail

- No justification for choice of audit/criteria/standard settings
- Not having explicit criteria/standards
- A general lack of evidence based literature or using material that is not peer referenced
- Not explicitly displaying teamwork in the "method"
- Numerical errors: data collection
- Presentation of data collection e.g., no graphs, no % (i.e., the reader has to do the hard work him/herself)

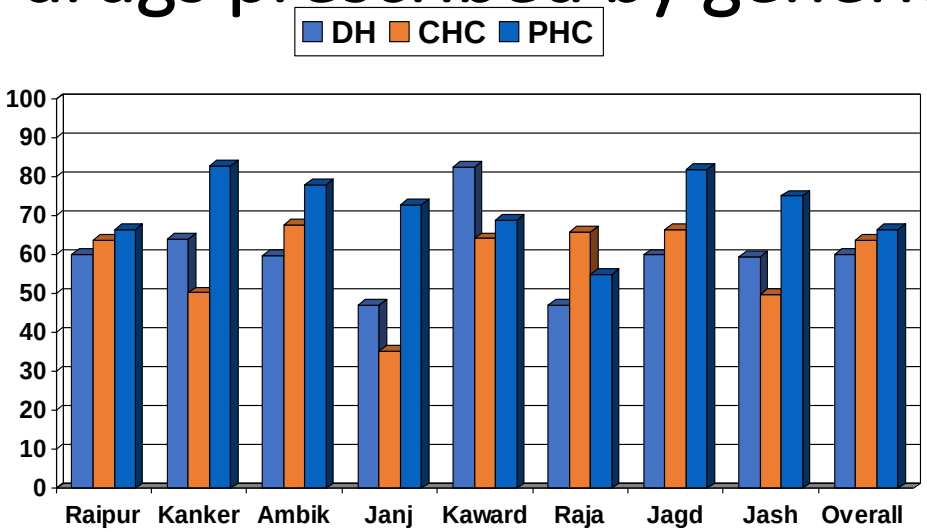
% prescriptions with antibiotics



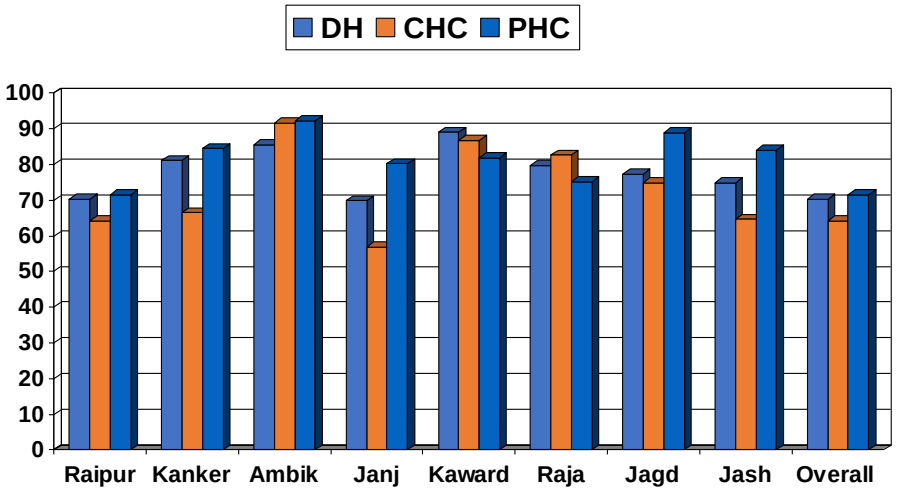
% prescriptions with injections

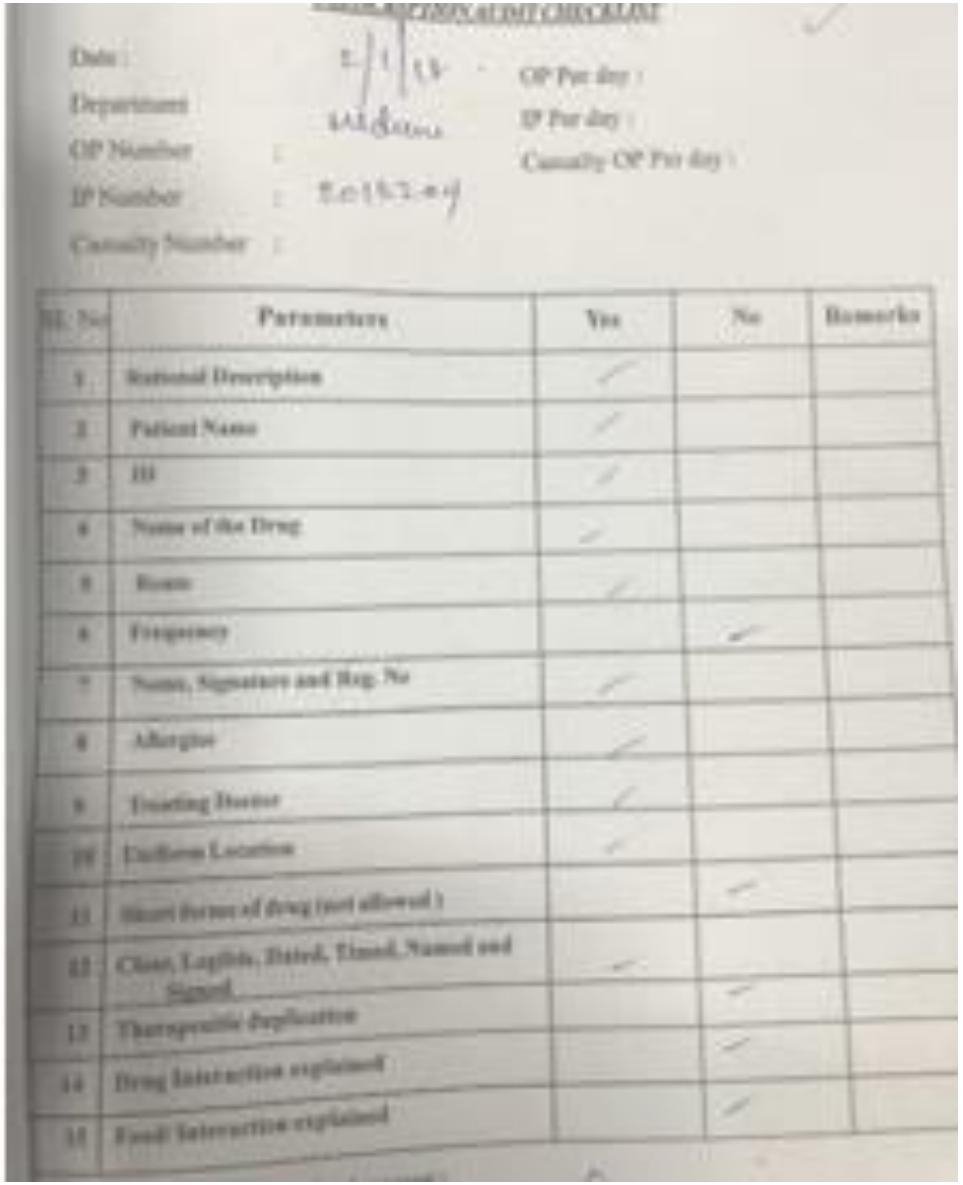


% drugs prescribed by generics



% drugs prescribed from EML





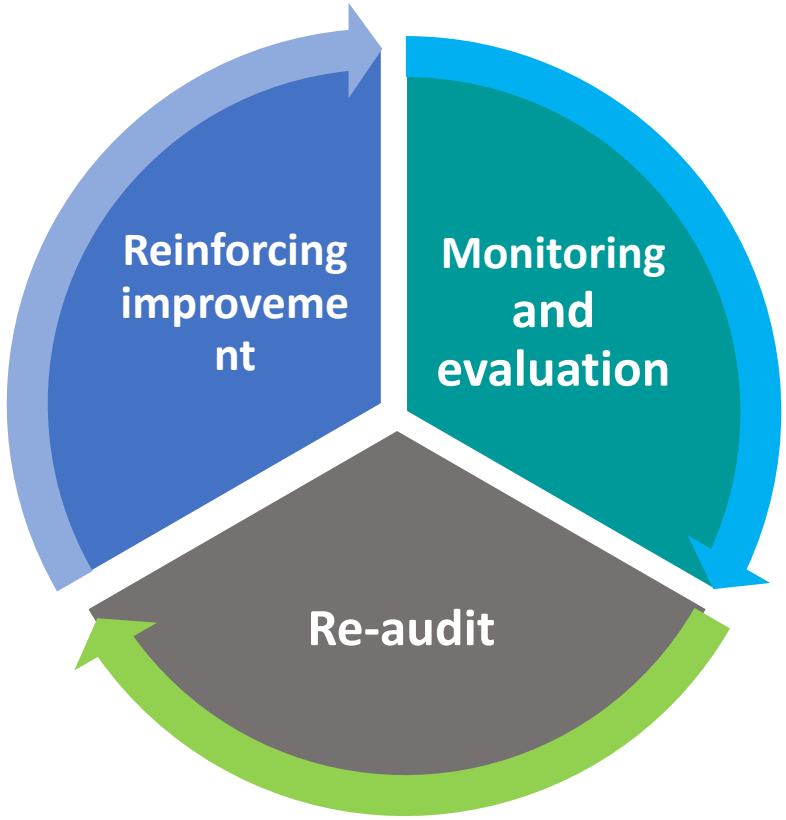
Date :
Department :
OP Number :
IP Number :
Casualty Number :
OP Per day :
IP Per day :
Casualty OP Per day :

Sl. No	Parameters	Yes	No	Remarks
1	Rational Description	✓		
2	Patient Name	✓		
3	Rx	✓		
4	Name of the Drug	✓		
5	Route	✓		
6	Frequency		✓	
7	Name, Signature and Reg. No	✓		
8	Allergies	✓		
9	Treating Doctor	✓		
10	Uniform Location	✓		
11	Short forms of drug (not allowed)		✓	
12	Clear, Legible, Dated, Timed, Named and Signed	✓		
13	Therapeutic duplication		✓	
14	Drug Interaction explained		✓	
15	Food Interaction explained		✓	

Is this a prescription audit?

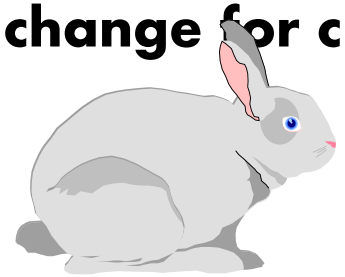
SUSTAINING IMPROVEMENT MONITORING EVALUATION

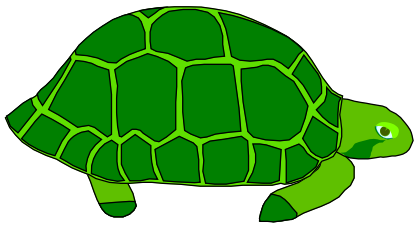
- Systematic approach to changing professional practice should include plans to:
  - Monitor and evaluate the change
  - Maintain and reinforce the change.
- Results from the first cycle tell you
  - What is your current level of performance.
  - By comparing this to your standard, you will know whether you need to make some changes to your current practice.



Implementing Changes

- The most challenging stage
- Audit can tell you whether changes are needed, but it can't tell you what methods to use
- Involve all
- Implement at a sensible rate
- Action plan and don't just jump in feet first
- Implement only that needed
- Don't change for change's sake





How are you actually going to make the changes?

- Simply saying "We've got to do better" won't result in change
- The changes to be implemented should be a team discussion and decision (? a practice meeting)
- What to do at the Practice Meeting:
  - Emphasise what has been achieved.
  - What are we proud of?
  - What are we not so proud of?
  - How can we correct any deficiencies? You need to think through in detail
    - what needs to be done
    - who's going to do it
    - When and how.
- If you get low results - Reset the standards to a more realistic level (but justify it)

If you haven't met your standard after the *second* cycle, what are your options?

Make further changes to the way you practice.

Decide if your standard may in fact be unachievable, so may require lowering it.

Learning Points

- Prescription is a medicolegal document
- Every component of prescription has meaning.
- Wrongly/Inadequately written prescription can lead to severe morbidity and sometimes mortality also.
- Prescription auditing is a type of vigilant activity.
- Reduces the burden because of Mes and increases the rate of patient recovery and discharge from the hospital.

Advantage of prescription audit

- An educational activity
- Promotes understanding
- Resource effective
- Raises standards
- Promotes change
- Peer led and peer understanding