

**Does CPOE support nurse-
physician communication in the
medication order process? A
nursing perspective**

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Computerised Physician Order Entry (CPOE) System

- A clinical application that allows health care providers to electronically enter orders (Labs, medication, imaging etc.) for patient care

The screenshot displays a CPOE system interface for a patient named CARSON, JOHN. The patient's information includes: Facility: ADL Goodcare Demo, Unit: 31, Resident: CARSON, JOHN, Age: 95, Wgt: 149 lbs, PCP. The interface is divided into several sections:

- Alarms, ADT, Layout, HPA, Help, Close:** Navigation and utility buttons at the top.
- Order Entry Header:** Patient information and navigation controls.
- Order List:** A table of active orders with columns for Rx, End Date, Status, Procedure, End Date, Status, Lab Type, End Date, Status, and Rehab Type, End Date, Status.
- Order Categories:** Large buttons for TREATMENT, LABS, REHAB, DIETS, RADIOLOGY, and ACTIVITIES.
- Diagnosis Table:**

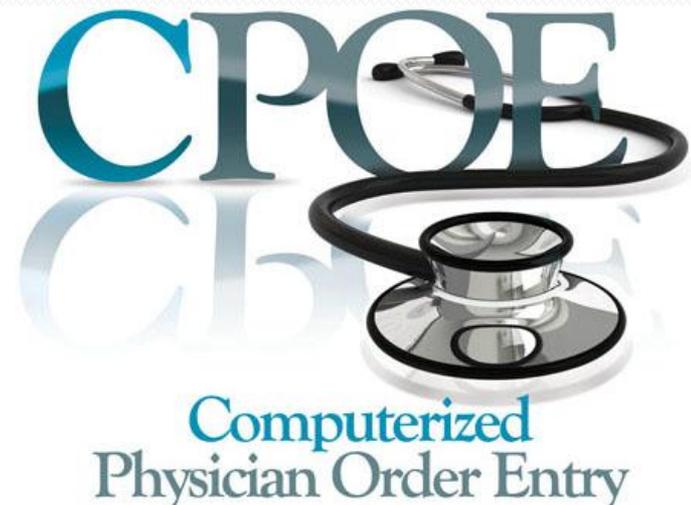
Date	ICD	Description
08-04-2007	332	PARKINSON'S DISEASE
08-04-2007	331.0	ALZHEIMER'S DISEASE
- Allergies and Medications:** Fields for Allergies and Medications.
- Vitals and Summary:** Fields for Temp, Pulse, Resp, SBP/DBP, and a Summary button.
- Bottom Navigation:** Buttons for Virtual Body, Care Plan, Progress Notes, ADLs, Vitals, Medications, and Summary.

Advantages of CPOE

- Order entry at the point of care
- Improved clinician workflow
- Reduced errors related to illegible writing or verbal communication
- Improved patient safety by reducing medication related errors/adverse drug events
- Improving patient care by supporting clinicians in clinical decision making

Barriers to implementation

- User acceptance
- Staff resistance for change
- Reduced face to face communication between health care workers



National Guard Health Affairs (NGHA)

- Is a leading medical complex in the Kingdom of Saudi Arabia (KSA)
- Consists of medical cities scattered across KSA
- All hospitals within NGHA are JCI accredited
- Provide state of the art health services to other countries within the Middle East

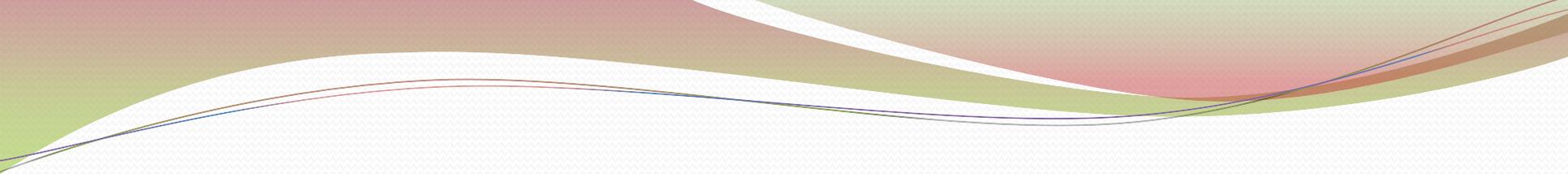


CPOE in Saudi Arabia

- Intended complete rollout of CPOE in the Central, Western and Eastern Regions of SA in 2009
- A pilot project in a department of the Central region was confronted by multiple barriers including physician resistance, lack of internal expertise in health IT, small IT team sizes and major expansion of the hospital at the time.
- Therefore CPOE implemented at one of the National Guard Health Affairs (NGHA) Medical cities in September 2009 in the Eastern Region of Saudi Arabia

CPOE in Saudi Arabia (cont..)

- Complete rollout of CPOE was implemented across all NGHHA hospitals and departments in 2013.
- A preliminary study measuring physician satisfaction with CPOE at NGHHA-Eastern region, found that more than half of physicians reported overall satisfaction with CPOE and perceived that CPOE improved patient quality care and efficiency.

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- However, despite the important role nurses play in the medication process, no study has yet explored nurses' perceptions of CPOE or their opinions on whether CPOE supports nurse-physician communication in the medication process at NGHHA.
 - This study explored nurses' perceptions regarding the CPOE and its impact on nurse-physician communication in the medication order process.

Methods

- **Study setting**

- 112 bed NGHHA hospital in the Eastern Region of SA
- Hospital offers range of inpatient and outpatient services – 7000 patients seen monthly
- CPOE system implemented in all units of the hospital
- CPOE is an integrated feature of the existing computerised patient record (CPR) and not a “stand alone” clinical information system

- **Study participants**

- All nurses working and using CPOE in the hospital
- 174 nurses invited to participate in the study
- Convenience sampling used

Methods

- **Study Design and Instrument**

- Cross-sectional exploratory study
- A questionnaire was developed and consisted of 3 domains (demographic data, nurse perceptions on CPOE features of the medication process and perceptions on nurse/physician communication on medication process)
- Questionnaire was piloted and face and content validity were measured by an expert panel of health professionals, nurses and HI professionals

- **Research approval**

- Granted by the KSAU-HS scientific research committee and the NGHA hospital in April 2010

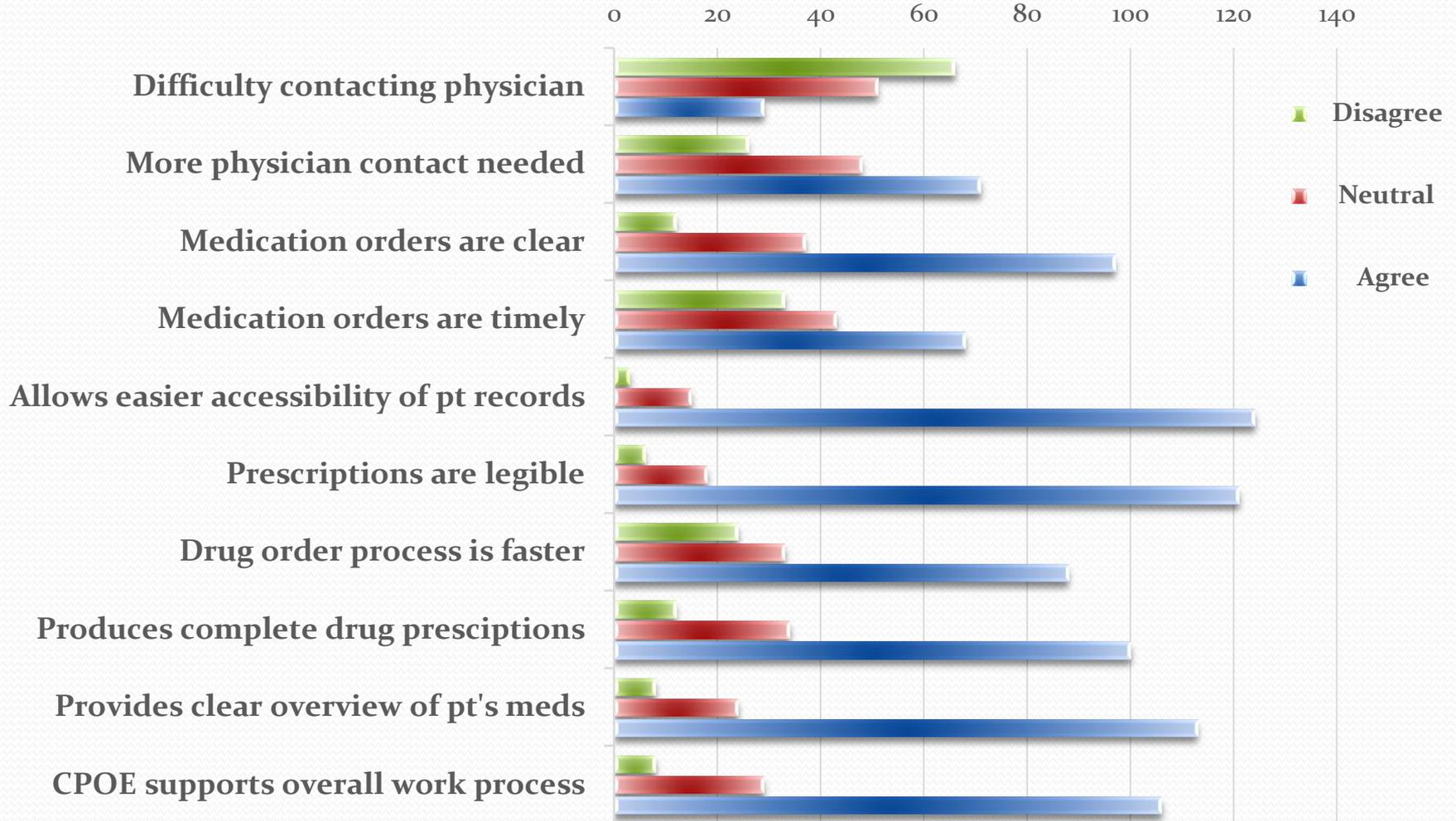
- **Data analysis**

- Descriptive statistics, Mann-Whitney U, Kruskal Wallis and correlational analyses using SPSS

Results

- In total, data were collected for 146 nurses - 83% response rate
- The majority of nurses were female between the ages of 25-35 years and were from surgery and neonatal ICU/nursery with years of experience between 6-10 years.
- Almost all of the nurses held positions of staff nurse I and staff nurse II

Nurses' perceptions on CPOE characteristics supporting workflow and nurse physician communication



Results cont..

- Nurses who had less years of experience agreed that CPOE supported nurse physician communication
 $p=0.004$
- Nurses who worked in surgery significantly disagreed that CPOE supported nurse physician communication
 $p\leq 0.001$
- An intermediate positive correlation was found between nurses perceptions of CPOE features supporting workflow and CPOE supporting nurse physician communication ($R=0.517, p\leq 0.001$)

Discussion

- Nurses age, gender and position were not significantly related to nurses perceptions on CPOE supporting nurse physician communication
- Overall, nurses perceived that CPOE provided clear drug overviews, complete and legible drug prescriptions and efficient and accessible drug orders
- However, nurses also perceived that after CPOE implementation, frequent physician contact was required

Limitations

- Cross-sectional design of the study
- Sampling technique
- Timing of study shortly after implementation of CPOE
- Single questionnaire item
- Nurse perceptions and not actual work flow process

Conclusion

- This study has revealed positive nurse perceptions with the CPOE system features at a hospital of the NGHHA – Eastern Region
- Nurses agreed that overall nurse physician communication was improved however there remains a need to frequently contact physicians for follow-up
- Further in-depth studies are needed following complete rollout across other NGHHA sites.

Thankyou

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