KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE

BRIDGING TECHNOLOGY & PATIENT SAFETY: THE CPOE JOURNEY

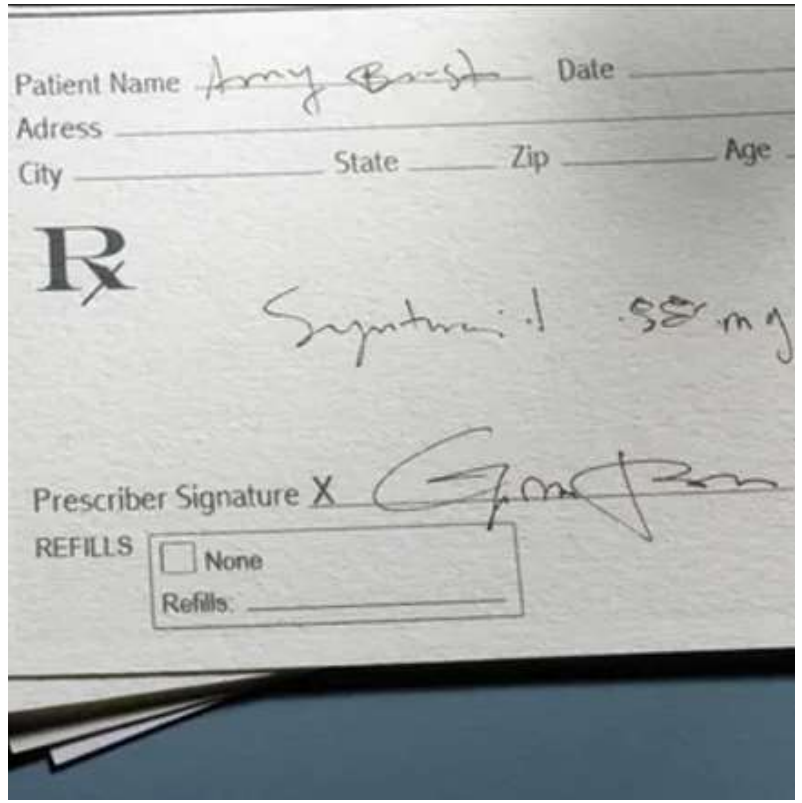
Dr.Chinnu T B
Senior Clinical Pharmacist
KG Hospital

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 (Intrathecally). 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.**

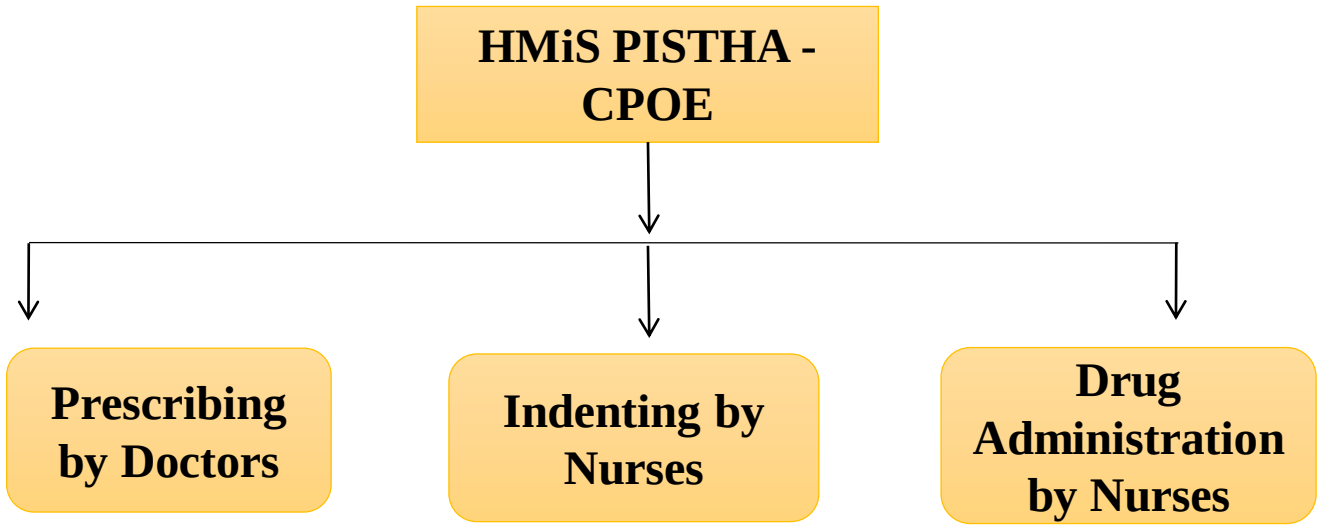
CPOE (Computerized Physician Order Entry)

KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE

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

KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE

Initiation Period: 24.09.2025 & Implementation on 01.01.2026

- 24*7 availability of CP for CPOE implementation initiative 16.08.25
- Removal of Drug chart throughout the Hospital & complete CPOE entry for New admission cases 30.12.25
- Created WhatsApp Group for escalating IT Issues 23.09.2025
- Ongoing CPOE Weekly Review Meetings 07.10.25
- 1 Week Trial in 6th Floor Ward and Feedback from all Doctors, Nurses and Clinical Pharmacists 24.09.2025
- CPOE partial Implementation in all patient care Units from 01.10.2025
- Training for Doctors & Nurses
- 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

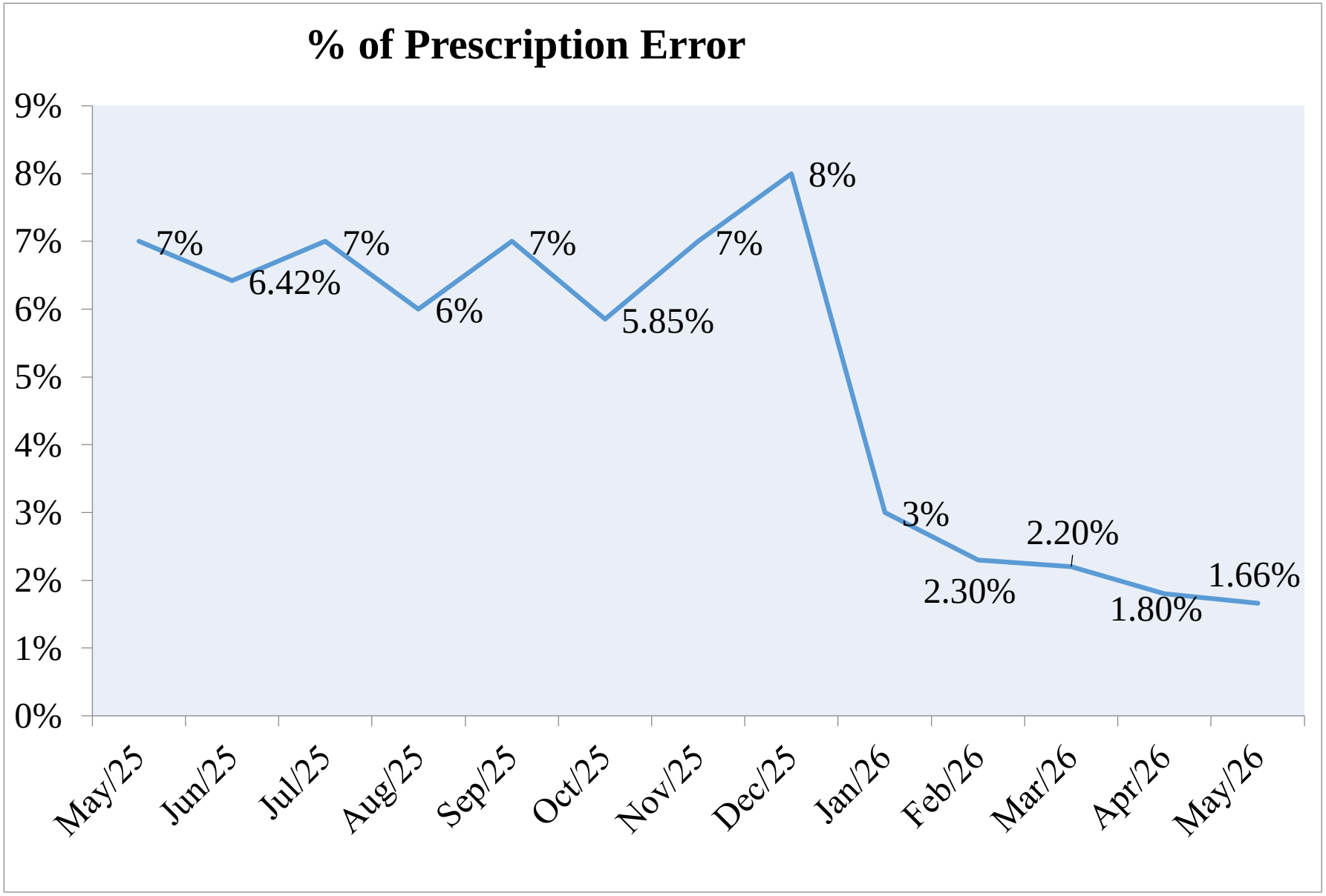
KG HOSPITAL
Coimbatore

52 YEARS OF MEDICAL SERVICE

PDSA CYCLE

KG HOSPITAL Coimbatore

52 YEARS OF MEDICAL SERVICE



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

KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE

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 Till11/6/25 (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.

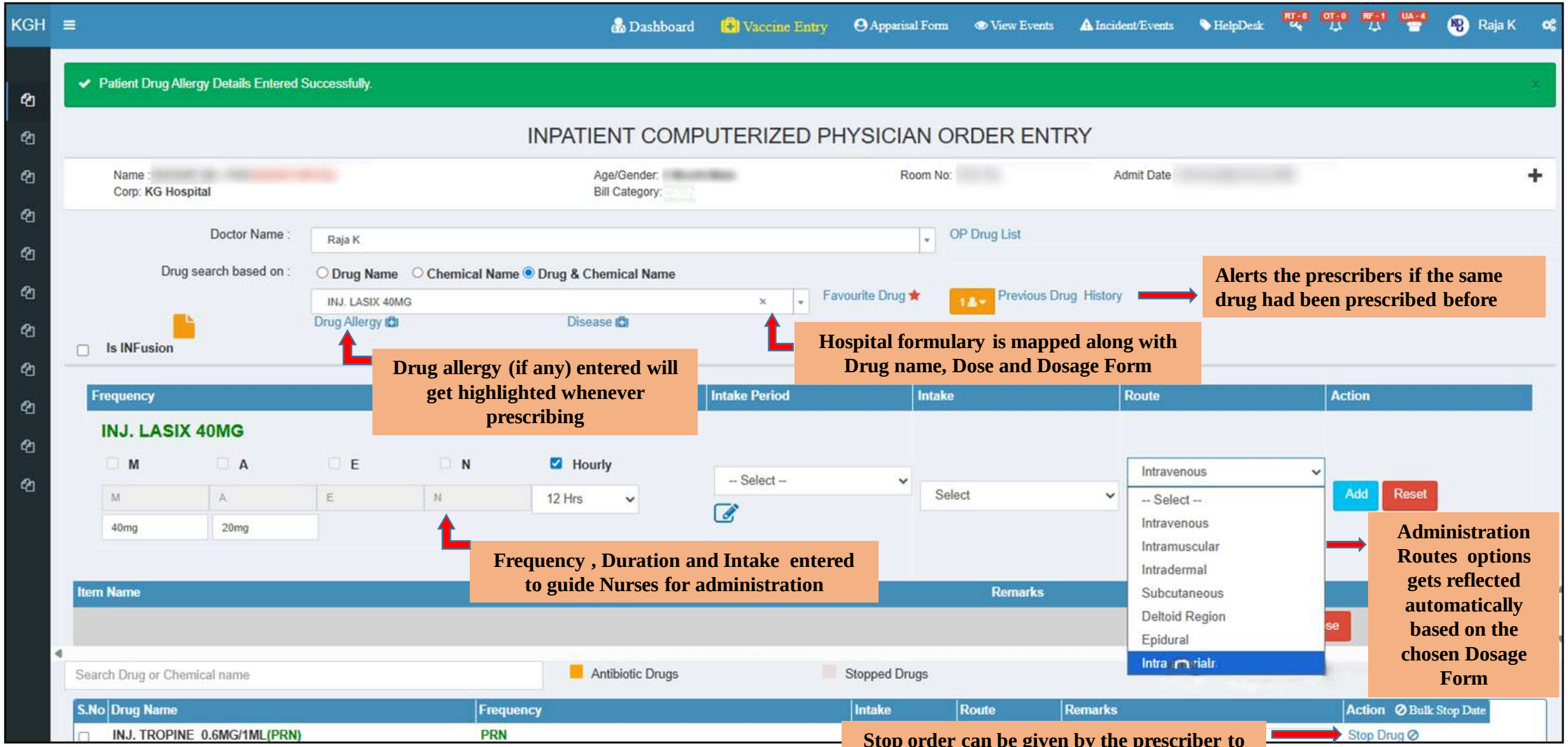
KG HOSPITAL
Coimbatore

52 YEARS OF MEDICAL SERVICE

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.

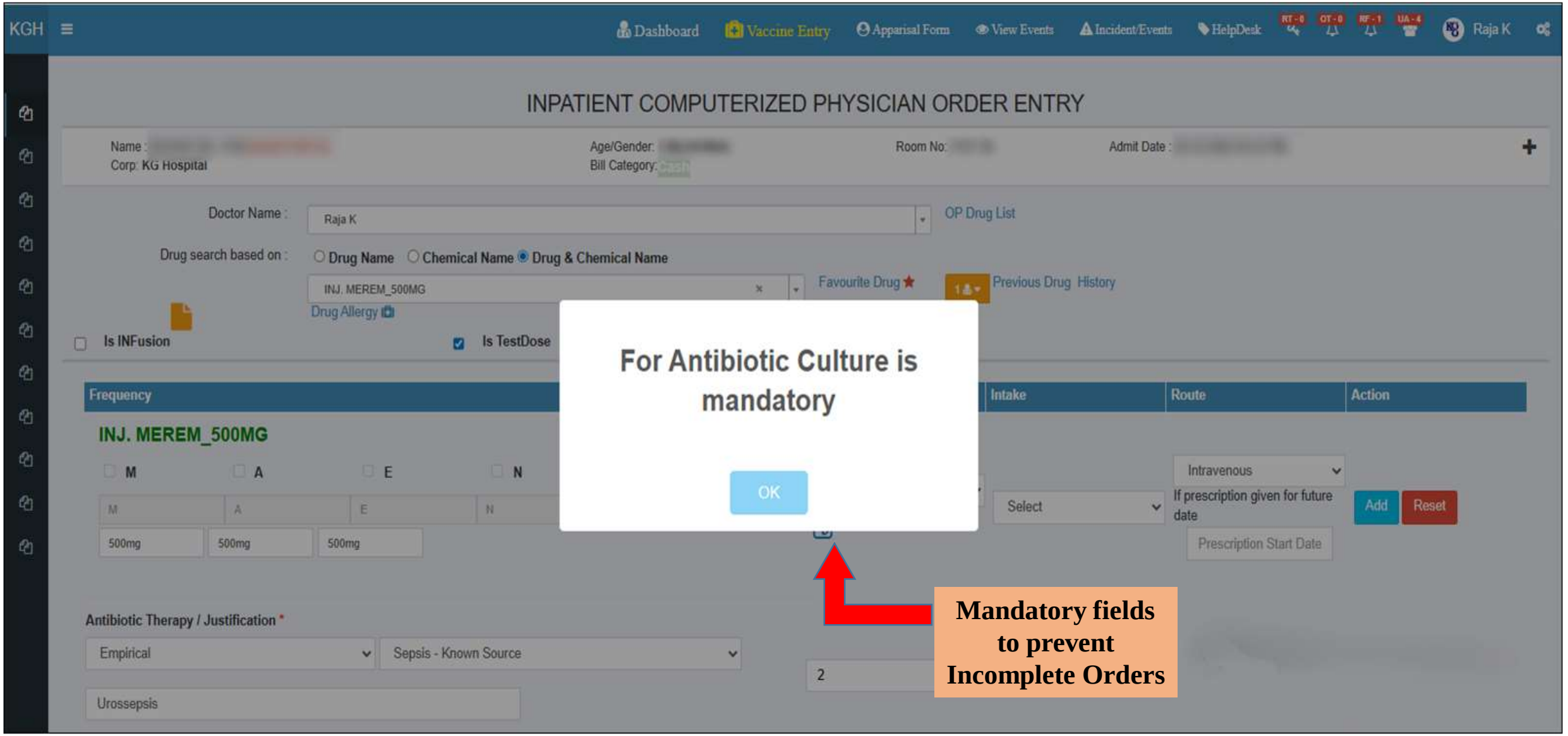
Prescription Error Prevention in Digital CPOE

KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE



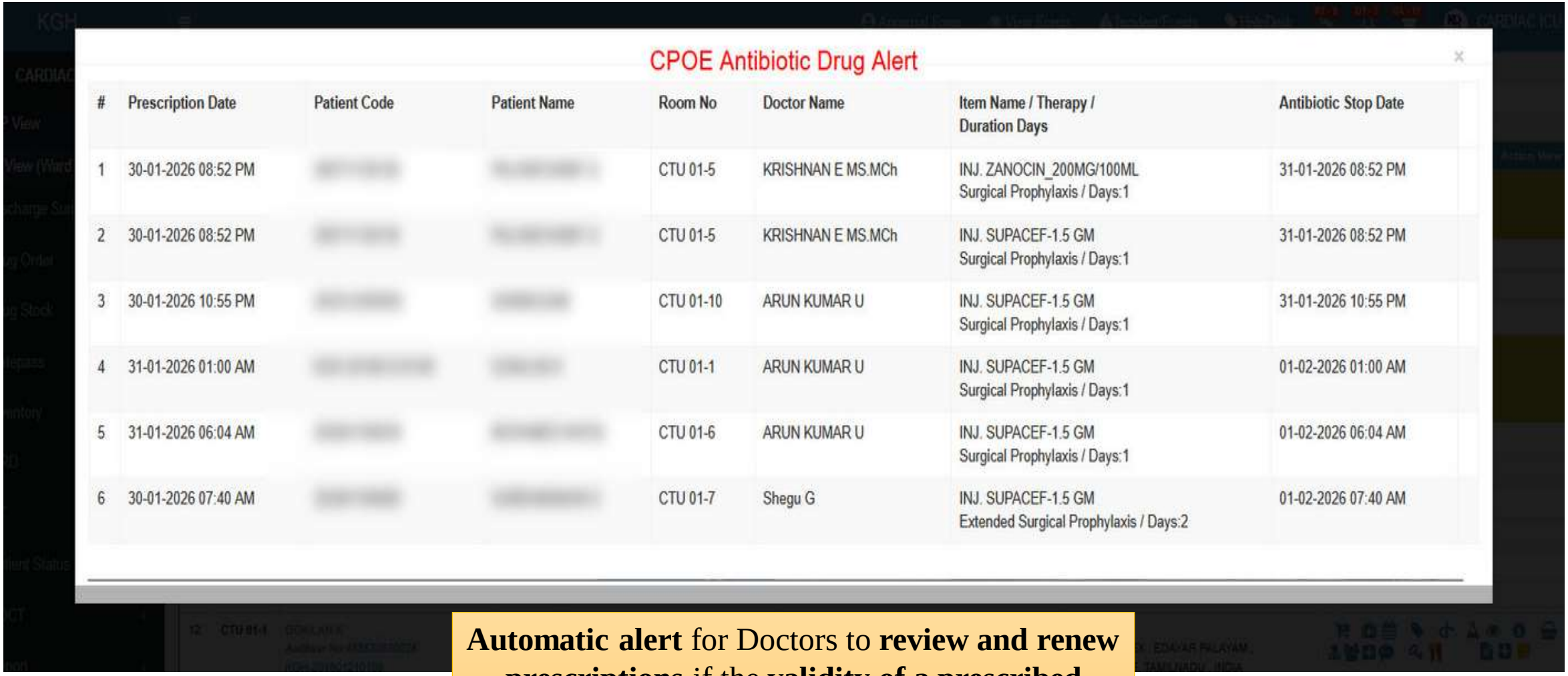
Prescription Error Prevention in Digital CPOE

KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE



Prescription Error Prevention in Digital CPOE

KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE



CPOE Antibiotic Drug Alert

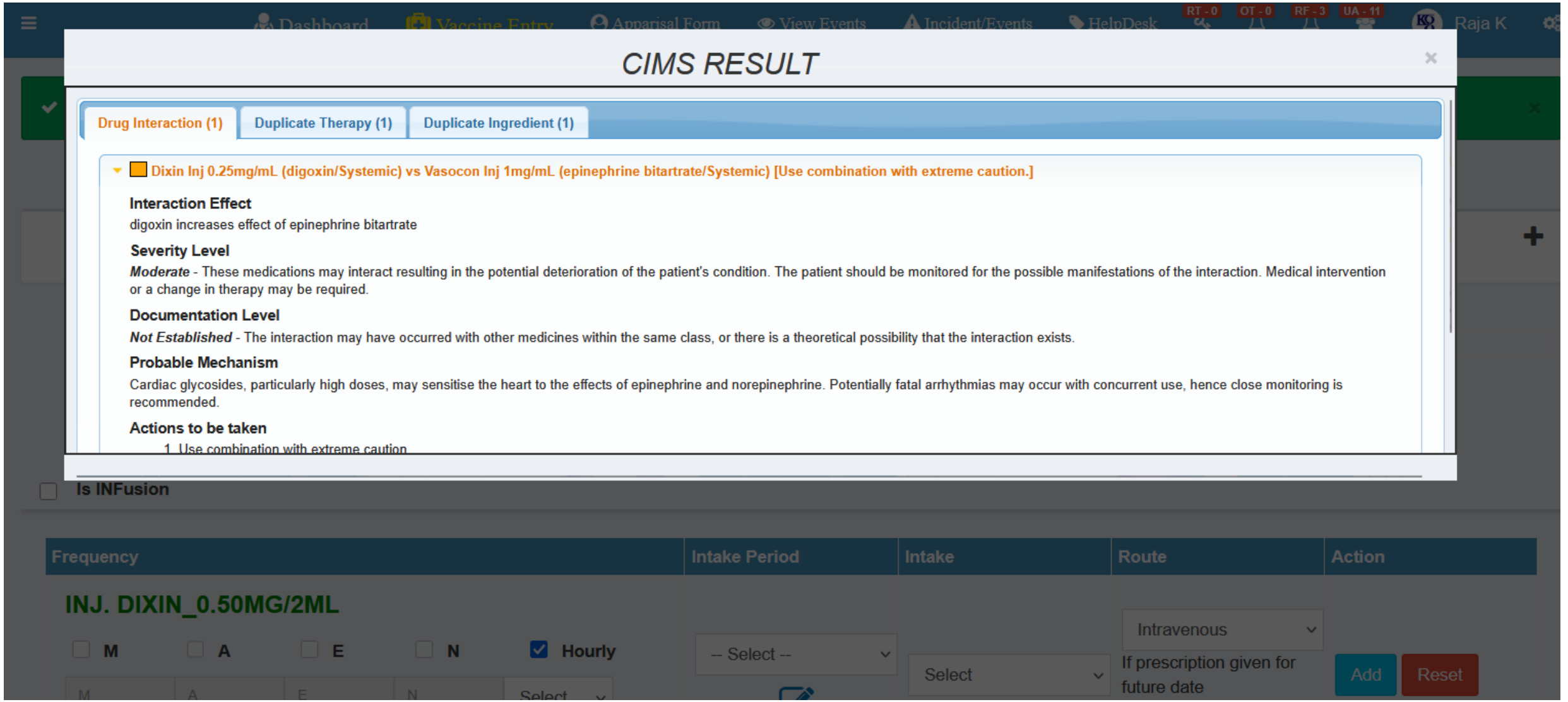
#	Prescription Date	Patient Code	Patient Name	Room No	Doctor Name	Item Name / Therapy / Duration Days	Antibiotic Stop Date
1	30-01-2026 08:52 PM			CTU 01-5	KRISHNAN E MS.MCh	INJ. ZANOCIN_200MG/100ML Surgical Prophylaxis / Days:1	31-01-2026 08:52 PM
2	30-01-2026 08:52 PM			CTU 01-5	KRISHNAN E MS.MCh	INJ. 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**

Hospital Formulary integrated with CIMS Software to prevent drug-drug interactions.

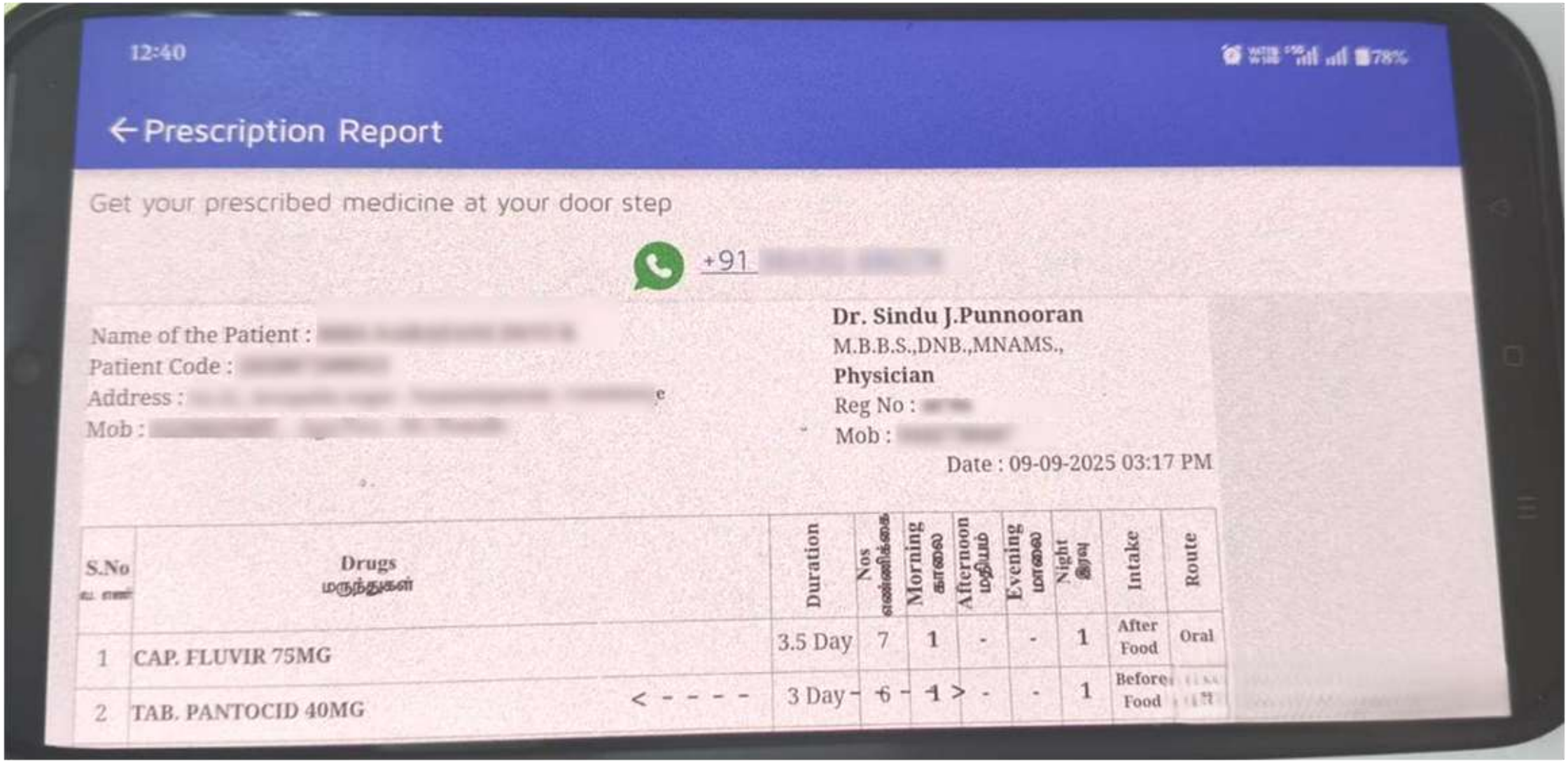
KG HOSPITAL Coimbatore

52 YEARS OF MEDICAL SERVICE



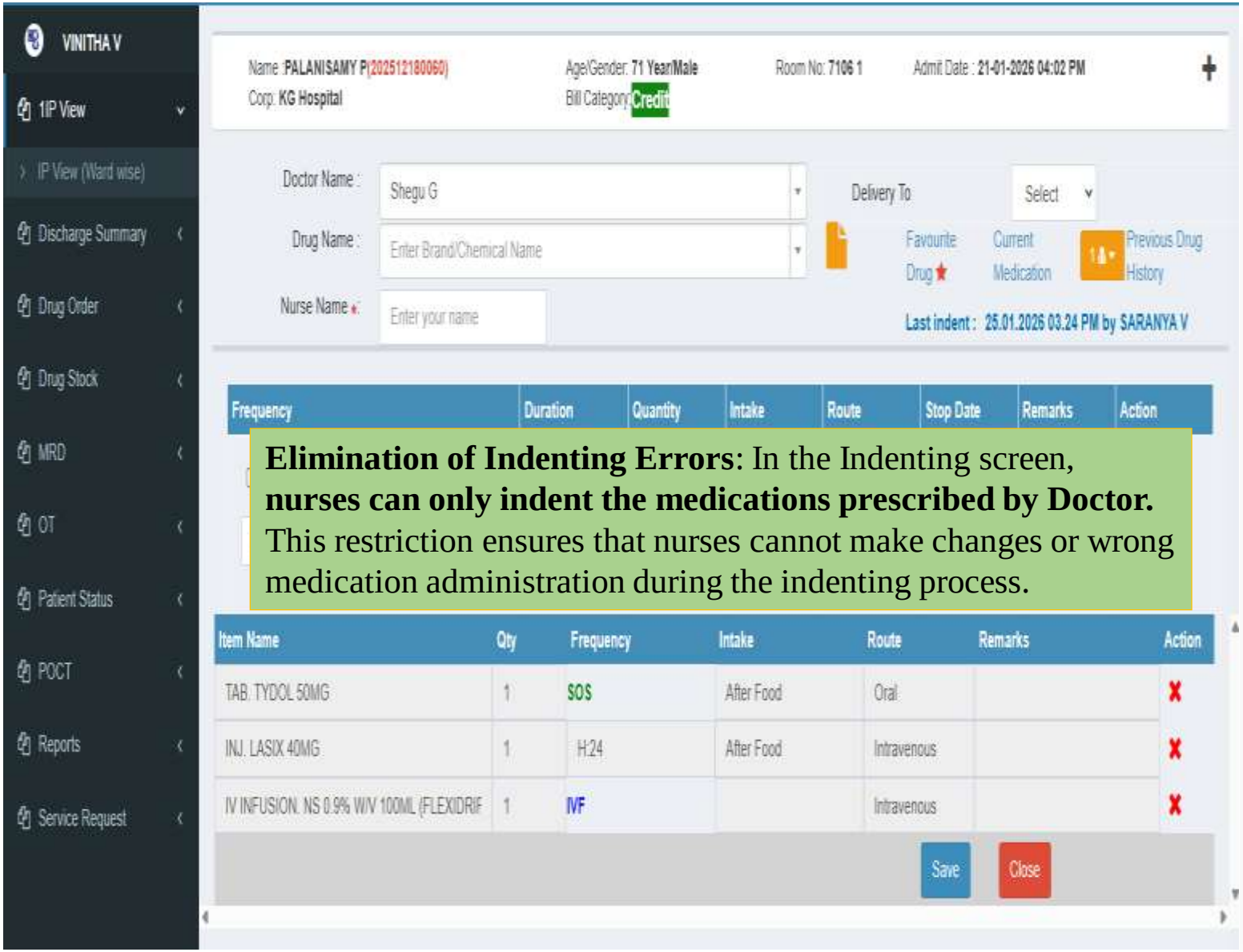
KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE

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

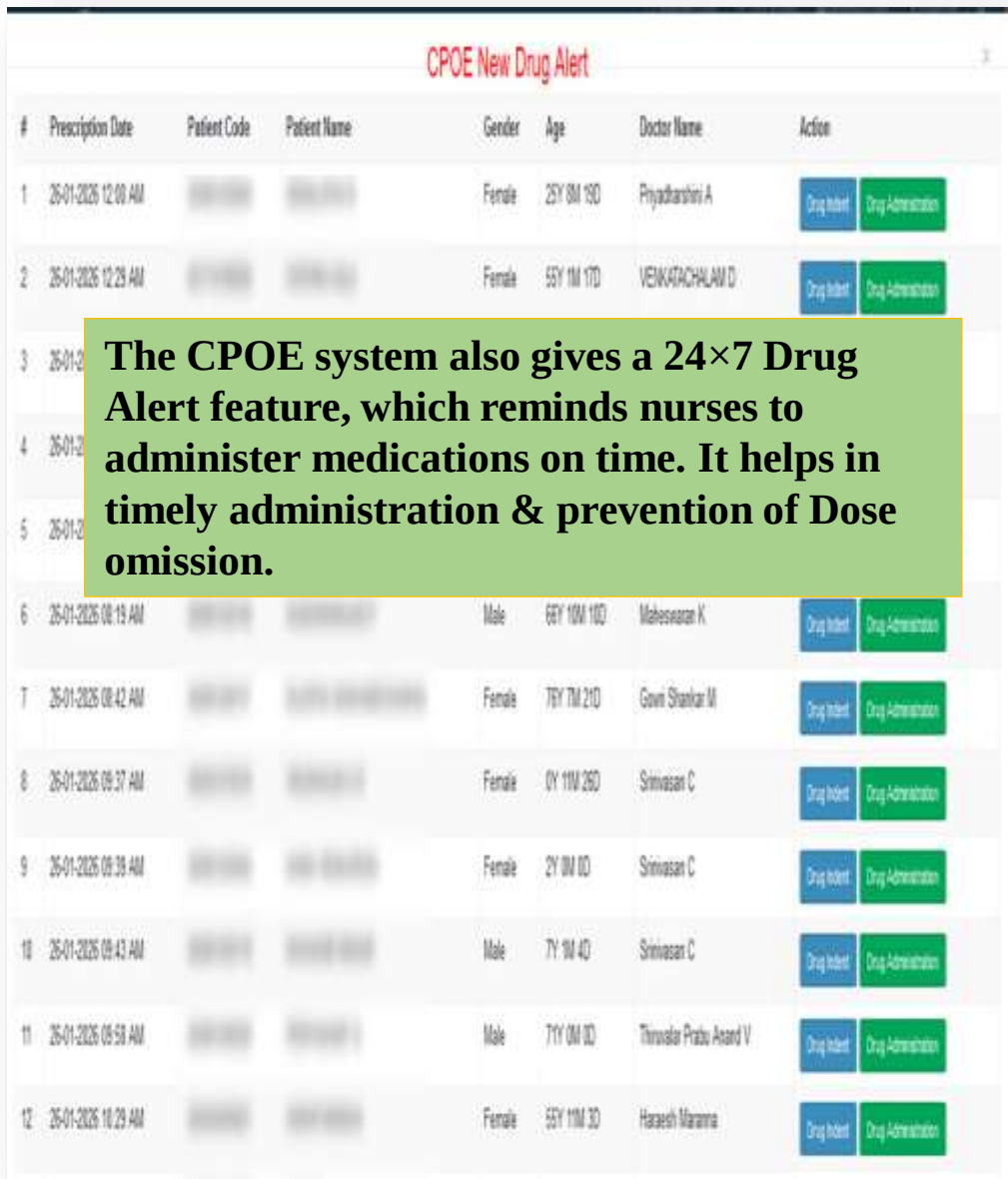


Prevention of Administration Error in Digital CPOE

KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE



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.



The CPOE system also gives a 24×7 Drug Alert feature, which reminds nurses to administer medications on time. It helps in timely administration & prevention of Dose omission.

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

KG HOSPITAL Coimbatore | 52 YEARS OF MEDICAL SERVICE

Name : [redacted] Age/Gender: 64 Year/Male Room No / Bed No [redacted] Admit Date : 28-01-2026 04:36 PM

Corp: KG Hospital

F/H/G Name : [redacted] Admitting Unit : ARUN KUMAR U Diagnosis : MICS CABG Mobile No : [redacted]
Address : [redacted] City : COIMBATORE State/Country : [redacted]

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

KG HOSPITAL Coimbatore

52 YEARS OF MEDICAL SERVICE

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

K. G. Hospital & Post Graduate Medical Institute

No.5,Govt Arts College Road, Coimbatore-641 018.

E- mail : drgb@kggroup.com, Ph : 0422 221 21 21, 0422 221 91 91