

Why CPOE?

And its unintended Consequences

Track 1: 2:00 to 2:50 PM

Monday, Sept 21, 2009



Durham Regional Hospital

DUKE UNIVERSITY HEALTH SYSTEM



Presenters

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Objectives

- Identify the reasons and benefits to moving forward with a CPOE implementation
- Understand the potential unintended consequences of implementing CPOE, both the good and the bad



Objectives continued

- Understand how good project planning and paying attention to detail can help mitigate negative consequences and promote positive consequences



Durham Regional Hospital



- Located in Durham , North Carolina
- 386 bed community hospital that is part of the Duke University Health System



Durham Regional Hospital

- ED Visits 2008: 57,394
- Admissions 2008: 15,562
- Surgical Cases 2008: 17,588
- Outpatient Visits 2008: 124,633
- Babies Delivered 2008: 2,237
- Physicians: 629



Foundation Systems

- Siemens
 - INVISION
 - Pharmacy
 - MAK
 - Radiology
 - Patient Accounting/Patient Management
- Cerner Lab
- Wellsoft- ED
- TraceVue- Women's Services



Background Information

- Siemens Invision
 - Electronic Order Entry – 1995
 - Clinical documentation – 1996
- CPOE
 - First Inpatient Unit 06/30/06
 - Bidirectional Interface to pharmacy
 - Last Inpatient Unit 12/07/2007
 - Over 150 order sets built
 - ED admission order entry live 2/16/09



Why CPOE?

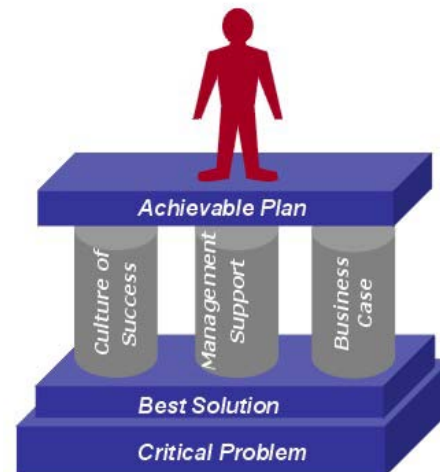
- Is this the time to invest in CPOE?
- Obvious benefits include
 - Reduction of medication errors
 - Reduction in turn-around-time
 - Order Entry from any location
 - Complete orders
 - Order legibility
- Can CPOE actually show dollar value?



Why CPOE?

- The benefits of implementing CPOE are many and the project can be successful with careful and detailed planning.

Keys to Systems Success
Hint: It's Not the Software



Our Case for CPOE

- Patient Safety as encouraged by Leapfrog and other groups
- Efficiency of Care Delivery
- Help to meet CMS and JCAHO initiatives
- Advance goal of an Electronic Medical Record



DRH CPOE Facts

- Implementation House-wide over 18 months
- Mandatory House-wide (inpatient) in steps
- Providers trained to date: over 600
- Number of Orders to date: over 2,000,000
- ~40% of orders are entered by residents

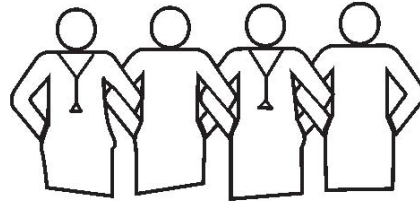


Reasons to implement CPOE

- Improve Patient Safety



Computerized Physician Order Entry
CPOE
Partners in Safety



 Durham Regional Hospital

Patient Safety

The driving force for CPOE Implementation.

Patient Safety Focus

- Legible orders
- Complete orders
- Timely transmission
- Streamlined order entry
- Real time clinical checking
- Guidance towards best practice



Reasons to implement CPOE

- Reduce Turn-around-Time



the action of receiving, processing, and returning something



Reduce Turn-Around-Time

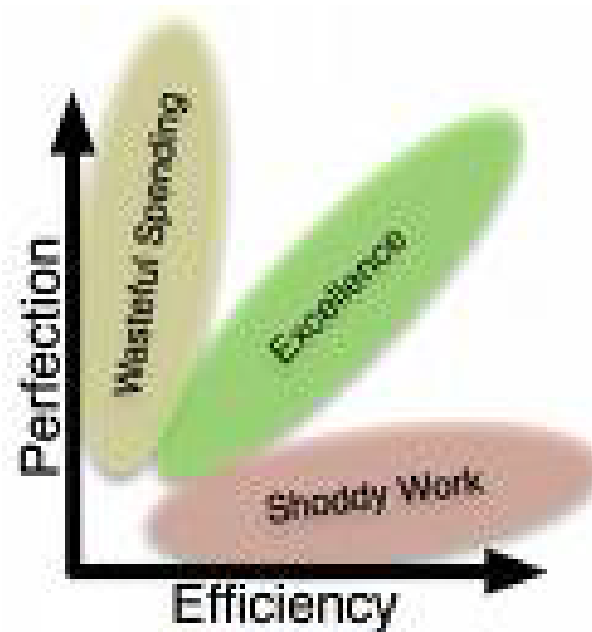
Interfaces between CPOE and other systems: Make everything fit together!

- Improved ancillary notification
 - No handwriting errors or unapproved abbreviations!
 - Faster notification of orders to ancillaries
 - No delay in transcription of orders
 - No missed orders
 - Improved TAT in Pharmacy
 - No incomplete orders
 - Reduction in dosing issues
 - Order entry v. Order validation
 - Reduced ordering of non-formulary drugs (50% cost savings)



Reasons to implement CPOE

- Efficiency of Care Delivery



Efficiency of care delivery

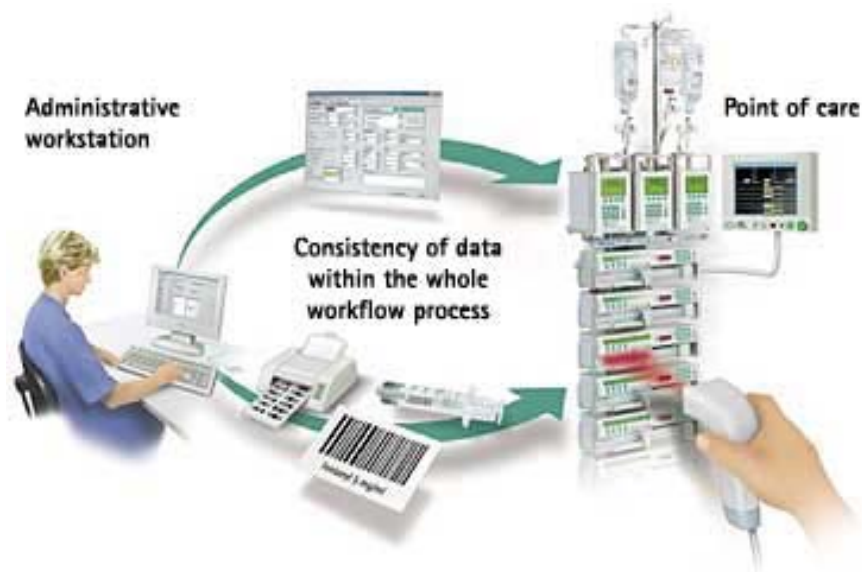
Order sets

- Standardized format to orders and order sets
- Incorporated Best Practice
- Central to Compliance with HQI initiatives
- Still allows provider to make choices
- Order Set Committee formed to review and approve all order sets

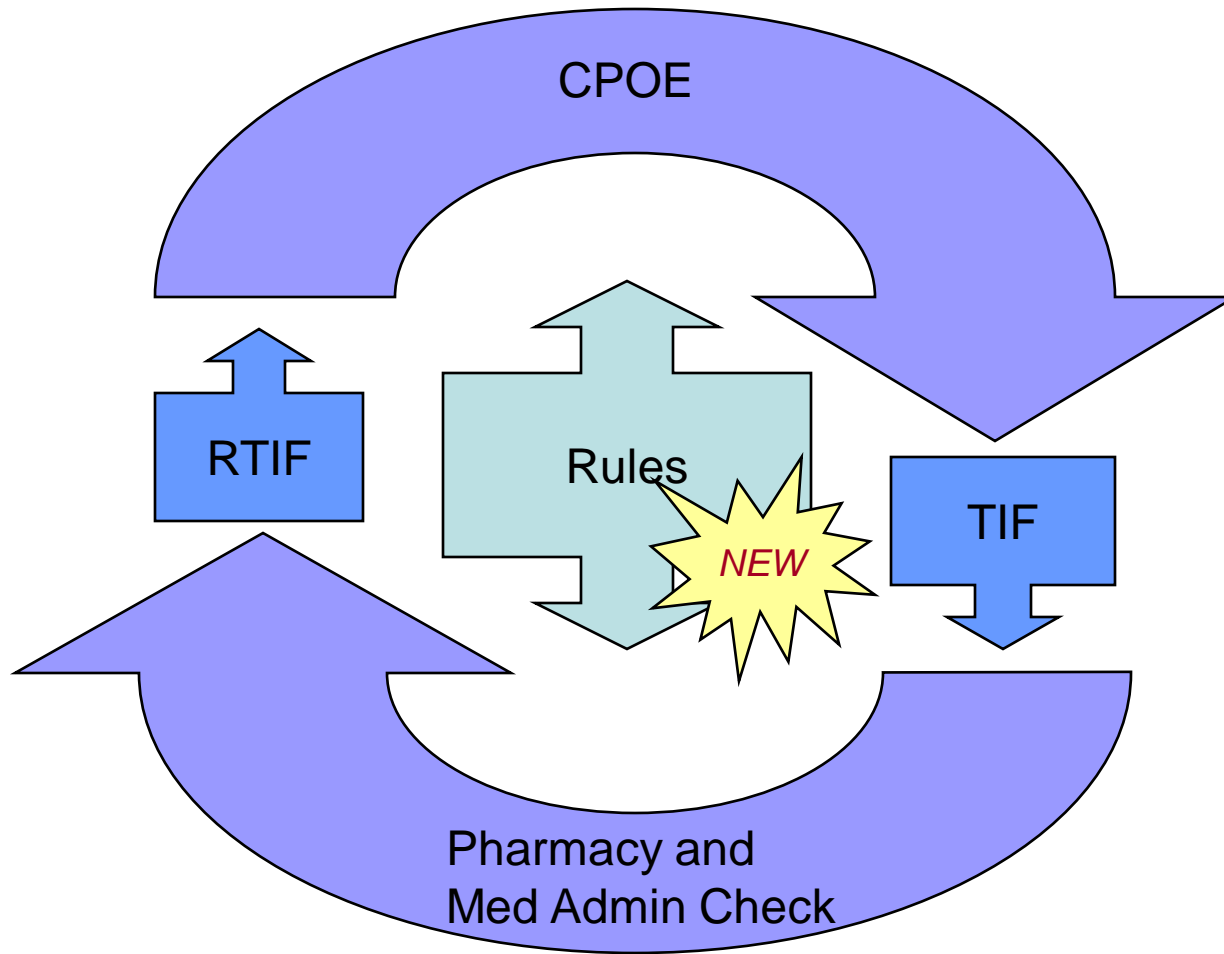


Reasons to implement CPOE

- Reduction of medication errors



Closed Loop Medication System



Reduction of Medication Errors

- Transcription errors decreased to LT 3%
 - *Cause paper medication reconciliation process*
- Use of Non-formulary drugs have decreased by more then 50%
- Incomplete orders have decreased by more then 70%



Reduction of Medication Errors

- Duplicate orders have dropped by 70%
- Incorrect Dose has dropped by 20%
- Prescribing errors have dropped by 50%



Reasons to implement CPOE

- Reduction in Pharmacy Interventions



Reduction in Pharmacy Interventions

- Pharmacy Interventions have also decreased by more than 70%.
- Interaction between the pharmacists and the provider are now true clinical discussions about the best medications for the patient.



Reasons to implement CPOE

- Improve Regulatory Compliance



*Robo Cop to improve
Healthcare Compliance*



Improve Regulatory Compliance

- Verbal orders that are not cosigned in a timely manner represent potential quality, safety, and medical-legal concerns
 - Hospital Policy - 48 hours
 - 90% compliant.
- Stop use of non-approved abbreviations
- Consistent use of vocabulary
- Improved order documentation including reasons and special instructions
- Complete orders improve Communication



Benefits of CPOE

- Other benefits include:
 - Clinical decision Support at the time of order entry
 - The proper use of evidence based medicine in CPOE can enhance physician decision making and improve patient outcomes
 - Required documentation at the time of order entry



Benefits of CPOE continued..

- **Consistency in care**
 - Streamlined order entry
 - Use of Order Sets
 - Required order documentation
- **Complete Electronic Medical Record**
- **Reduce Duplicate Orders**
- **Decrease Insurance denials**
 - Requiring documentation such as reasons at the time of order entry



Benefits of CPOE continued..

- Because it is time
 - Are you doing electronic order entry today?
 - Are you doing electronic clinical documentation?
 - Do you have a goal to move towards and electronic medication record?
 - Do you have transcription errors?
 - Where are you with technology in your organization?



Unintended Consequences

- Addressing the unintended consequences of implementing CPOE becomes the next generation of challenges that will be addressed in our presentation
- The unintended consequences related to implementing CPOE, can be both positive and negative



Unintended Consequences

- CPOE creates many eye-opening impacts.
- Each consequence must be addressed to determine how to use beneficially or mitigate the impact



Unintended Consequences

- Overdependence on Technology
- New kinds of errors
 - Picking the wrong patient or wrong account
- Alert Fatigue
 - What happens if they blow by the alert?
- System Performance
- Dual Processes



Unintended Consequences

- Impacts on Workflow
 - Physicians – initially increased time to enter orders (not unexpected) – Mostly Positive
 - Positive impacts to:
 - Pharmacy
 - PT/OT & Speech
 - Negative impacts to:
 - Respiratory
 - FNS
 - Nursing practice
 - Standards of Care
 - Using CPOE to guide best practice



Unintended Consequences

- Impacts to organizational structure
 - Perceived shifts in Power
- Increased awareness on technology and its benefits. (double edge sword)
 - Work lists
 - Decrease in critical thinking



Unintended Consequences

- Increased visibility of IS staff
 - CPOE Satellite
 - IT Rounding
 - Customer Service
- Inappropriate use of free text orders
- Cosign Disagree



Unintended Consequences

- Orders approaching expiration
- Understanding of administration times
 - First Dose
- Titration Parameters



Unintended Consequences

- Nurse Acknowledgement
 - Timely Notification of Orders
 - Electronic Noting and chart checks
- Dealing with Silos of information
- Using the system to meet CMS initiatives



Mitigating Unintended Consequences

- Key strategies to mitigate unintended consequences
 - Project Planning
 - Setting Goals
 - Communication Strategy
 - Project Focus (Why are we doing this?)
 - Marketing
 - Education



Mitigating Unintended Consequences

- Mitigating unintended Consequences starts with good project planning.
- Expect the unexpected and plan for it.
- Look for areas of risk and be proactive in project planning.



Project Planning

- Strong project planning is crucial
 - Follow a Project Plan methodology (www.pmi.org)
- CPOE must be a clinically driven project not an IT project.
- Workflow
 - Understand the current state
 - Develop what the future state will look like and try and find the holes or risk factors



Project Planning

- Cross-departmental representation
- Policies and Procedures
- Workflow issues- global
- Order entry screen design and flow
- Resources time constraints



Project Planning

- Set realistic time-frames
- Keep the project moving
 - Understand that lengthy delays can be deadly
- Establish guidelines
- Determine your method of roll-out
 - Unit by Unit (understand your players)
 - Big Bang!



Project Planning

- Interfaces
 - Understand the impacts to downstream systems.
 - Look at information flow
 - Application Silos



Project Planning

- CPOE is not just for providers
 - Nursing acceptance & involvement is critical
 - Ancillary involvement
 - Order flow
 - Order documentation
- Provider involvement
 - Engaging the physicians and extenders
 - Communicate! Communicate! Communicate!
 - Any method you can find



Setting Goals

- Clearly define project goals
 - Avoid negative impacts to workflow
 - Prevent/reduce medication errors
 - Decrease turnaround time
 - Improve adherence to regulatory guidelines
 - Be honest about impacts to time
 - Increased time to enter orders
- Metrics – determine success



Communication Strategy

- Clinical communication
 - Encourage face-to-face interactions
 - Place Strategic reminders
 - Positive impacts to clinical process
 - Computer does not replace provider-nurse conversations



Communication Strategy

- Avoid negative impacts to Communication
- Electronic systems do not replace verbal communication
- Communication should occur in a timely manner
- Promote face-to-face communication



•Communication Strategy

- Promote honesty in communication

- Honesty develops trust

Trust = Success



- Develop methods to gather feedback.
- Education approaches - flexible & creative



Communication Strategy

- **Gathering Feedback**
 - Traditional methods
 - Hallway meetings, telephone calls
 - Attend staff meetings
 - One on one meetings
 - Staff Meetings
 - Rounding
 - Technology
 - NetAccess feedback mechanisms
 - Listserv e-mails





Patient Safety

The driving force for CPOE Implementation

Marketing Strategy

- Go CRAZY with Marketing
 - Make it fun and Interesting
- Marketing Tools
 - Newsletters
 - Brochures
 - Demonstrations
 - Powerpoints
 - Staff meetings
 - Flyers
 - Food and prizes
 - Materials such as ink pens, buttons, mouse pads, T-shirts



Marketing Strategy

- Highlight Benefits of CPOE
 - Patient Safety
 - Clinical Checking
 - Best Practices
 - Continuity of Care
 - Order Legibility
 - Meeting regulatory standards
- Budget for Marketing
- Marketing should be continuous.....



Education Concepts

- Full time CPOE educator
- Classes
 - Easy registration
 - Flexible training schedule
- Enforce Policies
 - No training, no CPOE access
 - Privileges/Security process
 - Mandatory policy



Education Methods

- Types of Training
 - One-on-one
 - Self-paced packets
 - Classroom
- Resistance to learning
 - Listen to concerns
 - Provide the facts



Unintended Consequences - Resolved

- **Successes**
 - Cosign Disagree
 - Orders approaching expiration
 - Education – medication administration times
 - Flowcharting titration parameters
 - Order communication
 - Automation of Noting and chart checking orders
 - Meeting CMS Initiatives



Unintended Consequences - Unresolved

- Perceived shifts in power
- Decrease in critical thinking
 - Can't the computer do it for me....
- Alert fatigue
 - Determining the effectiveness of alerts



Unintended Consequences - Unresolved

- Dual processes
 - Mandatory policy
 - Addressing all departments
 - Pre-Op dual accounts
- Information silos
 - Applications not fully exchanging information.



Unintended Consequences - Unresolved

- System performance
 - Multiple factors affecting performance
 - Remotely managed HIS
 - Multiple networks
 - Desktop control
 - Layered application
 - Highly customized
- Free text orders



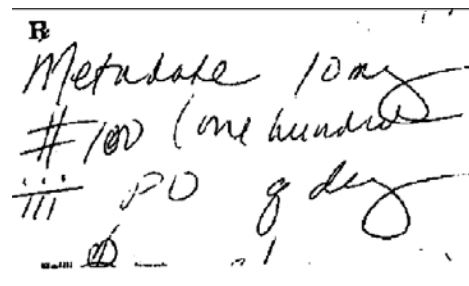
Why we were Successful?

- Structured project implementation team
- Leadership support and mandate
- Staff level involvement
- Plan was set
 - Implement every six weeks for inpatient areas
 - Complete in 18 months
- Follow up
 - Listen for needs and changes



Challenges

- Mimic the order as written on paper
- Helpful screen reminders
 - Minimize
 - Busy screens
 - Excessive alerts
 - Emphasize
 - Clearly stated
 - Screen reminders- lead provider in the right direction
- Everyone wants it their way



R
Metadate 10mg
#100 (one hundred)
qd



Challenges



- Listen
- Understand the request
- Understand related workflow impacts
- Encourage end-users to be part of the solution
- Offer solutions that are doable
- Provide realistic time frame for solutions



Challenges

- Acceptance
- Involving the right people in the decision making process
- Building trust in the system
- Getting input and feedback
- Keeping training documentation current
- Order sets
- Communication



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Thank you for attending this session.



Questions

Session Name:

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Please take a few moments to complete your evaluation form before you leave.

