CPOE 101: Foundations for a Successful CPOE Implementation

Facilitated by

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CPOE 101: Where to begin?

The Planning Process:
Developing a Strategic Plan for CPOE
Planning the Project

What do we know about CPOE projects?

- Few hospitals in the country have rolled out CPOE—an estimated 8% of all hospitals.
- They are ‘high risk’ initiatives involving the entire organization—not just clinical staff.
  - CPOE projects are ‘big change’ projects that require significant clinical involvement—MDs, Nursing, Pharmacy, etc.
  - They are a major organizational expense—expanding over a multiple of years.
- So start the Planning as early as possible…
Planning the Project

What we might not know…

- CPOE projects are multi-year initiatives
  - Unlike other large scale projects, there is no true end date….it’s constant refinement & ‘optimization’ of the system
- It’s not uncommon to underestimate the magnitude of the project
  - So we need to plan with that in mind…
Planning the Project

Where do you begin?

- Who in senior leadership is responsible for the success of CPOE—shouldn’t be the CIO & not just the CMO…
- Identify ‘key’ physician leaders that you want to ‘champion’ the project—seek their counsel early
- Start building the business case for CPOE —seriously consider potential impediments
Planning the Project

- Consider what metrics you will utilize to measure & report on post LIVE
  - This should be based on your organizational objectives with CPOE
  - Ensure that they are measurable & a part of the project scope
  - Carefully consider the time-frame for reporting & plan ‘realistic’ goals-assume a ‘learning curve’ with the transition
**Sample Metrics**

<table>
<thead>
<tr>
<th>Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease physician time spent on pharmacy call backs related to orders (e.g. illegibility, interventions which could have been avoided with CPOE alerts, etc.).</td>
</tr>
<tr>
<td>Decrease physician time spent on nursing call backs related to orders (e.g. illegibility, interventions which could have been avoided with CPOE alerts, etc.).</td>
</tr>
<tr>
<td>Decrease turn around time (TAT) for medication order (time of order to time of Rx verification).</td>
</tr>
<tr>
<td>Overall reduction in medication errors (break down by category of severity)</td>
</tr>
<tr>
<td>Increase in use of deep vein thrombosis (DVT) prophylaxis for patients presenting with stroke or congestive heart failure. Assumes a DVT protocol is in use.</td>
</tr>
<tr>
<td>Comparison of the time spent by physicians completing paper order sets versus completion of the same order sets</td>
</tr>
</tbody>
</table>
Planning the Project

Assess your organizational ‘Culture’…
- What is the MD perception of your HIS?
- Do MD’s routinely rely on the EMR?
- Are order sets well adopted on paper?
- Is nursing documentation electronic?
- Do you have a ‘patient safety’ focused culture?
- Is technology viewed as ‘key’ to the achievement of your organizational goals?
What is driving CPOE for your organization?

- How do you plan to sell it to your medical staff?
- It’s critical that the CPOE Project has an organizational ‘vision’ that ties to the overall patient safety goals of the organization
- The ‘vision’ for CPOE will drive the plan with realistic time-lines, goals & objectives
Assess your Application Portfolio for CPOE...

- Are you a one vendor or multi-vendor environment? Multi-vendor environments can be a definite challenge...
- Do you utilize scanning & archiving? Has paperless been part of the planning to date?
- Does your HIS interface with other systems for clinical data? Is there critical data that remains on paper?
- What about your ED? Is it a paper process?
- Do the physicians eSign?
Planning the Project

- Develop a detailed Communication & Marketing strategy
  - Engage experts in the strategy
  - Develop a ‘brand’ & logo for the initiative
- Communicate within your organization a visible, high profile commitment to CPOE & patient safety
- Essential that you engage Medical Staff leadership in the strategic planning process
Marketing the Project...

- One site did a take off on the ‘Got Milk? ad....
- 6 Physician Leaders—with milk moustaches—were featured with the caption:
  
  "Got CPOE? 6 out of 6 doctors agree it promotes patient safety, eliminates illegible orders AND can even save a doctor time!"
What about Infrastructure & Hardware?
- What about system response time. Is it an issue today?
- Do you have a device deployment strategy?
- Wireless?
- Remote Access Strategy?
- Have you considered physician specific workspaces as part of the plan?
- Do you have a Disaster Recovery plan?
Planning Physician Workspace

DOCTORS CHARTING - 3 SOUTH

Scale: 1/8" = 1'-0"
First Steps in the Planning Process

- Develop a detailed business plan
  - Address predecessor projects that must be completed prior to the roll out of CPOE
    - Physicians are critical to the prioritization process
  - Prioritize physician satisfaction issues as part of the plan (hardware, software, & other technologies)
  - Consider technologies that enable care standardization (i.e., evidence based)
First Steps in the Planning Process

- Develop a detailed business plan
  - Clearly define the scope of the project
  - Align resources to the plan-factor in consulting & advisory roles as well
  - Define the Physician Support Strategy
  - Ensure work flow is part of the plan
  - Factor in software upgrades
  - Include infrastructure & construction needs
  - Consider communication & marketing plans
Summary: the Planning Process

Key considerations in planning:

- CPOE must be a top corporate priority
- Develop a communication & marketing strategy for CPOE - create the ‘vision’ & ‘brand’
- Address ‘cultural’ issues openly within your organization & with the medical staff leadership
- Involve physicians in prioritizing projects
- Strategically prioritize projects & technologies that support physician adoption of CPOE
to survive CPOE will require massive consistant effort and immediate bold action. Without further delay, I am putting together a 10 year plan to study the problem further.
CPOE 101: Funding the Project

The Planning Process:
Funding the Project
Funding the Project

- Align a realistic multi-year budget to the plan
- Factor Capital & on-going Operational Costs—especially FTE’s
  - CPOE projects are resource intensive & require the active involvement of clinicians—MDs, Nursing, Quality, Pharmacy, etc
  - Clinical resources must remain committed to the project—avoid creating silo decision-making
Funding the Project

Aligning Resources to the Project

- MD involvement is essential—consider incentives for physician leaders
- Consider physician ‘champion’ roles—as a liaison to IT & for physician to physician communication regarding the project
- A pharmacy FTE needs to be allocated to the project—for medication build & decision support logic
  - Consider long term pharmacy support
Funding the Project

Aligning Resources to the Project

- Align a full-time Project Manager & Project Lead to the project
- Plan backfill for ‘key’ clinical roles assigned to the project
- Plan for Training - training cannot be an IT function exclusively
  - Consider a full time clinical trainer role if your organization lacks resources that can be leveraged
Funding the Project

- Physician Support Strategies
  - Critical to plan 24/7 Physician support
    - ‘At the elbow’ support for Go LIVE
    - Long term options such as a physician specific call numbers/beeper coverage
  - Evaluate the role of the HELP desk
  - Evaluate the use of multi-media ‘tool sets’
    - Computer based tutorials
    - Self-paced training guides & pocket guides
    - Evaluate ways to leverage the intranet..
Summary: Funding the Project

- Align a realistic budget based on detailed planning
  - Consider staffing requirements carefully
  - Ensure physician involvement
  - Plan how you will support CPOE long term
  - Factor contract help into the plan
  - Plan ‘realistically’ for hardware/software
  - Consider multi-year commitments
The Planning Process: Project Governance
Governance

Keys to an Effective Governance Structure

- Senior Leadership actively involved & accountable (CMO, COO, CNO, CIO)
  - Board level Oversight
  - Medical Executive Committee
- Physicians in visible leadership roles
- Committee structure has a project ‘charter’ with clear roles & responsibility
Governance

Keys to an Effective Governance Structure

- Participation in the team structure is an organizational priority
  - Participants are selected by their leaders
  - They are given time to participate
  - They are held accountable
- Ensure that participation *at all levels* is enabled—empower the teams to make decisions
What about a CMIO?
- Some health systems position (or discuss) a CMIO as a senior level physician responsible for IT initiatives (including CPOE)

In my experience this has been:
- A less formalized part-time role, often shared among a couple of physician leaders
- While there is often a discussion about formalizing the role, there has been reservation about the support for the role within the organization
Summary: Governance

- A team ‘charter’ is in place that clearly defines the ‘communication roadmap’
- Physicians are in prominent Leadership roles
- Senior Leadership actively involved
- Team members ‘empowered’ to participate
- Leverage existing ‘committees’ ad hoc - this helps avoid ‘silo’ decisions, enhances communication about the project, & expands accountability for decisions to others in the organization
Managing Organizational Change: Establishing Realistic Goals & Time-Frames for the Project
This is an audience question…

What do you think are the characteristics of a successful CPOE project manager?
The Project Manager...

- Preferable attributes…in no particular order
  - Maturity & a ‘passionate’ commitment—is credible in the role
  - Excellent Project Skills—ability to motivate
  - Interdisciplinary Focus
  - Resilient—doesn’t internalize negative feedback
  - Broad experience—understands IT & clinical operations
  - Sense of humor—it gets worse before it gets better
The Project Management Role

- It’s not uncommon to have IT in a Project Management role
  - MD’s & clinicians play prominent roles with CPOE but are typically not project managers
    - They provide leadership, clinical content, & bridge the gap between clinical practice & technology

- Project Management can be a ‘shared’ IT & Clinical Lead responsibility—with physician’s in consultative & decision-making roles
Empower the Project Manager by positioning the role well within the project structure
- Experience with CPOE projects are a definite plus—it’s a way to avoid costly mistakes down the road

Some create or leverage a PMO model that reports into the CEO or COO

Ensure the PM position is fully committed to the project
Managing the Project

Whatever your level of experience with IT initiatives, a CPOE project is unlike any other project…

- It’s a major change in how a physician communicates to nursing, pharmacy, etc.
- It has a global impact to everyone’s work flow which causes some concern…
- The transition needs to be well managed to avoid a ‘mis-interpretation’ of the order…
Managing the Project

For those responsible & on the ‘front lines’-it can be a high stress job

- Watch for burnout-particularly with IT staff who often take a hit for the software, hardware, as well as the process...
- Physicians are often impatient & come across as unappreciative of your efforts..
- Tangible rewards only come over time
  ❖ Proactively respond to signs of stress
The Physician Advocate role-

- *Every discipline tends to bring a ‘bias’ to the table about what CPOE ‘should’ be…*
- *Often the drive behind this is a fear resulting in some instances from a loss of control, fear of blame, & other factors.*

The Project Manager becomes the ‘gate keeper’ that holds people accountable & helps develop ‘middle of the road’ solutions.
Wrap Up: Questions?
Managing Organizational Change: Defining Project Scope
**Project Scope**

- Clearly define & document the Scope of the project
  - Will CPOE be mandated? If yes, when?
  - If no, do you plan to build ‘momentum’ & ‘buy in’ over time?

- Do you have deadlines or restrictions that are driving your time-line?

- Are you Inpatient or Outpatient (ED) focused?

- What about the organization’s stance on physician ‘favorites’?
What is your implementation approach?

- Will this be a pilot & roll out plan? Or ‘big bang’?
  
  - If a pilot & roll out plan, what units will you target? Why?
  
  - How quickly will you realistically be able to roll out CPOE?

Consider training & support in your decision process
Can you go house-wide with CPOE initially?

- Requires a tremendous amount of resources—not a common path
- It’s more common to pilot & then determine how ‘quickly’ you can rollout without losing momentum
- The ‘big bang’ approach is more closely associated with mandated CPOE than a gradual transition into it…

Communicate a clear time-table for full implementation to avoid stagnation
Project Scope

What physicians will be in scope for the pilot?
- Will participation be voluntary?
  - If yes, for some & not others?
  - If voluntary, are they to be 100% CPOE?
- What about ‘employed’ physicians?
  - Be wary of statements that ‘employed’ physicians are ‘easier’ to transition to CPOE

Identify early adopters & try to recruit private attending physicians as well
Clearly define roles with CPOE….

- What is the role of nursing?
  - Will Verbal/Telephone/FAX orders be allowed?
- Will other clinicians be enabled for CPOE?
  - What about ‘scope of practice’ orders for areas such as pharmacy, therapies, dietary, radiology, etc?
- Do you have ordering ‘protocols’ in place?
- Will the unit coordinator have a role?
Project Scope

Set realistic expectations
- Clearly define what is *not* in scope - i.e., complex orders such as chemotherapy, TPN, etc
- Address how orders from areas that are out of scope will be managed
  - Transfers from/to non CPOE enabled floors and/or orders from non CPOE enabled physicians
Project Scope

- Set manageable milestones
  - You will not think of all scenarios at the outset so plan accordingly

- CPOE projects take time to implement & there is a learning curve on the part of everyone
  - Be careful not to make it too complex while physicians are on a learning curve & the organization is adjusting to the change
It's the latest upgrade to CPOE; when your computer crashes, an air bag is activated so you won't bang your head in frustration!
Effectively manage scope

- Set realistic time-frames
  - Evaluate resources, predecessor projects & other events that can impact your organization (expect the unexpected)
  - Allow in the time-line an opportunity to make adjustments & respond effectively to the medical staff
- Avoid scope ‘creep’-you will be tempted
## Sample: The Initial Plan for CPOE

### Computerized Physician Order Management Go-Live Schedule 2007

<table>
<thead>
<tr>
<th>Units</th>
<th>May-07</th>
<th>June-07</th>
<th>July-07</th>
<th>August-07</th>
<th>September-07</th>
<th>Oct-07</th>
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<tbody>
<tr>
<td>M3S (Medicine)</td>
<td>5/1</td>
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<td>7/1</td>
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<td>9/1</td>
<td>10/1</td>
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<tr>
<td>Emergency Department</td>
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<td>6/15</td>
<td>7/15</td>
<td>8/15</td>
<td>9/15</td>
<td>10/15</td>
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<tr>
<td>New House Staff</td>
<td>6/1</td>
<td>7/1</td>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
<td>11/1</td>
</tr>
<tr>
<td>M3N (Oncology)</td>
<td>5/1</td>
<td>6/1</td>
<td>7/1</td>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
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<tr>
<td>M2S (Ortho/Neuro)</td>
<td>5/1</td>
<td>6/1</td>
<td>7/1</td>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
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<tr>
<td>M2N (Surgery)</td>
<td>5/1</td>
<td>6/1</td>
<td>7/1</td>
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<td>10/1</td>
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<tr>
<td>Cardiology</td>
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<td>6/1</td>
<td>7/1</td>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
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<tr>
<td>Cardiology Step Down</td>
<td>5/1</td>
<td>6/1</td>
<td>7/1</td>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
</tr>
<tr>
<td>Intermediate Care Unit</td>
<td>5/1</td>
<td>6/1</td>
<td>7/1</td>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
</tr>
<tr>
<td>Intensive Care Unit</td>
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<td>6/1</td>
<td>7/1</td>
<td>8/1</td>
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<tr>
<td>Maternity</td>
<td>5/1</td>
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<td>7/1</td>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
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<tr>
<td>Labor &amp; Delivery</td>
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<td>7/1</td>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
</tr>
<tr>
<td>Nursery</td>
<td>5/1</td>
<td>6/1</td>
<td>7/1</td>
<td>8/1</td>
<td>9/1</td>
<td>10/1</td>
</tr>
</tbody>
</table>

### Legend

- **Go-Live**: Red
- **Recovery**: Blue
- **Training**: Yellow
- **Live Continual Support**: Green

- **Pilot - May 1st**
- **ED Medication Ordering - June 15th**
- **New House Staff Training - 6/15 - 7/1**
- **New House Staff Live - July 1st**
- **Phase I (modified) Live - August 1st**
- **Phase II Live - September 15th**
The Plan Today...

<table>
<thead>
<tr>
<th>Phase I: System Optimization</th>
<th>Phase 2: Rollout &amp; EMR Enrichment</th>
<th>Phase 3: Software Expansion &amp; Upgrade</th>
<th>Phase 4: Stabilization</th>
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<tbody>
<tr>
<td>Oct-07</td>
<td>Feb-08</td>
<td>Jun-08</td>
<td>Oct-08</td>
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<td>Nov-07</td>
<td>Mar-08</td>
<td>Jul-08</td>
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<td>Dec-07</td>
<td>Apr-08</td>
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<td>Jan-08</td>
<td>May-08</td>
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<tr>
<td>2007</td>
<td>2008</td>
<td></td>
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<tr>
<td>ICC Training &amp; Go LIVE</td>
<td>ICC Post LIVE Support</td>
<td>GYN Post LIVE</td>
<td>NICU Training &amp; Go LIVE</td>
</tr>
<tr>
<td>Order Sets, Training &amp; Planning for Rehab &amp; Psych</td>
<td>Post LIVE</td>
<td>Post LIVE</td>
<td>NICU Planning</td>
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<tr>
<td>GYN Pre LIVE Plan</td>
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<tr>
<td>Order Sets, Workflow, Training &amp; Planning for L&amp;D and Post Partum</td>
<td>L&amp;D &amp; Post Partum Training &amp; Go LIVE</td>
<td>Breastfeeding Plan</td>
<td>NICU Planning</td>
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<td>NICU Planning</td>
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<tr>
<td>NICU Training &amp; Go LIVE</td>
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<tr>
<td>Streamline Radiology, Nursing, Pharmacy &amp; Dietary Orders in MEDITECH</td>
<td>Streamline Lab &amp; Ancillary/Therapy orders</td>
<td>Pharmacy &amp; Nursing Order Build for Pediatric &amp; Neonatology</td>
<td>5.6 MEDITECH Upgrade</td>
</tr>
<tr>
<td>Medtech Dictated Reports Pilot</td>
<td>Rollout Plan</td>
<td>Physician Desktop Pilot by Specialty</td>
<td>Rollout Plan</td>
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<tr>
<td>Address Process Issues: IP to Outpatient, Observation Patients, PACU &amp; Transfer Routines</td>
<td>Address Nursing Process Issues with Acknowledgement of Orders &amp; Order Management</td>
<td>Esignature Plan</td>
<td>Physician Adoption Strategies for Attendings: On Going</td>
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<td>Citrix Upgrade</td>
<td>Eccentuate Upgrade</td>
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<td>Optilink &amp; Nursing Compass Baseline &amp; Training</td>
<td>Optilink &amp; Nursing Compass Configuration, Interfaces, Training &amp; Acuity</td>
<td>Optilink Post LIVE Utilization &amp; Evaluation</td>
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<td>At Your Request Implementation Plan</td>
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<td>Optilink Post LIVE Utilization &amp; Evaluation</td>
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<td>EMAR Bar Coding: Pharmacy Planning</td>
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<td>EMAR Bar Coding Pilot on Units</td>
<td>Bar Coding Rollout</td>
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<td>Nursing Care Plans</td>
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<td>PACU Documentation</td>
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<td>Data Captor Ventilator Interface</td>
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<td>Care Evolve: Phase I MD Portal for Lab order/results</td>
<td>Care Evolve PII: Radiology &amp; Path Exams</td>
<td>Physician Office Integration Strategies</td>
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<tr>
<td>Plan/Implement Clinical Informatics Committee</td>
<td>Downtime Procedures</td>
<td></td>
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</tbody>
</table>
Address the legacy order entry build as an essential component of the project

- Ensure that orders are ‘intuitive’ & physician friendly—eliminate unnecessary keystrokes
- Limit the number of queries that a physician is required to respond to
  - Engage the ancillaries in the re-design since their work flow will be impacted
Wrap Up: Questions?
Let’s Take a 10 minute break….
& when we return
“Implementation Strategies…"
Implementation Strategies to Build Physician Adoption
Driving Physician adoption: Physician led committees…

- The most effective project organizational structure involves physician-led subcommittees that address all facets of the implementation
  - Ceding control for CPOE to physician leaders ensure that physician’s set the priorities & are in charge of the decision-making process
  - Also, provides a visible commitment to the project & it’s objectives
  - Lends credibility to other physicians
Process re-design is an important predecessor to the rollout of CPOE

- Physician work flow & communication to clinical & ancillary staff changes dramatically
- CPOE has a learning curve where things can be missed and/or mis-interpreted in particular when work flow is not part of the plan-shedding a negative light on the ‘software’
- All things on paper do not always translate well into an electronic medium…think about what you truly need a physician order for?
“The problem with making the transition from the paper world to the electronic world is that in the paper world a lot of things happen by convention & understanding...implementing the electronic tools to make that happen is a bigger deal than I think anybody expects.”

Chair, Medical Informatics Committee
Evanston Northwestern Healthcare
“And this is where our ED workflow redesign team went insane.”
Hospitals have a tendency to underestimate the complexity embedded in the paper world—overlooked, this can lead to significant omissions in the design of the system

- Perform detailed work flow mapping in a multi-disciplinary team setting
- Review what is a true MD order? MD’s often use order entry to ‘communicate’
- Nursing ‘orders’ are always a challenge since they likely fit into this category & they are not part of the legacy order entry build
Other considerations-

- Practitioners have unique ordering patterns-that can be a challenge
- Areas such as critical care & obstetrics generally have more ‘happen by convention’ & independent action type of orders not commonly found in other areas

Care standardization, established protocols, scope of practice, & clear roles ease the order entry process for everyone
Order sets ease the physician order entry process & encourage compliance with recommended practices

- It’s common to invest in a large volume of order sets prior to LIVE to ease the transition to CPOE

Decide early in the process the organization stance on physician ‘favorites’

Consider order set ‘evidence based’ software to assist in the development process
Prioritize the development of rules based on logic—ensure they have clinical value.

Be wary of ‘alert’ fatigue:
- It’s a delicate balance between what the physician ‘must review’ & what is informational & helpful to them.
- If it lacks value, they will ignore it.
- Rule development should be prioritized & signed off as part of the committee structure.
Decision Support

- Evaluate existing pharmacy rules as part of the OE legacy build to determine if they should be enabled for CPOE.

- Determine what level of interaction checking is appropriate for physician’s & if applicable, other clinicians.
  - Take into account the learning curve with CPOE; excessive alerts & ‘interrupts’ can greatly impact workflow & physician satisfaction with the system.
Physicians want ‘intelligent’ alerts & still expect that pharmacy will play a major role in the evaluation of therapy

- Pharmacy can still continue to have a higher sensitivity for ‘alerts’ standardized from the drug database then that of the physician

Rules development requires time & effort to build & should be put through an approval process similar to that of order set development
Decision Support

- Evaluate & track system ‘overrides’ to determine if a modification needs to be made
  - As part of the monitoring process post LIVE, evaluate alert overrides to determine if there are adjustments you need to make
  - It’s ideal to have a ‘feedback’ mechanism that is readily available for physicians to provide feedback on ‘annoyance’ type issues as well
Imperative to have a detailed Training Plan as part of the overall Implementation Plan

- Consider multi-media options
- Combination of support (1:1, group, ‘at the elbow’ support for Go LIVE)
- Factor in ‘just in time’ training & drop in hours in physician lounges, HIM, & other areas

Nursing should be a part of the training plan but involve all areas in understanding the new user interface with CPOE (Pharmacy, Lab, Radiology)
Education, Training & Support

Factor Clinical Trainers into the Plan

- MD’s do not want to be trained by IS staff—regardless of how knowledgeable they are
- Establish a formalized clinical trainer role—it’s ‘key’ that the role is filled by someone with clinical expertise & experienced in clinical training
- Formalize the training plan & curriculum—develop supporting tools (CD’s, manuals, etc)
- Consider unit coordinators in the training plan
Support is as critical to CPOE Projects as is education

- Physicians do not want to call a HELP desk with clinical questions—that needs to be factored into the support model

- Physicians do not want to call IT with clinical ‘how to’ questions—that is a major aggravating factor for them

- A logical calling tree & on unit support is the ideal—but difficult to achieve
Characteristics for a successful pilot…

- Early physician adopters willing to deal with ‘less than perfect’ software
- Nursing staff enthusiastic about IT, open to a disruption in workflow & a collegial work environment (well run)
- Limited transfers in/out of the unit (areas such as OB are often selected for this reason)
- A broad mix of orders
 Optimizing your System

- Factor in Optimization time...
  - Allow time in your rollout plan to factor in a stabilization & ‘re-assessment’ phase
    - Re-evaluate the feedback that you have received & prioritize ways to enhance the system
    - Also allow in the plan for critical feedback mechanisms where orders were not entered correctly...
Lessons Learned

- There isn’t a simple roadmap for implementing CPOE
- Adoption isn’t software ‘centric’ - the issues are more organizational then technological
- Do not underestimate the size of the project or the magnitude of the cultural change
- CPOE projects are not quick implementations - it never really ends, it evolves
- Physician leadership is essential to success
- Avoid silo decision making
Lessons Learned

- Be judicious in the use of clinical decision support-watch for ‘alert’ fatigue
- Understand & be prepared for the ‘learning curve’ with CPOE-have a support model in place that allows close supervision & feedback
- Above all, protect the physicians from the patient safety zealots
Go LIVE Strategies

- Pilot & roll out plan has been the more common implementation approach
- Stagger the implementation to allow for optimization & to provide physician support
- Just in time training (allow for self paced training materials & other reference tools)
- Build a support structure that makes ‘sense’- all the support cannot be the responsibility of IT & be successful
Wrap Up: Questions?
CPOE 101

Lunch Break…
When we return…
Review of Case Studies from ‘real world’ CPOE Implementations
Case Studies Review: An Interactive Discussion about ‘real world’ experiences with CPOE
Case Study #1

- **Background**
  - Community based health system-2 hospitals, LTC facility, 2 wellness centers
  - Converted to a one vendor solution in 2002 to achieve a ‘consolidated’ clinical database
    - The larger of the 2 hospitals had a ‘best of class’ clinical system with CPOE in place since 1997
  - Went LIVE in November 2002 on the new one vendor system with CPOE
Case Study #1

Implementation Challenges
- Second generation CPOE site
- Physicians were resistant to the change— they liked their former system
- New CPOE product immature—lacked key functionality
- Organization under financial pressures
- Project lacked administrative sponsorship
- Lacked a project leader with a ‘vision’
Case Study #1

The Implementation

- Project had multiple delays & high costs - contract help & vendor delays related to the beta development of the CPOE product
- Workflow was not part of the plan
- Definitely positioned as an IT initiative
- Physicians were not involved in the conversion - lacked a project structure
- Small inexperienced IT staff
How do you think the LIVE went?
Case Study #1

Outcome

- Physicians were very ‘angry’
- CPOE product was not intuitive & did not support critical processes
  - Nursing in ‘chaos’ & angry-needed to rely on paper print outs of orders
- Orders went from 100% entered into the former CPOE system to 5% of all orders post LIVE: significant impact to pharmacy
What do you think happened next?
Case Study # 1

- Forged a development relationship with the software vendor
  - Evaluated the ‘key’ functional enhancements from the prior CPOE system with physician input

- Developed a strategic plan
  - Formalized a Governance structure with physician leadership
  - Detailed marketing & communication plan
Case Study #1

Opinion on where they are today?
Case Study #1

- 85% of all orders are entered by physicians in CPOE-voluntarily
- Fully automated Level 2 NICU for orders & documentation since 2005-no paper
- ED System with clinical documentation & full integration with CPOE implemented in 2007
- Medical Executive Committee mandated CPOE by the end of calendar year 2008
Case Study # 2
Case Study #2

- Full service 300+ bed community teaching hospital-university affiliated
- 5 medical residency training programs
- Converted to a one vendor solution in 2005 to provide an ‘integrated’ platform
- Implemented advanced clinical apps including nursing documentation, eMAR, PACS, scanning & archiving, etc as a predecessor to CPOE
- Hired outside physician consultant service to council & coach for physician adoption
Case Study #2

- The Implementation Plan
  - CPOE approved by Medical Staff Leadership & Senior Administration
  - Project Governance structure provided by an IT Physician committee chaired by a prominent, well respected physician leader
  - Physician led evidence-based medicine (EBM) committee formed for order set development & approval
Case Study #2

- Strong, multi-tiered marketing ‘campaign’
- Developed a pilot & rollout plan-rollout plan spanned 6 months from pilot to full rollout
- Physician liaison program (3 Liaisons) created with a dedicated call number for all MD issues (not just CPOE)
- Addressed physician specific workspace as part of the overall plan
- Identified risks & put a plan of action in place to address them
Case Study #2

- IT very well-staffed
- Organization had a successful track record with large-scale implementations
- Project was a top organizational priority
- Determined that nursing would not be enabled for medication ordering
- Resident staff were mandated to use CPOE-some private attending physicians & the Hospitalist service was also in scope
Case Study #2

The Pilot Unit

- Selected a well run medical unit (strong nursing leadership, comfortable with IT, little staff turnover)
  - Pilot ran 3 months with little to no issues identified
  - An aggressive rollout plan was to follow the pilot which included, the ED, ICU, and the majority of other units
Where do you think they are today with their plan?
Today, 50% of all orders are entered via CPOE

- Modified the rollout plan to be less aggressive-allow for Optimization planning & enhanced support
  - Proactively address issues identified in the rollout to respond to physician concerns
  - Nursing trained for Verbal & Telephone orders in areas such as the ED & the ICU

- IT burnout became pronounced early in the rollout- several ‘key’ players resigned (including the CIO) & morale in IT at an ‘all time low’
Case Study #2

What can we learn from this?

- No issues identified from the ‘pilot’ is a sign of a problem—if it’s too good to be true then it probably isn’t true.
- There was too much confidence that the rest of the rollout would be seamless.
- A revamped plan to achieve the 50% targeted orders was developed which staggered the rollout & reduced the total number of units LIVE.
Case Study #2

What can we learn from this?

- Aggressive to mix the ED with the IP rollout—entirely different work flows & issues
- Too difficult to support & manage multiple units in tandem—despite your resources

The organizational ‘culture’ provided a valuable clue but it was overlooked—in this culture you never veered from the agreed to plan, problems were ‘challenges’ that you worked through
Case Study #2

Where are they today?
- Just completed a 4 month Optimization period
- 2 additional units were brought LIVE in March; OB & Maternity planned for late May
- Targeted completion date for all units is slated for November 2008 (18 months post the original pilot)
- Aggressively looking at Physician Adoption strategies for private attending
Case Study #2

- IT staffing has stabilized & some new staff have been hired
- Physician Support being revisited
  - Revamped the HELP desk contract to provide tier 2 support to physicians
- New Clinical Informatics Committee formed-with MD & Nursing co-chairs; address workflow issues & order entry challenges
  - Ensure your Governance structure has a forum to address workflow issues & provide recommendations to the Steering level
Let’s Take a 10 minute break…. 
& when we return 
“Additional Case Studies for Review”…
Case Study # 3
Case Study #3

- Background
  - Small 2 hospital health system—one 35 bed hospital & a 10 bed rapid response center; also LTC & Home Health services
  - CEO & the board strong advocates for Physician Order Entry—#1 corporate initiative
  - Located in affluent waterfront community—hospital fiscally sound
The Implementation Plan

- Internal team organized with executive sponsorship
- Pilot unit identified (OB) with strong nursing-physician leadership (collegial)
  - Had critical paths well developed on paper
- Wireless installed & purchased mobile carts for the pilot
Case Study #3

The Implementation Plan

- MD’s had experience with CPOE systems during residency training
- IT had very limited staff-1 FTE for applications (infrastructure focused)
  - No experience with big change projects
- Broad scope: decided to pilot eMAR with CPOE in tandem
- Project Manager/lead role not defined
Case Study # 3

- Implementation Challenges
  - Project lacked a detailed plan-no budget was established for the project
  - Governance structure not well-defined-one team with multiple players
    - Lacked a formalized decision-making structure
- Lacked a support plan-limited resources aligned to the project
How do you think the LIVE went?
Case Study #3

- The CEO stepped in and stopped the implementation
  - There were medication ‘errors’ that occurred-physicians very angry
  - MD’s were feeling dis-enfranchised from the ‘administration’
- The ‘software’ took a major hit for the failed implementation
  - If only we had a better system…
NHA asked to do a post mortem on the project
- Board level review of the findings
- Developed a detailed 18 month strategic plan & budgetary recommendations to achieve CPOE

Realistic resource model put in place-
additional FTE’s & formalized Governance

Leveraging resources & expertise from affiliated tertiary center to lower costs
Case Study # 4
Case Study #4

- Background
  - 2 hospital community health system
    - Hospitals had very different ‘cultures’
  - Financial imperatives to pilot CPOE in a definitive (aggressive) time-frame
  - Physicians had a limited reliance on the EMR-still generated a lot of paper particularly at the larger hospital
Case Study #4

- Initial Implementation Challenges
  - Finite time-frame to pilot-both campuses
  - Broad scope planned initially
  - Resource contention-multiple competing projects (other large-scale initiatives)
  - CPOE was not perceived as an organizational priority-fiscally motivated
  - Lacked order sets & standardized clinical content
Case Study #4

- Implement Risk Mitigation Strategies
  - Senior level briefing to review project concerns
  - Adjusted project scope & addressed time-lines for the pilot & rollout plan
  - Addressed lack of resources
  - Communication & marketing plan developed
  - Physician ‘champion’ installed & instrumental in working with MD’s
Case Study #4

- Implement Risk Mitigation Strategies
  - Governance structure re-visited to ensure clear lines of responsibility
  - Physician specific work spaces were reviewed but difficult to address in many instances-evaluated other options
  - Legacy order entry build was addressed

- Scope was finalized to be more ‘realistic’ but still remained aggressive
The Pilot Units
- A pilot from each hospital was the goal
  - OB/Maternity was selected at the larger hospital
  - Psych at the smaller hospital
- OB a major challenge- all private attending physicians
  - Many things happened by convention
  - Nursing had ‘broad scope’ of practice
Case Study #4

Project Scope

- Detailed workflow was part of the plan
  - Leveraged an existing multi-disciplinary team for this
- Addressed legacy order entry build
- Developed order sets with physician input
  - Chart review with Quality
- Nursing to be trained on medication entry
- Rolling mandate for CPOE-not required for private attendings
Case Study #4

- Go LIVE Support
  - Provided 7/24 support for 2 weeks post LIVE
  - Off hour support by clinical systems analyst-traditional HELP desk model

- Rollout plan to other units put on HOLD until next fiscal year-evaluate a detailed plan including standardized order sets, system upgrades, & resource review
How do you think the LIVE went?
Case Study #4

- Overall, everything went well...
  - Risk mitigation strategies successful
- Spent quality time learning from the pilot units & developing a realistic detailed plan
- Minimize through planning competing projects for same resources
- Developing order sets utilizing evidence-based software to adopt on paper as a predecessor to roll out electronically
- Rollout resumes in the Spring-18 months from the pilot
It's proves how easy CPOE is to use!