Informatics and Quality
On the Radar Screen
In the Crosshairs of Healthcare Reform

ASQ
Minnesota Section 1203
March 8, 2011
John R. (Skip) Valusek PhD CPHQ

Director Clinical Analytics
HealthEast Informatics Department
srvalusek@healtheast.org

Minnesota Council for Quality Evaluator

Minnesota Healthcare Quality Professionals Education Chair
HealthEast Care System  St. Paul, Minnesota

Woodwinds  St. Joseph’s  St. John’s  Bethesda

HealthEast Care System
- 4 Hospitals
- 12 Primary Care Clinics
- More than 35 specialty services
- Home Care & Hospice
- Medical Transportation

Hospital Capacity
Licensed Beds: 925
  St. Joseph’s Hospital  401
  St. John’s Hospital  184
  Woodwinds Health Campus  86
  Bethesda Hospital (LTACH)  254

EHR: McKesson; Allscripts
Agenda

• A few thoughts from ASQ’s “Future of Quality” Study
• Healthcare: A Decision Intense Industry
• Healthcare Reform: A Catalyst for Quality
• Healthcare Quality & Informatics
• Change Management
ASQ’s 7 key forces

1. Globalization
2. Social Responsibility
3. New Dimensions of Quality
   - Innovation
   - Managing change
4. Aging Population
5. Healthcare
6. Environmental Concerns
7. 21st Century Technology: Driver of Change
ASQ’s Implications That Resonated

• Culture of CQI:
  – The knowledge and ability to apply the tools of quality continue to be drawn out of the profession and into the hands of everyone in the organization.
  – As quality moves into areas less tangible than manufactured goods, it will increasingly become an issue of culture; a “quality mind-set” is needed.

• Measuring waste and managing its reduction will continue to focus quality on the cost side of the equation.

• Change and innovation are as much attributes of quality and how we manage as they are of products, processes, and services that are produced and delivered.

• ...... This plethora of data will serve only to pollute clear thinking and rational decision making if it is poorly designed, managed, and analyzed.
Who Accredits / Regulates a Hospital?
US Health Reform 2010

Two-Pronged Approach to Redesign of the US Health Care System. Who Will Lead “Delivery System Reform”??

- PCMH = Patient Centered Medical Home
- ACO = Accountable Care Organization
Some of the Reform drivers

- Care Across the Continuum
  replaces fragmentation of care
  - Homecare / Hospice
  - Clinics
  - Acute Care (hospital)
  - Long term care; Skilled Nursing Facilities
- Emphasis on Prevention, then treatment
- Pay for outcomes rather than pay for procedure
- Telemedicine
Predominant Metaphors Used in Organizations:

- Machine
- Military Operation

The new, emerging metaphor of the decision paradigm:

Biological or Living Systems
Healthcare:
A Decision Intense Industry

Input                           Process                           Output  
Clinical Outcomes               Patient Satisfaction              
Patient Satisfaction            
• Physicians                     • Judgments                     
• Nurses                         • Choices                      
• Pharmacists                    • Physicians                    
• Respiratory therapists         • Nurses                        
• Dieticians                     • Pharmacists                   
• Social workers                 • Respiratory therapists       
• Rehab therapists               • Dieticians                    
• Etc                            • Social workers                 

Decision Making : What is a Decision?

- Decisions commit resources through judgment and choice processes

- There is process in decision-making:
  - Opportunity/Problem Detection & Explanation
  - Alternative Generation
  - Analysis (Cost/Benefit judgments)
  - Selection among alternatives
  - Implementation
    (Monitoring/measurement repeats the cycle)

- Can we model this process?
Decision Categories

CONCURRENT
CLINICAL & OPERATIONAL DECISIONS

• ‘Quick Look’ JUDGMENTS
• ‘within’
  • a PATIENT: Solve problem; Exploit Opportunity
  • a PROVIDER: activity levels
  • a DEPARTMENT: staff scheduling
  • a REGION: assess event impacts
• Empower employees (within limits)
• Semi-structured process
• Apply protocols/pathways

RETROSPECTIVE / ANALYTICAL
TACTICAL & STRATEGIC DECISIONS

• RESEARCH & PI ANALYSIS
• ‘across’
  • patients
  • continuum of care
  • channels,
  • markets,
  • periods
• Unstructured (little or no process)
• Find key variables
• Collaboration & sharing.
• Refine protocols/pathways

Demographic

Data Warehouse

“Source” Systems

Demographic

CURRENT

HISTORY

Source

Systems

RESEARCH & PI ANALYSIS

TACTICAL & STRATEGIC DECISIONS
Objective of Decision Support

Unobstructed exploration to achieve closure in a single sitting.
Decision Process Modeling: The Requirements GAP

Clinical/Business Decision-Making

FLEXIBILITY

IT ARCHITECTURE

STRUCTURE
Decision Paradigm: Additional Bridges Required

**IT MODELS**

- **OLTP**
  - Transaction Process
  - (ERD; DFD)

- **OLAP**
  - Analytical Decision Processes
  - Operational/Clinical Decision Process Storyboards
Healthcare IT & Informatics

• **IT**
  – Hardware and infrastructure
  – Backup and recovery
  – Transaction applications
    • Registration/scheduling
    • Coding
    • Billing

• **Informatics**
  – Electronic Health Records: The Clinical applications
  – Clinical Decision Support & Documentation
  – “The most significant change a clinician will ever encounter”
    Valusek
Healthcare Informatics

- Clinical Applications Build
  - Orders
  - Nursing Documentation
  - Clinician Notes
  - Medication Reconciliation
  - Lab & Imaging integration
- Trainers
- Super Users
- Pharmacy Informaticists
- Reporting & Analytics
Healthcare Quality

- Is everybody’s job
- Is supported by the following departments (and many others)

**Quality “Departments”**

- Performance Improvement
- Measurement & Reporting
- Accreditation Readiness
- Infection Control
- Patient Safety
- Patient Representatives
- Care Management
- Case Mgrs; Social Workers;
- Utilization Review
- Organizational Development

**Clinical Care**

- Medical Staff Office
- IT
- Informatics
- HIPAA
- Corporate Compliance
- Ethics
- Medical Records
- Simulation Center
HealthEast Informatics Conceptual Model

Operational Reports
(e.g. patient lists)

Horizon Real-time decision support

Horizon Care Record (HCR)

HealthQuest (aka Medipac)
(aka Clinipac)

MIDAS

RL Solutions

Implants Registry

Horizon Expert Documentation

Other “Source” Systems

Benchmarks (e.g. DataVision?)

Access Islands

Excel Islands

Web Registries

Island Databases

Extract

"Integration" (Transform & Load)

Data Warehouse
(HPM)

Handwritten data

EMPI
Enterprise Master Patient Index (Illuminate)

Ambulatory operational reports and analytics

Clinics

Informatics Analytics

Homecare/Hospice

Flowcast/Allscripts Ambulatory PMS/EHR

Clinic real-time decision support

Hospital real-time decision support

ADT & demographics
Healthcare Reform: A Catalyst for Quality

- Meaningful Use
- Value-Based Purchasing
- Accountable Care Organizations
Meaningful Use $^+$ = Necessary Conditions

- **Meaningful Use**
  - EHR’s (hospital and clinic) over next 5 years
  - Health Information Exchanges (HIE)
    - Continuity of Care Document (CCD)
    - Continuity of Care Record (CCR)
- **ICD-10**
- **Master Patient Index**
Value Based Purchasing

\[ VBP = \frac{\text{Quality}}{\$} \]

\[ \text{Quality} = 0.7 \times (\text{clinical outcomes}) + 0.3 \times (\text{satisfaction}) \]

“First do no harm”

\[ \text{Quality} = (\text{Patient Safety}) \times (\text{clinical outcomes} + \text{satisfaction}) \]
## Accountable Care Organizations

Providing care across the continuum and being paid for it

<table>
<thead>
<tr>
<th>Measures</th>
<th>Clinics</th>
<th>Hospitals</th>
<th>Recovery &amp; Rehab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Acquired Infections</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Hospital Acquired Conditions</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Readmission 7, 14, 30 days (by disease)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LOS Index (Geometric Mean)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cost / Case</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Potentially Avoidable Admits (by disease)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Potentially Avoidable Admits (by provider)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Potentially Avoidable ED Visits (by disease)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Potentially Avoidable ED Visits (return in 72hrs)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Mortality (overall)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Mortality (disease specific)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Change

• The only constant is change
  (except from a vending machine)

• Life is change . . . .
  Growth is optional

• It is not necessary to change.
  Survival is not mandatory.

  Deming
Change Management

Identify the change occurring on your unit this week:

• Professional partnership model;
• medication reconciliation;
• new staff starting/orienting/precepting;
• new nursing students;
• new hospital planning;
• new equipment (SCD pumps, ceiling lifts);
• focus on decreasing overtime;
• focus on increasing team playing;
• focus on patient Picker scores "would you recommend?";
• telemetry training;
• new protocol for insulin pens w/discharged patients;
• added edunet modules (diabetes, moderate sedation, influenza);
• management changes;
• construction/detours outside and inside building;
• EHR monthly updates;
• relocation of our supply room;
• focus on email as primary source of information/no paper postings;
• daily medicare discharge notices;
• patient room changes/loss of private rooms."
What are the implications of this much simultaneous change?

Input                           Process                           Output

Clinical Outcomes               Patient Satisfaction

• Physicians
• Nurses
• Pharmacists
• Respiratory therapists
• Dieticians
• Social workers
• Rehab therapists
• Etc

• Judgments
• Choices
Re-Cap

- Healthcare: A Decision Intense Industry
- Healthcare Reform: A Catalyst for Quality
- Healthcare Quality & Informatics
- Change Management
- A few thoughts from ASQ’s “Future of Quality” Study
Review/Summary: ASQ’s 7 key forces

1. Globalization  
   HIE; CCD; CCR

1. Social Responsibility (STEEEP)  
   (Safe, Timely, Equitable, Effective, Efficient, Patient-centered)

3. New Dimensions of Quality  
   – Innovation  
   – Managing change

4. Aging Population

5. Healthcare

6. Environmental Concerns (e.g. medication disposal)

7. 21st Century Technology: Driver of Change  
   (EHR/EMR; diagnostics; telemedicine; predictive decision support)
Questions