



BRIDGING TECHNOLOGY & PATIENT SAFETY: THE CPOE JOURNEY

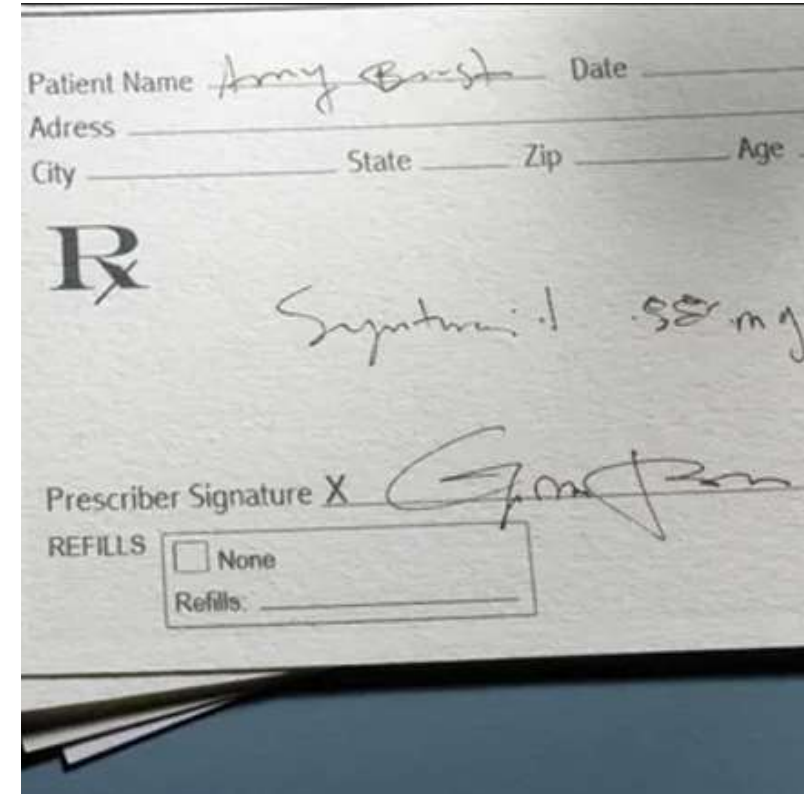
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AIM: To reduce medication errors and improve patient safety by implementing CPOE, replacing handwritten medication charts with electronic prescribing.

Breaking the Chain of Medication Errors

PROBLEM STATEMENT : The practice of prescribing medications through manual handwritten orders by doctors has been associated with multiple challenges, including:

- Illegible handwriting, leading to misinterpretation.
- Non-formulary prescriptions, which may not align with hospital-approved medications list.
- Lack of Generic names, making it harder to standardize treatment.
- Missing signature, seal, date, or time on prescriptions.



These issues significantly increase the risk of medication errors and compromise patient safety.

A Real-World Incident Preventable Through Digitalization



A 68-year-old diabetic patient was prescribed Injection INSULIN 6 units. During transcription from the doctor's order to the medication chart, it was written as 16 units. The nurse administered the wrong dose as documented. Within one hour, the patient collapsed, developed severe hypoglycemia and had to be shifted to ICU.

☞ **The error was not clinical judgment –It was a simple transcription error.**

Wrong Route: In oncology, a tragic medication error occurs when VINCRISTINE — a chemotherapy drug meant only for Intravenous use — is accidentally injected into the Spinal canal (Intrathecaly). This route mistake is almost always fatal because VINCRISTINE causes devastating neurotoxicity when given into the Spine.

☞ **This incident shows how errors in prescribing, or administration can directly lead to patient death.**

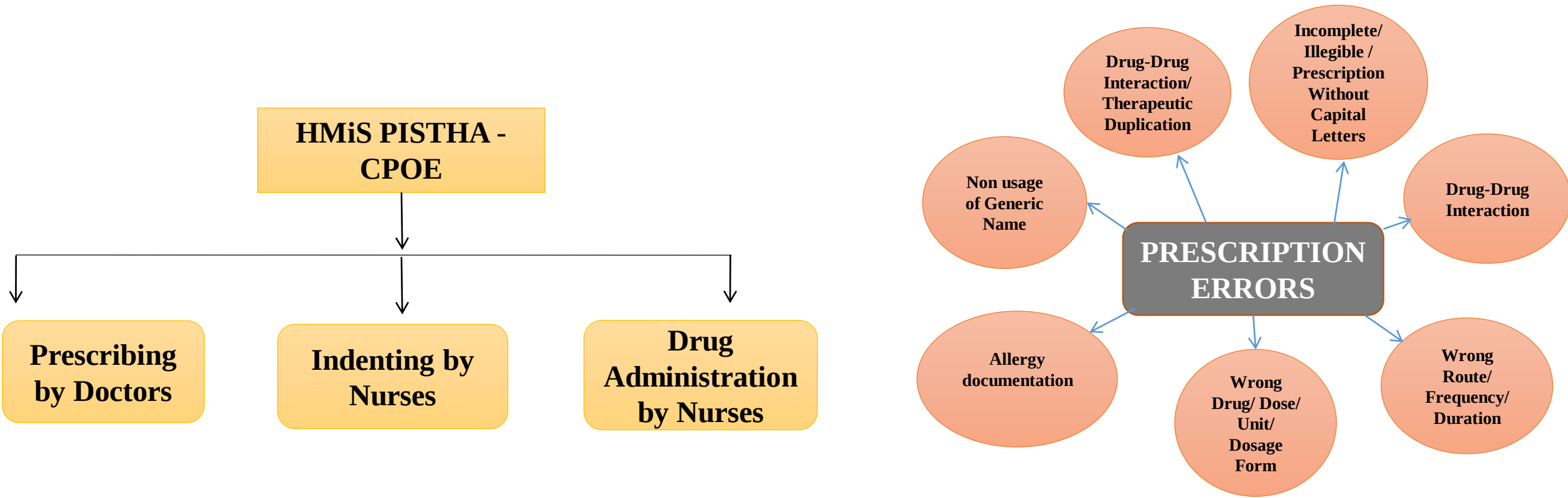


CPOE (Computerized Physician Order Entry)

Implementation of CPOE -Computerised Physician Order Entry instead of manual Inpatient Medication Administration Records/ Kardex.

Eliminating Medication Errors at the Source: Go Digital!

- CPOE is a digital system that allows healthcare providers to **electronically enter patient medication orders directly into a computer or tablet**, eliminating the need for manual **Medication Administration Records** or handwritten prescriptions.
- In our hospital, this system has been implemented using **HMiS Pistha** - a software developed by our own IT Team.



CPOE (Computerized Physician Order Entry) Implementation

Initiation Period: 24.09.2025 & Implementation on 01.01.2026

24*7 availability of CP for
CPOE implementation
initiative 16.08.25

Created WhatsApp Group for
escalating IT Issues 23.09.2025

1 Week Trial in 6th Floor Ward
and Feedback from all Doctors,
Nurses and Clinical Pharmacists
24.09.2025

Training for Doctors & Nurses

Removal of Drug chart throughout
the Hospital & complete CPOE
entry for New admission cases
30.12.25

Ongoing CPOE Weekly
Review Meetings 07.10.25

CPOE partial Implementation in all
patient care Units from 01.10.2025

Weekly Review Meeting with
users for feedback 29.09.25



CHALLENGES AND SOLUTIONS

Challenges:

- Resistance from clinicians
- Learning curve
- Initial software bugs
- Workflow changes
- Internet dependency

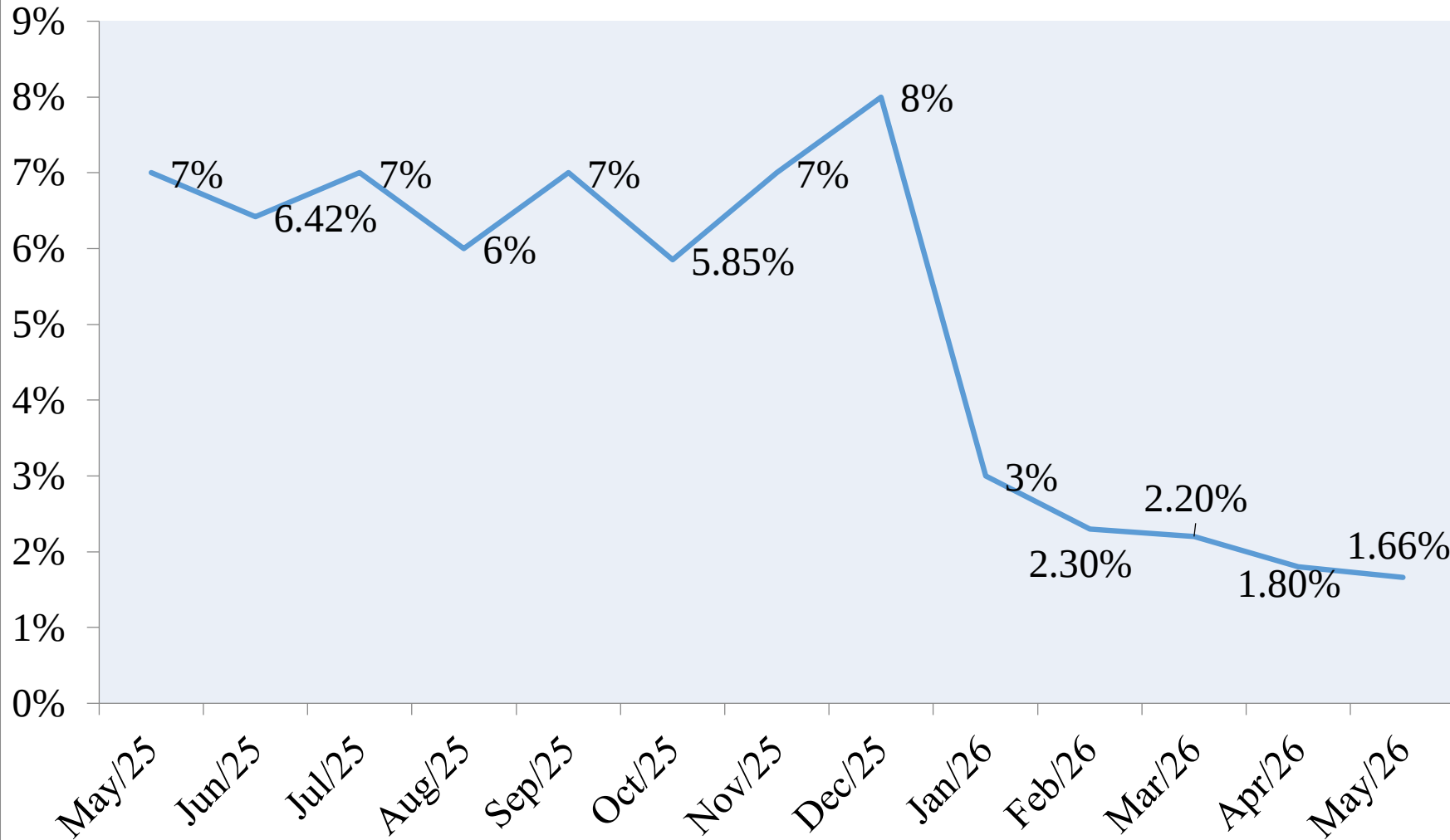
Solutions:

- Continuous training
- 24×7 IT support
- Clinical pharmacist support
- Weekly feedback

PDSA CYCLE



% of Prescription Error



The trend in prescription errors after implementing CPOE demonstrates a significant reduction, highlighting that digital transformation substantially improves the prevention of medication errors.

Medication Error Audit data capturing is done digitally through **MedQPro** application.

While it cannot completely eliminate errors at present, it moves us closer to zero, representing a crucial step in an ongoing process toward safer medication practices in the future.

**Approaching Zero
but not yet Zero!**

Visible Improvements in Patient Safety After CPOE Implementation

Description of Incident	Action Taken	Sustainability
Dose Omission - For patient Mr. X Inj.BACTRIM (SULPHAMETHOXAZOLE + TRIMETHOPRIM) antibiotic prescribed as illegible order Q6H On 8/6/25 @9am But Staff Administered As Q8H Till 11/6/25 (3 Days) Totally 3 Doses were missed for the Patient.	Intimated to the Doctor and immediately stopped the order and got a fresh order.	After CPOE implementation a slot for selecting frequency is given as M/A/E/N & QnH.
Wrong Frequency - For patient Mr. X, the doctor prescribed Inj. PIPERACILLIN + TAZOBACTAM to be administered every 8 hours (Q8H). However, due to the unavailability of the patient's case sheet at the bedside, the staff nurse mistakenly administered the drug every 12 hours (Q12H) without verifying the prescribed frequency	Patient case sheets should not be taken to any other areas and must remain within the admitted unit at all times to ensure accurate verification before medication administration.	After the implementation of CPOE, doctors and nurses can access and view ongoing medication orders and discontinued drugs from anywhere within the organization using their unique login credentials.

S. No.	CPOE Feature	How it Prevents Medication Errors
1	 Secure Individual Login	Doctors can prescribe medications only by signing in with their individual login credentials, ensuring accountability and preventing unauthorized prescribing.
2	 Mandatory Allergy Documentation	Drug allergies are documented for each patient and are highlighted during prescribing to prevent allergy-related medication errors.
3	 Hospital Formulary Integration	Doctors can prescribe only formulary-approved drugs, ensuring access to the latest hospital formulary and promoting standardized prescribing practices.
4	 No Error-Prone Abbreviations	Error-prone abbreviations are restricted, reducing the risk of misinterpretation and medication errors.
5	 Elimination of Illegible Prescriptions	Electronic prescribing removes issues related to illegible handwriting, ensuring clear and accurate medication orders.
6	 Uniform Medication Order Location	All medication orders are recorded in a single, standardized electronic location, improving accessibility and reducing communication errors.
7	 Complete Medication Order Details	Every medication order includes the Brand Name, Generic Name, Dose, Unit, Dosage Form, and Route, ensuring complete and accurate prescribing information.

Prescription Error Prevention in Digital CPOE

KGH Dashboard Vaccine Entry Appraisal Form View Events Incident/Events HelpDesk RT-0 OT-0 RF-1 UA-4 Raja K

✓ Patient Drug Allergy Details Entered Successfully.

INPATIENT COMPUTERIZED PHYSICIAN ORDER ENTRY

Name: [Redacted] Age/Gender: [Redacted] Room No: [Redacted] Admit Date: [Redacted]
Corp: KG Hospital Bill Category: [Redacted]

Doctor Name: Raja K OP Drug List

Drug search based on: ☐ Drug Name ☐ Chemical Name ☒ Drug & Chemical Name

INJ. LASIX 40MG x Favourite Drug Previous Drug History

☐ Is INFusion Drug Allergy Disease

Drug allergy (if any) entered will get highlighted whenever prescribing

Hospital formulary is mapped along with Drug name, Dose and Dosage Form

Alerts the prescribers if the same drug had been prescribed before

Frequency	Intake Period	Intake	Route	Action
INJ. LASIX 40MG				
☐ M ☐ A ☐ E ☐ N ☒ Hourly	-- Select --	Select	Intravenous	Add Reset
M A E N 12 Hrs			-- Select --	
40mg 20mg			Intravenous Intramuscular Intradermal Subcutaneous Deltoid Region Epidural Intra-arterial	
Administration Routes options gets reflected automatically based on the chosen Dosage Form				

Frequency, Duration and Intake entered to guide Nurses for administration

Stop order can be given by the prescriber to prevent unintended prolonged therapy

S.No	Drug Name	Frequency	Intake	Route	Remarks	Action	Bulk Stop Date
☐	INJ. TROPINE 0.6MG/1ML (PRN)	PRN				Stop Drug	

Prescription Error Prevention in Digital CPOE

KGH

Dashboard Vaccine Entry Appraisal Form View Events Incident/Events HelpDesk RT-0 OT-0 RF-1 UA-4 Raja K

INPATIENT COMPUTERIZED PHYSICIAN ORDER ENTRY

Name: Corp: KG Hospital Age/Gender: Room No: Admit Date: Bill Category: Cash

Doctor Name: Raja K OP Drug List

Drug search based on: ☐ Drug Name ☐ Chemical Name ☒ Drug & Chemical Name

INJ. MEREM_500MG Favourite Drug Previous Drug History

Drug Allergy

☐ Is INFusion ☒ Is TestDose

Frequency	Intake	Route	Action
INJ. MEREM_500MG			
☐ M ☐ A ☐ E ☐ N		Intravenous	
M A E N			
500mg 500mg 500mg			

Antibiotic Therapy / Justification *

Empirical Sepsis - Known Source

Urosepsis

2

For Antibiotic Culture is mandatory

OK

Mandatory fields to prevent Incomplete Orders

Prescription Error Prevention in Digital CPOE

CPOE Antibiotic Drug Alert							
#	Prescription Date	Patient Code	Patient Name	Room No	Doctor Name	Item Name / Therapy / Duration Days	Antibiotic Stop Date
1	30-01-2026 08:52 PM			CTU 01-5	KRISHNAN E MS.MCh	INJ. ZANOCIN_200MG/100ML Surgical Prophylaxis / Days:1	31-01-2026 08:52 PM
2	30-01-2026 08:52 PM			CTU 01-5	KRISHNAN E MS.MCh	INJ. SUPACEF-1.5 GM Surgical Prophylaxis / Days:1	31-01-2026 08:52 PM
3	30-01-2026 10:55 PM			CTU 01-10	ARUN KUMAR U	INJ. SUPACEF-1.5 GM Surgical Prophylaxis / Days:1	31-01-2026 10:55 PM
4	31-01-2026 01:00 AM			CTU 01-1	ARUN KUMAR U	INJ. SUPACEF-1.5 GM Surgical Prophylaxis / Days:1	01-02-2026 01:00 AM
5	31-01-2026 06:04 AM			CTU 01-6	ARUN KUMAR U	INJ. SUPACEF-1.5 GM Surgical Prophylaxis / Days:1	01-02-2026 06:04 AM
6	30-01-2026 07:40 AM			CTU 01-7	Shegu G	INJ. SUPACEF-1.5 GM Extended Surgical Prophylaxis / Days:2	01-02-2026 07:40 AM

Automatic alert for Doctors to review and renew prescriptions if the validity of a prescribed medication is about to expire

52
YEARS OF
MEDICAL SERVICE

The discharge prescription can be viewed by the patient on the Hospital App using their registered mobile number.

12:40
78%

← Prescription Report

Get your prescribed medicine at your door step


+91

Name of the Patient :
Patient Code :
Address :
Mob :

Dr. Sindu J.Punnooran
M.B.B.S.,DNB.,MNAMS.,
Physician
Reg No :
Mob :

Date : 09-09-2025 03:17 PM

S.No	Drugs	Duration	Nos	Morning	Afternoon	Evening	Night	Intake	Route
	மருந்துகள்		எண்ணிக்கை	காலை	மதியம்	மாலை	இரவு		
1	CAP. FLUVIR 75MG	3.5 Day	7	1	-	-	1	After Food	Oral
2	TAB. PANTOCID 40MG	3 Day	6	1	-	-	1	Before Food	

Prevention of Administration Error in Digital CPOE

VINITHA V

1P View

IP View (Ward wise)

Discharge Summary

Drug Order

Drug Stock

MRD

OT

Patient Status

POCT

Reports

Service Request

Name: PALANISAMY P (202512180060) Age/Gender: 71 Year/Male Room No: 7106 1 Admit Date: 21-01-2026 04:02 PM Corp: KG Hospital Bill Category: Credit

Doctor Name: Shagu G Delivery To: Select

Drug Name: Enter Brand/Chemical Name Favourite Drug Current Medication Previous Drug History

Nurse Name: Enter your name Last indent: 25.01.2026 03:24 PM by SARANYA V

Frequency	Duration	Quantity	Intake	Route	Stop Date	Remarks	Action
Elimination of Indenting Errors: In the Indenting screen, nurses can only indent the medications prescribed by Doctor. This restriction ensures that nurses cannot make changes or wrong medication administration during the indenting process.							
Item Name	Qty	Frequency	Intake	Route	Remarks	Action	
TAB. TYDOL 50MG	1	SOS	After Food	Oral		✗	
INJ. LASIX 40MG	1	H:24	After Food	Intravenous		✗	
IV INFUSION: NS 0.9% W/V 100ML (FLEXIDRIF	1	IVF		Intravenous		✗	

Save Close

CPOE New Drug Alert

#	Prescription Date	Patient Code	Patient Name	Gender	Age	Doctor Name	Action
1	26-01-2026 12:00 AM			Female	25Y 0M 10D	Prayadharini A	Drug Indent Drug Administration
2	26-01-2026 12:29 AM			Female	55Y 1M 17D	VENKATACHALAM D	Drug Indent Drug Administration
3	26-01-2026 08:13 AM			Male	66Y 10M 10D	Maheswaran K	Drug Indent Drug Administration
4	26-01-2026 08:42 AM			Female	76Y 7M 21D	Gouri Shankar M	Drug Indent Drug Administration
5	26-01-2026 09:37 AM			Female	0Y 11M 26D	Srinivasan C	Drug Indent Drug Administration
6	26-01-2026 09:39 AM			Female	2Y 0M 0D	Srinivasan C	Drug Indent Drug Administration
7	26-01-2026 09:43 AM			Male	7Y 0M 4D	Srinivasan C	Drug Indent Drug Administration
8	26-01-2026 09:58 AM			Male	71Y 0M 0D	Thiruvakar Prabu Asand V	Drug Indent Drug Administration
9	26-01-2026 10:29 AM			Female	55Y 11M 3D	Hareesh Maranna	Drug Indent Drug Administration

Documenting administration details and add remarks in case a medication is withhold/not administered.

Name : Age/Gender: 64 Year/MaleRoom No / Bed No Admit Date : 28-01-2026 04:36 PM

Corp: KG Hospital

F/H/G Name : Admitting Unit : ARUN KUMAR U

Diagnosis : MICS CABG

Mobile No :

Address : City : COIMBATORE

State/Country :

Drug Administration Report

INFUSION ENTRY

M : 6.00 AM - 11:59 AM

A : 12.00 PM - 04:00 PM

E : 04.00 PM - 07:00 PM

N : 07.00 PM - 11:59 PM

Missed Dose

Drug Not Given

Due medication / Scheduled Dose

Drug Administration On Time

Upcoming Dose

Drug Hold

Postpone Entry

Nurse

Enter Nurse Code

		31-01-2026				30-01-2026				29-01-2026			
DRUG (Dose)	Route	M	A	E	N	M	A	E	N	M	A	E	N
TAB. CIRUSAVE (150+500)MG(1) (1-0-0-1) N-ACETYLCYSTEINE-150MG+TAURINE-500MG Prescribed at : 31-01-2026 11:04 AM	Oral / After Food	✓			✎								
INJ. HUMAN ACTRAPID (40IU/ML)/10ML(1) (According to blood sugar) NEUTRAL INSULIN(SOLUBLE) Prescribed at : 31-01-2026 08:11 AM	Subcutaneous(HRM)(SOS)	✓	✓	✎	✎								
TAB. ROSUVAS 20MG(1) (0-0-0-1) ROSUVASTATIN-20MG Prescribed at : 31-01-2026 06:08 AM	Oral / After Food				✎								

Drug Hours Prescription Entry

Status

HOLD

Remarks

--Remarks--

--Remarks--

Doctor asked to stop

Patient get Allergy

Other

Save

Close

Supplementary CPOE System Features to Reduce Medication Errors

- **Individual Secure Login:** Every doctor is provided a secure individual login, ensuring confidentiality and accountability.
- Only **authorized prescribers** can enter medication orders, using their unique Login ID.
- **Doctor's Dashboard** Displays **all admitted patients under the doctor's care**, organized **unit-wise**: Outpatient (OP), Emergency Department, Inpatient Wards (IP), ICU, Operation Theatre (OT), Daycare
- **Uniform prescription formats** for all medication orders are maintained across the hospital
- **Mandatory fields in CPOE** ensure comprehensive prescription documentation
- Every order modification **requires a new electronic entry**, preserving the history
- When an order is stopped, **time-stamped entries are captured**, ensuring full traceability for audits and patient safety.

SUSTAINABILITY

Instead of only weekly meetings, include:

- ✓ Monthly audit
- ✓ Dashboard monitoring
- ✓ New employee training
- ✓ Annual competency assessment
- ✓ Software upgrades
- ✓ KPI review
- ✓ Leadership oversight

Conclusion :

Implementation of CPOE transformed medication prescribing from a manual, error-prone process into a standardized, technology-enabled workflow. The intervention significantly reduced prescription errors, strengthened patient safety, improved compliance with hospital formulary and NABH standards, enhanced accountability, and established a sustainable culture of continuous quality improvement.

THANK YOU



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