Leveraging Information Technology and Engaging Physicians for Improved Clinical Quality, Patient Safety and a Superior Patient Experience

Health Forum/AHA Leadership Summit

Linda Carrick, CNO
Patrick Rossignol, Consultant
Thomas Balcavage, CIO

July 18, 2011
Learning Objectives: Engagement as a critical success factor, with multiple constituencies, and multiple strategies and techniques to achieve and sustain it

- Strategies to obtain and sustain senior management’s sponsorship

- Strategies to successfully engage Physicians and Clinicians

- Strategies to successfully engage end users

- While staying on time and on budget

- While achieving the organization’s strategic objectives of clinical transformation
The industry has a mixed track record at large system implementations, especially clinical information system (CIS) implementations.

<table>
<thead>
<tr>
<th>Successful (28%)</th>
<th>Challenged (49%)</th>
<th>Cancelled (23%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. User involvement</td>
<td>1. Lack of user input</td>
<td>1. Incomplete requirements</td>
</tr>
<tr>
<td>2. Executive sponsorship</td>
<td>2. Incomplete Requirements</td>
<td>2. Lack of user input</td>
</tr>
<tr>
<td>4. Proper project mgmt. processes</td>
<td>4. Lack of executive support</td>
<td>4. Unrealistic expectations</td>
</tr>
<tr>
<td>5. Realistic expectations</td>
<td>5. Technology Incompetence</td>
<td>5. Lack of executive support</td>
</tr>
<tr>
<td>7. Competent IT staff</td>
<td>7. Unrealistic expectations</td>
<td>7. Lack of planning</td>
</tr>
<tr>
<td>8. Physician Alignment</td>
<td>8. Unclear objectives</td>
<td>8. Did not need it any longer</td>
</tr>
</tbody>
</table>
Beyond good project management techniques, success factors very much align with engaging the organization.

Within the Project Team’s Control/Responsibility

<table>
<thead>
<tr>
<th>Successful (28%)</th>
<th>Challenged (49%)</th>
<th>Cancelled (23%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Proper project mgmt. processes</td>
<td>1. Lack of user input</td>
<td>1. Incomplete requirements</td>
</tr>
<tr>
<td>5. Realistic expectations</td>
<td>2. Incomplete Requirements</td>
<td>2. Lack of user input</td>
</tr>
<tr>
<td>6. Good planning</td>
<td>5. Technology Incompetence</td>
<td>3. Lack of resources</td>
</tr>
<tr>
<td></td>
<td>10. New technology</td>
<td>9. Lack of IT management</td>
</tr>
<tr>
<td>1. User involvement</td>
<td></td>
<td>10. Technology illiteracy</td>
</tr>
<tr>
<td>10. Focused IT team</td>
<td>6. Lack of resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Unrealistic expectations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Unclear objectives</td>
<td></td>
</tr>
<tr>
<td>2. Executive sponsorship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Clear scope/quick decision making</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Physician Alignment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Within Leadership/Project Sponsors’ Control/Responsibility

- Incomplete requirements
- Lack of user input
- Lack of executive support
- Lack of executive support
- Lack of planning
- Lack of resources
- New technology
- Unrealistic expectations
- Changing requirements
- Did not need it any longer
- Technology Incompetence
- Lack of IT management
- Technology illiteracy
- Unrealistic schedule
- Clear vision/objectives
- Changing Requirements
- Lack of resources
- Lack of planning
Success is not only defined as being “on time and on budget”, but also as realizing a meaningful use of the new system’s potential

CIS Lessons Learned
CIS implementations too often automate the current environment rather than transform it to a new way of doing business
CIS implementations have a track record of taking too long, with little measurable results
Physicians do not become active EHR users if they do not perceive a clear and sustained benefit
Implementations that fail to engage physicians create added strain on already taxed nursing staff
A CIS project is a perfect vehicle to enhance clinical processes and encapsulate best evidence-based clinical practices into the system design
Automated processes and workflows in an integrated CIS are fundamentally different from paper-based processes
It is much more difficult to enable changes after live than to do it as part of the implementation

CIS automation benefits will only be fully realized if processes and workflows are modified as needed

“Install the Product and Play the Same Game Better (5%)”

“Implement the Product with Minimal/Marginal Process Redesign Make it Easier to do Business” (20%)

Transform - Gains from process reengineering/system-enabled performance improvement (75%)
Kennedy’s system project was envisioned as a targeted clinical transformation initiative from its inception.
Introduction to Kennedy and KENGEN²
Lessons from the trail…
The Kennedy Health System is an integrated healthcare delivery system providing a full continuum of healthcare services, ranging from acute-care hospitals to a broad spectrum of outpatient and wellness programs.

Kennedy serves the residents of Southern New Jersey.

Our mission - to enhance the health status of the communities it serves - is further expanded through our educational commitment and affiliation with the University of Medicine and Dentistry of New Jersey. Kennedy provides the largest non-public physician training program in the state of New Jersey.

Kennedy Health System has three hospital campuses, with a total of 637 beds.
Kennedy was faced with many challenges; an inclusive system selection process allowed the opportunity to create momentum for organizational change

**Internal and External Challenges:**

- CXO transition
- Outdated EHR Product
- Technology Gap
- Lack of community Physician engagement and input into organizational direction
- Lack of inclusive decision making
- Pressure from competitors building state-of-the-art facilities and implementing next generation systems
- Need to gain HITECH compliance

...Kennedy went through an inclusive selection process for Siemens Soarian and needed to capitalize on the momentum generated by initiating a cultural overhaul ...
Kennedy selected partners to assist in the journey towards Clinical Transformation and branded the Project “KENGEN^2”
An extensive Clinical Transformation Project (CTP) across three campuses

- Plans of Care
- Clinical Analytics
- Interdisciplinary Document
- Pharmacy
- Medication Administration (with bar code readers)
- CPOE
- Nursing Document
- Order entry/results reporting
- Stratford
- Cherry Hill
- Washington Township

- Revenue Cycle (Invision)
- ED
- Laboratory
- Radiology (Siemens)

Provider Remote
Affiliate Provider Link

Interfaces
Web Access
View Only
The CTP project is aligned with Kennedy’ strategic objectives

<table>
<thead>
<tr>
<th>Strategic Objectives</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient-centric, integrated workflows focused on improved patient outcomes</td>
<td>Standard clinical content to the extent possible to create consistent physician and patient experience</td>
</tr>
<tr>
<td>Improved quality and patient safety</td>
<td>Increased volume and revenue</td>
</tr>
<tr>
<td>Transparency, uniformity and seamless systems within each hospital and across the 3 hospitals</td>
<td>Efficient access to quality data</td>
</tr>
<tr>
<td>Standard and efficient workflows to create consistent physician, nurse, and patient experience</td>
<td>Solidification of private practice physician relationships</td>
</tr>
</tbody>
</table>
A complex project spanning 4 phases and multiple support projects

From 3/1/11 to 5/17/11

**1. Med. Admin.**
- Integrated corporate design
- Health Information Exchange
- Duplicate Medical Record Cleanup
- Billing System Changes to Accommodate Soarian
- Single Sign On

**2. Base Clinicals**
- Integrated planning
- Support

**3. Clinical Docum.**
- Projects

**4. CPOE**
- Soarian 3.2
- Meaningful Use Version

**5. Clinical Analytics**
- Soarian 3.3
- ICD 10

Support Projects:
- Meaningful Use Version
- Soarian 3.2
- Soarian 3.3
- ICD 10

Support Projects Timeline:
- **12/7/10**
- **3/1/11**
- **5/17/11**

Soarian Version Dates:
- **Soarian 3.2**
- **Soarian 3.3**
Executive Commitment: KENGEN² & the “Commitment Day”
In order to mitigate known and future risks, Kennedy kicked off the project with a highly facilitated, focused “Commitment Day”

### Session Attendees

- Senior Executives (COO, CMO, CNO, CIO)
- Nursing Leadership
- Physician Leadership

### Session Objectives

- Establish Project as Clinical Transformation Project
- Ensure Executive Commitment
- Align Executives to Organizational Commitments

---

- Clear understanding of and broad consensus on the project scope, its objectives, its critical success factors
- Begin to establish new cultural paradigm around a tangible rallying point
- Reinforce sense of peer-to-peer commitment
- Actively involve nursing and physician leadership
- Initiate clinical commitment to the process
- Catalyst for larger organizational change
### Critical Success Factors/Guiding Principles – “Commitment Day” results and current status/additional lessons learned since

<table>
<thead>
<tr>
<th>Critical Success Factors</th>
<th>Commitments</th>
<th>Status</th>
</tr>
</thead>
</table>
| 1. CTP must be a clinically owned and governed project | ▪ The Executive Steering Committee (ESC) acts as CTP’s governing entity  
▪ Sustained sponsorship by Executive & Clinical Leadership  
▪ PMO is CTP’s centralized command and control body | 3 stars |
| 2. User Involvement     | ▪ 90% of the design decisions will be made between the Provider Advisory Committee (PAC) and core team’s clinical analysts. Each participating department will dedicate 2-3 SME resources for an average of 1.5 days/month for 24 months | 3 stars |
| 3. Use of the Best Practice Model/Change Management | ▪ Best practices (Industry Print) used as the starting point for designing CTP  
▪ Requests to enhance Model System functionality are managed as change requests  
▪ Change management will be provided to support the migration to the new system | 3 stars |
<p>| 4. Standardization      | ▪ Starting position is that all data, workflows, forms, care plans, order sets, etc. are standardized across the 3 hospitals | 3 stars |
| 5. Strict Scope Management | ▪ An enterprise Scope Management Committee (SMC) will be formed to review all IT change and project requests. The SMC’s composition will include 4 “tsars” | 3 stars |</p>
<table>
<thead>
<tr>
<th>Critical Success Factors</th>
<th>Commitments</th>
<th>Status</th>
</tr>
</thead>
</table>
| 6. Streamlined Decision Making Process   | ▪ Streamlined decision making process  
▪ Establish an “organizational project vision” at the Executive and Clinical Leadership levels to maximize the effectiveness of a cascading decision making process.  
▪ Empower design teams/participants in accelerated design sessions, to ensure that decisions are made at the lowest level possible within that vision | 3 ⭐⭐⭐ |
| 7. Clinician Alignment                   | ▪ Create expectations that full CPOE and full physician documentation will be a requirement when CTP goes live  
▪ Staff the core project team with needed physician and nursing positions to create clinical content | 3 ⭐⭐⭐ |
| 8. Testing/Process Review               | ▪ Each project plan will have milestones that require thorough testing and process review (e.g. shadow charting.)  
▪ Project participants will be able to invoke a “Red Button” to hold the implementation process if critical defects are found. | 3 ⭐⭐⭐ |
| 9. Communication                        | ▪ The KenGen2 Communication plan will be developed, agreed to and implemented.  
▪ Recurring Clinical and Operational meeting will include regular KenGen2 Updates.                                                                 | 2 ⭐⭐   |
Agreement on a very structured project leadership, with both executive and clinical leadership’s well defined responsibilities

Clinical Transformation Project Executive Steering Committee (ESC)

Richard Boehler, CMO
Paul Walker, COO
Linda Carrick, CNO
Tom Balcavage, CIO
Patricia Wallace, VP Quality & Compliance
Deloitte/Siemens: Account Executives

Medical Executive Board

Physician Advisory Group (PAG)

Clinical Advisory Group

Program Management Office
KHS Project Director: Tammy Curren
Deloitte: Eric Finocchiaro
Siemens: Julie Clark

- Budget management;
- Scope Management;
- Issue and Risk Management;
- Master Work Plan and Milestone;
- Cross Project Dependency Tracking;
- Project Status and Financial Reporting;
- Resource Management;
- Communication Management;
- QA
Agreement on a set of key decisions and a cascading decision making process

The Importance Of A Multi-Level, Interdisciplinary, Streamlined Design Decision Making

- High Level Decisions
  ~ 10% of decisions
- Mid Level Decisions
  ~ 25% of decisions
- Detailed Decisions
  ~ 65% of decisions
As an example: Definition of the level of standardization desired

**Rationale**

- **Guiding Principle:** “One Kennedy”: one clinical system will be deployed at all hospitals. CTP will be designed on a standardized, best practice approach to support care delivery and management practices.

- CTP will be designed to ensure the system is based on what is best for the whole and not solely what is best for an individual hospital, department, or business unit.

**Scope of Standardization**

- Order Catalog
- Order Sets
- Rules and Alerts
- Clin Doc Flowsheet Elements
- Specialty Documentation

- Job Roles
- Order Mgmt Process
- Nursing Communication Process
- Order Communication & Flow
- Clinical Documentation Process
- Charting Formats

- Masterfiles & Profiles
- Units of Measure
- Order Form Structure
- Order Form Fields
- Standard Abbreviations
- Flow Sheet Structures
- Reference Text
User Involvement:

KENGEN² & the “Decision Day” and “Accelerated Design Sessions”
Structurally, the project organization ensures that the design and development teams were made up of primarily clinical end users from all 3 facilities.
In addition, a series of Design Events were prepared and facilitated to ensure actual user involvement. They were highly successful.

<table>
<thead>
<tr>
<th>Event</th>
<th>Objective</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment Day</td>
<td>Gain organizational buy-in to KenGen$^2$ project. Introduce project governance structure and overall timeline</td>
<td>June 7$^{th}$, 2010</td>
</tr>
<tr>
<td>Decision Day</td>
<td>Validate project scope and make decisions on 100 key strategic &amp; clinical decisions.</td>
<td>June 29$^{th}$, 2010</td>
</tr>
<tr>
<td>Accelerated Design Session (ADS) #1</td>
<td>Interdisciplinary Decision Making Utilizing Breakouts. Validate selected design/build of MAK, orders &amp; results and clinical documentation</td>
<td>August 18 and 19$^{th}$, 2010</td>
</tr>
<tr>
<td>ADS #2</td>
<td>Validate selected design/build of orders &amp; results, clinical doc and clinical summary functionality.</td>
<td>November 17$^{th}$, 2010</td>
</tr>
</tbody>
</table>
# Accelerated Design Session #1

## Session Attendees
- Nearly 100 Kennedy clinical leaders and staff clinicians
- Clinical Informatics
- CMO and CMIO

## Session Speakers
- Clinical Informatics
- Consultants and Vendor
- Kennedy IT leadership

Two full days of decision making, consisting of breakouts by topic. Event was held at an off-site location convenient for all 3 campuses.

## Purpose:
Accelerated validation and input with a large group of representative leadership and end users. Facilitate decision making of strategic and cross work topics.

## Objective:
- Demonstrate KENGEN² functionality and build (as of to date) to stakeholders and invited end users.
- Review key decisions across work streams with stakeholders and invited KENGEN² users.
- Maximize the use of multifunctional cross stream teams to make decisions with the participation of senior leadership for strategic and cross-functional areas.
- Utilize physician participation to accelerate physician centric decisions.
The ADS: a combination of individual team design with integrated cross-functional sessions...

Iterative and integrated accelerated design approach progression

Iterative Design Sessions – Workflow and Specialty-Build
Focused:
Sessions fully/partially integrated as required by topic

Integrated Workflow/Process Validation and Testing
• Clinical Scenario Workflows Validation

Foundation Design Sessions
Integrated Topics Across Teams and Facilities

Examples
Nursing
CPOE
ED
Documentation & Content
HIM
Pharmacy

Deloitte.
Day in the Life Scenario - Medication Administration

4 East Nurse Jim goes to his specific wireless Workstation on Wheels (WOWs) and commences the Medication Administration Process for Betty, his patient. Jim looks at patient profile within the Siemens Medication Administration Check Module and determines that he needs to give two 9AM medications – both medication are located in lock box outside patient’s room.

Jim removes the 2 medications from the lockbox and enters Betty’s room, he (1) scans the barcode on his employee badge, (2) scans the barcode on the patient’s wristband, then (3) scans the barcode on both unit dose packed medications – the system automatically performs the 5 “rights”. Once Jim confirms medications were given, the system both automatically documents the time of medication administration and generate a charge (Charge on Administration).

Significant Benefits

- **Increased patient safety** via the automatic checking of 5 rights
  - Right patient
  - Right medication
  - Right dose
  - Right route
  - Right time
- Increased documentation compliance
- More accurate Medication Administration documentation
- Increased efficiency by moving from Charge on Dispense to Charge on Administration
Accelerated Design Session #2

<table>
<thead>
<tr>
<th>Session Attendees</th>
<th>Session Speakers</th>
</tr>
</thead>
</table>
| ▪ 100 Kennedy clinicians and other staff  
▪ Nursing Leadership  
▪ Physician Representation | ▪ Sessions and Topics were presented by Clinical Informatics Team – very little consulting participation |

One full day of decision making. Event was held at an off-site location convenient for all 3 campuses.

**Purpose:**
Engage clinicians to complete an accelerated validation of design and Soarian “build” to date for Phase I and Phase II.

**Objective:**
▪ Demonstrate KenGen² functionality and build (to date) to gain validation of major decisions, key process decisions, and Soarian configuration.
▪ Maximize the use of multifunctional cross workstream teams to make specific global decisions
▪ Create an open environment for feedback and Q&A so all participates have an opportunity to provide input
▪ Session will serve as a project update such that the participates will in turn provide update of KenGen² to their peers and colleagues
ADS – The locus of clinical decision making

Example Decision Types
- System configuration choices
- Workflow alternatives & design
- Data loading (e.g., clinical content)
- Interface design & function
- Policy and procedure changes & communications
- Workflow & staff role changes
- Equipment placement & usage
- Usage expectations and policy (e.g., CPOE adoption)
- Project Scope
- Escalated operational/clinical decisions
Clinicians’ Engagement
- INNOVATION -
The EHR implementation is a “Clinical Transformation” opportunity focused on supporting enhanced patient care, patient safety and cost reductions.

- First, Do no harm.
- Do things well. Do the right things well.
- Provide optimal care and service to patients, families, and physicians.

- Safety
  - VTE prophylaxis
  - Medication reconciliation
  - Pressure sore avoidance
  - Hospital-acquired infection prevention
  - Medication error reduction
  - Mortality reduction
  - Elimination of wrong surgery
  - Fall prevention
  - Avoid overuse
  - Avoid misuse
  - Avoid under-use

- Effectiveness
  - Standard order sets
  - Evidence-based practice
  - Culturally appropriate protocols
  - Length of stay
  - Demand matching
  - Pharmacy & therapeutics
  - Measurement & feedback
  - Timeliness

- Patient Experience
  - Patient Satisfaction
  - First, Do no harm.
  - Do things well. Do the right things well.
  - Provide optimal care and service to patients, families, and physicians.
Assessments, Problems & Care Plans

1. Assess Patient
   - Admission Assessment

2. Problems Suggested
   - CHF
   - Impaired Gas Exchange
   - Fluid Volume Excess

3. Care Plan Initiated
   - CHF

4. Nursing Orders / Interventions Identified
   - Assess respiratory status
   - Elevate HOB
   - Educate: weight monitoring
   - Educate: fluid restriction

5. Interventions Completed
   - Respiratory assessment
   - HOB elevated 30 degrees
   - Educated patient on weight monitoring and fluid restriction

ADVANCED SOARIAN FUNCTIONALITY

Any of these can be initiated independently of the other
Design team decision to use SBAR format for the Clinical Summary

- Provides a real-time snapshot view of pertinent data for a particular patient
- Clinicians will use the Clinical Summary in conjunction with the current SBAR report form (paper) during handoff report.
- Clinicians can easily launch to other functionalities from this screen (Orders, Patient Record, Charting, MAK, or Plan of Care).
Clinical Decisions Made at ADS #2 – SBAR

- The design team will explore redesigning the **Background** tab in Phase 1 so that both Code Status and a Critical Event Summary section will be the default view. This will carry over to the Phase 2 design. Phase 1 and 2 components will include the following by phase:

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Status</td>
<td>Past Medical History</td>
</tr>
<tr>
<td>Patient Factors</td>
<td></td>
</tr>
<tr>
<td>Transcribed Reports</td>
<td></td>
</tr>
<tr>
<td>Critical Events</td>
<td></td>
</tr>
</tbody>
</table>

- Phase 1 and 2 components of the **Assessments/Results** will include the following by phase:

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab</td>
<td>System Assessments</td>
</tr>
<tr>
<td>Radiology</td>
<td>Vital Signs</td>
</tr>
<tr>
<td>Microbiology</td>
<td>Intake &amp; Output</td>
</tr>
<tr>
<td>Cardio Pulm</td>
<td>Clinical Notes</td>
</tr>
</tbody>
</table>

- Phase 1 and 2 components of the **Recommendations/Orders** tab will include the following by phase:

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current active and in-progress orders</td>
<td>Plan of Care</td>
</tr>
<tr>
<td>Medication</td>
<td>Education</td>
</tr>
<tr>
<td>Non-Medication</td>
<td>Ancillary Dept/Recommendations</td>
</tr>
<tr>
<td>Patient Care</td>
<td></td>
</tr>
</tbody>
</table>
Care Plan Development Sequence

For care plans to be implemented with electronic Nursing Documentation and operate as designed (triggered by patient assessment), the assessment forms, nursing orders (interventions), problems, and expected outcomes must be built in Soarian.

1. **Define the Content** for each care plan (problem, expected outcomes and interventions) using Zynx and existing KHS as a basis. Build the content in Zynx.

2. **Complete a Pilot** where we build 2 care plans in Soarian before continuing with further build so KHS determine if they like the format.

3. **Build Care Plans in Soarian** following completion of the assessment, problem, expected outcome and intervention build.
Care Plan Content Development Timeline

<table>
<thead>
<tr>
<th>Specialty (36 Total Care Plans)</th>
<th>Initial Care Plan Build</th>
<th>Conduct CPDT Meetings</th>
<th>Initial CPDT Care Plan Editing</th>
<th>Revise content for Peer Review</th>
<th>Final CPDT Sessions and Revisions</th>
<th>Send content out for Peer Review</th>
<th>CAG Approval</th>
</tr>
</thead>
</table>

Problem Based
- ✔
- ✔
- ✔
- ✔
- ✔

Disease Oriented
- ✔
- ✔
- ✔
- ✔
- ✔

- ✔
- ✔
Wave 1 Care Plan Design (Actual)

**Group 3: Disease (5)**
- General Surgical
- TIA / Stroke
- Pneumonia
- CHF
- Unstable Angina / AMI

**Group 2: Problem Oriented / Risk Triggered (11)**
- Risk of Harm to Self/Others
- Risk of Fall
- Risk of VAP
- Risk of Urinary Catheter BSI
- Pressure Ulcer – Risk or Actual
- Risk of Central Catheter BSI
- Risk of Surgical Site Infection
- Risk for Readmission
- Risk for Readmission (CHF)
- DVT – Risk or Actual

**Group 1: Problem Oriented (20)**
- Self Care Deficit
- Ineffective Airway Clearance
- Impaired Urinary Elimination
- Imbalanced Body Temperature
- Anxiety
- Impaired Mobility
- Fluid Volume Excess
- Fluid Volume Deficit
- Discharge Planning
- Altered Mood - Mixed
- Altered Mood - Manic
- Altered Mood - Depression
- Altered Mood - Anxiety
- Decreased Cardiac Output
- Abnormal Serum Glucose
- Pain
- Nutrition Deficit
- Activity Intolerance
- Tobacco Use
- Impaired Gas Exchange

Deloitte.
Wave 2 Care Plan Design Sequence (Proposed)

Group 3: General (1)

Groups 2: Disease Specific (22)

Group 1: Problem Oriented / Risk Triggered (5)
Unstable Angina/Acute Myocardial Infarction Plan of Care

Cardiac Output – Decreased

Goals
- Absence of peripheral edema
- Absence of hypoxia
- Cardiac output within specified parameters
- Maintain MAF greater than or equal to 65

Interventions

Assessments
- Cardiac assessment every 4 hours and PRN
- Hemodynamic monitoring

Treatments and Procedures
- Rest promotion (decrease stimuli; plan activities to maximize sleep period)

Communication
- Interdisciplinary care coordination
- Review interdisciplinary consults and recommendations every shift

Education
- Education should include patient and/or caregiver
- Education, decreased cardiac output signs and symptoms
- Education, prescribed activity level
- Education, orthostatic hypotension prevention
- Education, energy conservation
- Education, vasovagal syncope prevention
- Education, diagnostic procedures and interventions

Pain – Acute

Goals
- Absence of angina
- Recognition of acute pain onset
- Patient effectively communicates level of pain/discomfort

Interventions

Assessments
- Pain assessment scale – adult
- Pain-relief response assessment

Treatments and Procedures
- Cognitive-emotional support
- Rest promotion (decrease stimuli; plan activities to maximize sleep period)

Communication
- Interdisciplinary care coordination
- Review interdisciplinary consults and recommendations every shift

Education
- Education should include patient and/or caregiver
- Education, cardiac pain/angina signs and symptoms
- Education, pain scale
- Education, pain communication

Kennedy Health System
## Consensus? – NO

### Decisions revisited

<table>
<thead>
<tr>
<th>Hot Topic</th>
<th>Issue</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Status</td>
<td>Difficult to get consensus from committees involved in decision (Ethics, Critical Care)</td>
<td>Order sets in Phase 1 will have 2 options only&lt;br&gt;Full Code or DNR</td>
</tr>
<tr>
<td>Duplication of pain documentation</td>
<td>RN documents pain (limited data) in MAK – will RN need to document remaining pain requirements on paper?</td>
<td>All pain documentation will reside in Soarian in Phase 2 (clinical documentation)</td>
</tr>
<tr>
<td>Patient Care Orders (PCOs)</td>
<td>The utilization of PCOs in Phase 1 (nurse/clinician initiated patient care orders) was revisited multiple times</td>
<td>As a stepping stone to Phase 2 RNs will enter patient care orders in Phase 1 – this will eliminate the paper Kardex</td>
</tr>
<tr>
<td>Who will enter Patient Factors?</td>
<td>Timely entry of height, weight ,RRT, fall, hx. Violent behavior and other factors are needed by the ancillary departments in order to safely complete ordered tests and treatments</td>
<td>RN only will be responsible to complete patient factors&lt;br&gt;Ancillary departments would rather have no data than bad data</td>
</tr>
</tbody>
</table>
Patient Care Orders placed by all clinical specialties or written by physician

All orders display in Clinical Summary & Current Orders View

Orders determined to be Interventions such as “DC Foley in AM”

Orders determined to be Clinical Documentation Worklist Items tied to a documentation form such as “Neuro Checks q 2 Hours”

Remaining Orders Do Not Go To A Worklist
Physicians’ Engagement
Order Set Development Team Structure

Executive Steering Group

Medical Executive Board

Physicians Advisory Group (PAG)

Clinical Content Teams

Facility Adoption Committees

- Specialty Group 1
- Specialty Group 2
- Specialty Group 3
- Specialty Group 4

Content Support Team

Cherry Hill
Washington Township
Stratford

Meaningful Engagement

62 Nurses/Clinicians
48 Physicians

Deloitte.
Physician Content Development Sequencing

<table>
<thead>
<tr>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept</td>
<td>Oct</td>
<td>Nov</td>
</tr>
<tr>
<td>Kick-Off (9/16/10)</td>
<td>Kick-Off (3/16/11)</td>
<td>Kickoff (9/11)</td>
</tr>
</tbody>
</table>

**Wave I:**
- General Medicine
- General Surgery
- OBGYN
- Cardiology

**Wave II:**
- Anesthesiology
- Behavioral Health
- Orthopedics
- Critical Care/Pulmonary
- Stroke

**Wave III:**
- GI
- Nephrology
- Neonate/Neonatology
- Urology

**Wave IV:**
Vertical and Horizontal Order Set Development

Verticals: Clinical Specialty / Department Specific

- General Medicine
- General Surgery
- Cardiology
- OB/GYN
- Behavioral Health
- Pulmonary
- Anesthesia
- Radiology / IR
- Critical Care
- Orthopedics
- Gastroenterology
- Urology
- Neurology

Blood Products/Transfusion
Wound Care
GI Prophylaxis
Glucose Management
Pain Management / PCA
DVT Prophylaxis

Horizontals: Common Order Sets Shared Across Specialties

- General Medicine
- General Surgery
- Cardiology
- OB/GYN
- Behavioral Health
- Pulmonary
- Anesthesia
- Radiology / IR
- Critical Care
- Orthopedics
- Gastroenterology
- Urology
- Neurology
In order to realize the benefits of standardized clinical content prior to CPOE go-live, Kennedy has implemented interactive PDF order sets

Interactive PDFs allow users to format content developed in Zynx into more readable documents. This can be particularly beneficial during interim phases where order sets are printed on paper before electronic go-live.

Without compromising or building additional content in the order sets, interactive PDF capabilities include:

- Ability to click on checkboxes and type in blank lines
- Medication compression
- Date and Time stamping
- Ability to hide or show evidence links and performance measures
- Ability to print locally
- Formatting benefits
Interactive PDF

Features of the Interactive iPDF

1. Type patient identifiers once – carried through to all pages
2. Click on any checkbox
3. Free Text in any blank line
4. Follows ISMP “ADC VAN DISAL” Order Set Guidelines
5. Presence of pre-checked orders
6. Type physician name once – carried through to all pages
7. Click once to update date and time on all pages
8. Medication doses compressed into dropdown menus
9. Labs and Diagnostic Tests mirror terms in Clinician Access
10. Ability to print locally
(Community) Physicians’ Engagement: Strategies for Adoption & Training
A successful approach to physician adoption requires a thorough consideration of several key factors.

**Extra Attention:**
- High Computer Skills and High inpatient volume but resistant to EHR
- High inpatient volume at Kennedy, but poor computer skills, but not resistant to EHR

**Extra Attention and Training:**
- High inpatient volume at Kennedy, but poor computer skills and resistance to EHR

**Less Attention:**
- Non-admitting / Low-admitting private physician, resistant to EMR

**Volume at Kennedy**

**Computer Skills**

**EHR**

**Acceptance**
Physician Segmentation Approach

**Data Collection**
- Key Physician Stakeholder Interviews
- Online Physician Survey
- Kennedy’s Admissions & Revenue Data
- Working Sessions with Kennedy’s Physician Services

**Data Analysis**
- Physician Segmentation Exercise
  - High Priority Segments
  - High Risk Segments
- Physician Readiness Assessment
  - Current practice and experience with EHRs
  - Technology Usage
  - Physician Culture
  - Training

**Recommendations**
- Communication approach
- Enrollment strategies for high priority segments
- Training and adoption related recommendations

**Mapping**
- Physician Mapping
  - Adoption and training strategies linked to specific individuals via segments
A Sustaining Engagement Factor for Management & all Clinicians:

- Quality Gains
- Mid-term Wins
Quality Assessment - MAK Manager Dashboard Report

<table>
<thead>
<tr>
<th>Totals</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Charted:</td>
<td>572</td>
</tr>
<tr>
<td>Total Missed:</td>
<td>4</td>
</tr>
<tr>
<td>Charting Rate:</td>
<td>99.31%</td>
</tr>
<tr>
<td>Patients:</td>
<td>40</td>
</tr>
<tr>
<td>Revisions:</td>
<td>1</td>
</tr>
<tr>
<td>STAT/Now:</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Near Misses</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrong Patient:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrong Drug:</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Wrong Dose:</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Wrong Route:</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wrong RX Label:</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Misses</th>
<th>Missed</th>
<th>Remove</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow-ups:</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Reminders:</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overrides</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient:</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Product:</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Co-Signatures:</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Early/Late</th>
<th>Admin</th>
<th>Not Admin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charted Late:</td>
<td>31</td>
<td>0</td>
</tr>
<tr>
<td>Charted Early:</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Warned Early PRN:</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>
# Board Quality Indicator Report 2010

## Patient Safety

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality - Adult Inpatient (%)</td>
<td>1.6%</td>
<td>1.6</td>
<td>1.6</td>
<td>Actual: 1.5/Expected 2.30</td>
<td>Actual: 1.4/Expected 2.35</td>
<td>Actual: 1.4/Expected 1.91</td>
<td>&lt; 1.9 (crude)</td>
<td>Actual &lt; Expected (1.0)</td>
</tr>
<tr>
<td>Catheter Associated UTI (Rate per 1000 device days)</td>
<td>x</td>
<td>x</td>
<td>7.7</td>
<td>4.4</td>
<td>4.1</td>
<td>0.53</td>
<td>&lt; 3.4</td>
<td>&lt; 3.1</td>
</tr>
<tr>
<td>Bloodstream Infection Rate (hospital acquired) Rates per 1000 central line days</td>
<td>2.2</td>
<td>1.0</td>
<td>1.1</td>
<td>0.74</td>
<td>0</td>
<td>0.85</td>
<td>&lt; 1.9</td>
<td>&lt; 0.6</td>
</tr>
<tr>
<td>Ventilator Associated Pneumonia Rate (hospital acquired) per 1000 vent days</td>
<td>3.6</td>
<td>3.9</td>
<td>1.8</td>
<td>0.20</td>
<td>0</td>
<td>0</td>
<td>&lt; 2.5</td>
<td>&lt;1.3</td>
</tr>
<tr>
<td>Pressure Ulcer Rate (Stage 2 or higher)(hospital acquired) (%)</td>
<td>4.3%</td>
<td>2.8</td>
<td>1.7</td>
<td>1.36</td>
<td>0.27</td>
<td>0.94</td>
<td>2.50</td>
<td>1.20</td>
</tr>
<tr>
<td>Pain Management (Inpatient)</td>
<td>82.2</td>
<td>82.5</td>
<td>83</td>
<td>84</td>
<td>84.4</td>
<td>83.8</td>
<td>84.4</td>
<td>&gt; 84.4</td>
</tr>
</tbody>
</table>

## Evidence Based Practice

<table>
<thead>
<tr>
<th></th>
<th>Cardiac (AMI) Bundle (%)</th>
<th>Pneumonia Bundle (%)</th>
<th>Heart Failure Bundle (%)</th>
<th>Surgical Complication and Infection Prevention Bundle (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90.7%</td>
<td>82.7%</td>
<td>82.0%</td>
<td>88.3%</td>
</tr>
<tr>
<td></td>
<td>93.4%</td>
<td>82%</td>
<td>80.4%</td>
<td>89.2%</td>
</tr>
<tr>
<td></td>
<td>92.7%</td>
<td>86.7%</td>
<td>81.4%</td>
<td>93.9%</td>
</tr>
<tr>
<td></td>
<td>95.2%</td>
<td>90.6%</td>
<td>90.4%</td>
<td>93.7%</td>
</tr>
<tr>
<td></td>
<td>96.4%</td>
<td>94.5%</td>
<td>93.1%</td>
<td>95%</td>
</tr>
<tr>
<td></td>
<td>98.6%</td>
<td>92.5%</td>
<td>96.2%</td>
<td>94.5%</td>
</tr>
<tr>
<td></td>
<td>95.0%</td>
<td>91.0%</td>
<td>91.0%</td>
<td>92.9%</td>
</tr>
<tr>
<td></td>
<td>97.2%</td>
<td>94.0%</td>
<td>95.0%</td>
<td>95.0%</td>
</tr>
</tbody>
</table>

## Patient Centeredness

|                                | INPATIENT HCAHPS (% rated 9-10) | ED Overall Satisfaction |
|                                | x                                | 83.7%                  |
|                                | 54                               | 83.7%                  |
|                                | 55                               | 83.3%                  |
|                                | 55                               | 84.3%                  |
|                                | 56.4%                            | 84.3%                  |
|                                | 61                               | 85.3%                  |
|                                | 60.0%                            | 85.5%                  |
|                                | 64.0%                            | > 85.5%                |

Reports reflect data from previous quarter.
Is the new system live yet?
Demonstrating early wins is a key ingredient to get out of the “valley of despair” and maintain all project participants engaged.
Kennedy used various approaches and methodologies to achieve short term wins and position organization for long term success

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Principles</th>
<th>Short Term Win</th>
</tr>
</thead>
</table>
| Use of Commitment Day and Accelerated Design Sessions | • Clinical Driven Workflow Design  
• Accelerated Decision Making  
• Early and Frequent Clinical Validation of Workflow and EHR Configuration | •Full Clinical Ownership of the Project  
•Built In Executive Support  
•Implementation of clinical workflow change to support Barcode Medication Administration (BCMA)  
•Control of Ad Hoc Projects |
| Use of Quality Tool                              | •Impact of KenGen2 on already measured indicators  
•Infer gains                                                                 | Impact on Board Scorecard                                                      |
| Physician Engagement                             | • Expand number of physicians included in the process  
• Very structured and Disciplined Process  
•Culture where physicians are reimbursed for their time | Standardized Order Sets and Development of Interactive PDF’s                  |
Nursing Wins

- Leverage technology (mobile carts) to move SBAR change of shift hand off to the point of care
- Opportunity to standardize workflow concurrently with implementation phases
- Staggered MAK go-live allowed for increased super user pool for Go-live support at largest hospital
- Interdisciplinary Care Plan team
  - Improved communication and collaboration
  - Decreased siloed thinking
  - All working toward same goal (providing excellent patient care)
Value from the Journey…
Next Steps & Concluding Remarks
Next Steps

- Implementation of Evidenced Based Order Sets
- Base Clinicals Live – 10/4/2011
  - Automated Medication Reconciliation Process
  - Patient Care Orders
- HIE Implementation
- Clinical Documentation/Plan of Care
- Full CPOE
Conclusions

- Clinical Transformation Project
  - Commitment Day
  - Accelerated Design Sessions
  - Physician and Clinician Involvement – 62 Nurses, 48 Physicians

- Demonstrate mid-term wins

- Successfully engagement of clinicians
End of the trail…