A Multi-Phased Approach to Using Clinical Data to Drive Evidenced Based EMR Redesign

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Agenda

- Introduction
- Purpose: Project Goals with Enterprise
- Project Overview
- Comprehend Clinical Overview
- Methods
- Plan/ Project Life Cycle
- Steering Committee
- Outcomes
- Electronic Safeguards
- Questions
Introduction

- Problem Statement: To improve patient outcomes and value-based healthcare by providing an innovative integrated electronic health record that optimizes technology that supports patient outcomes, provider personalization to standards of care, optimize staffing and financial outcomes.

- AIM: The goal of using the integrated information to optimize EMR data to empower healthcare providers to do the following:
  - identifying areas of documentation in which gaps exist between ideal and actual practices
  - exploring integrated information system solutions for addressing these gaps;
  - Have pertinent patient information available in real time to provide continuum of patient care and integrate analytics to drive decisions.
    - Provide a communications
    - Provide safeguards for electronic information
    - Fully align with federal mandates and regulations
Purpose

To optimize technology using a multi-tier approach to efficiently redesign the Electronic Health Record (EMR) to match nursing workflow to support patient centered care, optimal outcomes, and acuity driven staffing. This

- A description of the chosen database
- The importance of EMR design around Nursing Work Flow
- The importance of informatics in staffing and financial outcomes
- The relationship between health databases and health quality reporting
- Governance Structure and the effects of information on decision making
Learning Objectives

- To summarize key issues in the EMR field from an implementation science perspective and to highlight illustrative processes, examples and key directions to help more rapidly integrate research, policy and practice.

- Description of the chosen Clinical Data Base: EPIC

- Define the process for planning, designing/building, training, testing, go-live and support of epic based acuity.

- State the rationale and value for using Epic based acuity

- Define and correlate patient acuity as it relates to nursing workload.

- Propose solutions for reporting of acuity scores for various end users i.e.: Nursing, Staffing, Leadership etc.

- Identify and respond to common problems that contribute to inaccurate acuity scores
### Mission

- To care
- To educate
- To discover

### Vision

Healing humanity through science and compassion, one patient at a time

### Values

- Innovation
- Compassion
- Respect
- Excellence
- Discovery
- Integrity
- Teamwork
Stanford Health Care

- 613 Licensed Beds
- Level I Trauma Center
- 2,330 Physicians (207 UHA)
- 408 House Staff
- 25,682 Admissions
- 57,606 Emergency Visits
- 337,630 Hospital Outpatient Visits
- 520,882 SHC Office Visits
- 453,454 UHA Office Visits
- Epic 2014
Stanford Operating System Tenants:

1. Value Driven Purpose
2. Performance Improvement
3. Capability Development
4. Leadership Commitment
5. Assumptions
SWOT Analysis of Nursing Documentation Redesign

- **INTERNAL**
  - **STRENGTH**
    - Administrative support
    - IT Support
    - IT commitment
    - Nursing Engagement
    - Prioritization for regulatory
  - **WEAKNESS**
    - Staff knowledge
    - Technical skills
    - Duplicate processes
    - Lack of integration with other technologies
    - Education gap

- **EXTERNAL**
  - **OPPORTUNITY**
    - Improve workflow
    - Work standardization
    - Strategic alliance
    - Time enhancement
    - Oversight
    - Nursing satisfaction
    - Patient-centeredness
  - **THREAT**
    - Competing priorities
    - Regulatory compliance
    - Gaps in communication with medical providers
    - Level of competence

Confidential – For Discussion Purposes Only
Methods

- Data were collected by multiple means
- Observation
- Nursing survey
- Chart abstraction
- Application of Lean methodology
- Application of Implementation Science
- IT Life Cycle Analysis
Needs Assessment

Electronic Health Record Redesign

- Technological Demand
- Societal Demand
- Scientific Demand
- Regulatory Demand
- Professional Demand
Barriers to a Lean operation: The Eight Wastes

1. **Defects**: errors
2. **Motion**: not coordinated
3. **Transportation**: communications systems
4. **Over Processing**: inconsistent application of parameters
5. **Over Production**: multiple variations of application
6. **Inventory**: multiple variations of supplies
7. **Talent**: Use of Skills
Why Redesign Assessments?

- Make documentation **easier** & encourage real-time documentation
- Go from **WNL** to **WDL** to promote charting by exception
- Establish **consistent** charting practices house-wide
- Minimize time spent hunting for flowsheet rows with a more **intuitive** workflow
- Streamline flowsheet templates, with consistent flowsheet rows and groups house-wide
# Epic Acuity Roadmap

## Phase I
- Assessment flowsheet redesign
- Charting in real-time and by exception

## Phase II
- Epic Acuity formula in production
- Acuity score monitoring and validation
- Optimization of formula

## Phase III and Beyond
- Retire legacy flow sheets and acuity scoring system
- Use Epic Acuity scores to drive staffing

## Dependencies & Risks

- Committee feedback
- Under communicating flowsheet changes/impacts
- Lack of reinforcement and support post upgrade

- Development of fixes/enhancements delivered by vendor
- Reporting tools for staff
- IT Resources for build

- Legacy system contract expiration
- Staffing Matrices development
Steering Committee
Steering Committee

- Key Stakeholders
- Shared mental model
- Strong collaboration can bring about the best results
- A shared workload
- Trust allows for individual autonomy
- Goals aligned with enterprise
System Components and Selection Criteria

- Utility: Integrating systems
- Communication: Automatic email notifications
- Versatility: Easy to use
- Quality Metrics: Comprehensive and seamless actionable insights in real time
- Costs: Per case and efficiency
- Protection: Threats and Safeguards for electronic information
## Steering Committee and Project Planning

<table>
<thead>
<tr>
<th>Group</th>
<th>Participants</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Committee</strong></td>
<td>Nursing, IT, Education, Executive Leadership and Staffing</td>
<td>3 All Day Workshops</td>
</tr>
<tr>
<td><strong>Sub Committees</strong></td>
<td>Subset of committee members with specialty in: Behavioral/Psych Skin and Tissue HEENT Regulatory</td>
<td>1 Workshop per subcommittee &amp; Ad hoc as needed</td>
</tr>
<tr>
<td><strong>IT and Executive Sponsors</strong></td>
<td>IT, Education &amp; Executive Sponsors from Nursing</td>
<td>Bi Weekly</td>
</tr>
<tr>
<td><strong>IT Team</strong></td>
<td>IT Team Members</td>
<td>Weekly</td>
</tr>
</tbody>
</table>
Epic acuity module *automatically* calculates scores based on documentation in the electronic health record.

- Scores are generated Q4H starting at 0130 every day.
- Accurate acuity scores are dependent upon complete, real-time charting.
- Acuity scores consist of eight sections:

<table>
<thead>
<tr>
<th>Medications</th>
<th>RN Orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADLs</td>
<td>Assessments</td>
</tr>
<tr>
<td>LDAs &amp; I/O</td>
<td>Communication</td>
</tr>
<tr>
<td>Wounds</td>
<td>ADT Events</td>
</tr>
</tbody>
</table>
Why Multi-Phased Approach?

- Accreditation, Regulatory and Legal requirements: The Joint Commission and California Title 22 requirement.
- Generate standard and custom reports to meet business and reporting.
- Establishes a standard relationship between health databases and health quality reporting.
- Drive better charting/documentation and capture standards.
- Build Upon knowledge - Acceptance and Sustainability.
- Track patients’ acuity in real time.
- Provide data for clinical and financial decision making.
- Produce EMR that communicates the patients plan of care.
- Produce useful reporting tools to charge nurses and staffing personnel.
Epic Acuity Launch I

With EPIC 2014 Upgrade
✓ Redesigned flowsheets
✓ WDL Statements with clearly defined definitions
✓ More intuitive cascading
✓ Real time charting

Three New Templates
✓ Simple Assessment
✓ Complex Assessment
✓ Behavioral Health/Psych Assessment

Foundation for Acuity scoring system
Acuity Go-Live Communication Phase

Strategy

Awareness
- Set Expectation

Implement
- Meet/Exceed Expectation

Reinforce
- Support & Enhance

Key Documents
- Road Show Acuity PPT
- EpiCenter Articles
- Bed Meeting Flyer
Activation & Support Phase III

**Readiness**
- End user education
- Notify 4-Epic and HelpDesk
- Confirm support flow with nursing leadership
- Validate new staffing grids

**Go-live**
- Implement staffing grids based on data from phase II
- Monitor for Incidents
- Informaticists and Educator rounding providing floor support.

**Support**
- Continued Rounding
- Unit Chart Audits
- End-User knowledge reinforcement
- Ensure there are no Epic Acuity issues

**Documentation & Approvals**
- Reinforce
## Outcomes – Admission Assessment

<table>
<thead>
<tr>
<th>Metrics</th>
<th>Pre-Implementation</th>
<th>Post Implementation</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to complete admissions assessment (average)</td>
<td>52m 11s</td>
<td>21m 41s</td>
<td>↓58%</td>
</tr>
<tr>
<td>Total number of clicks (average)</td>
<td>141 clicks</td>
<td>54 clicks</td>
<td>↓62%</td>
</tr>
<tr>
<td>Clicks per row (average)</td>
<td>7.5 clicks</td>
<td>5.2 clicks</td>
<td>↓34%</td>
</tr>
<tr>
<td>Minutes to complete a row (average)</td>
<td>4 minutes</td>
<td>Less than 1 minute</td>
<td>↓75%</td>
</tr>
</tbody>
</table>
Outcomes – Documentation Compliance
Outcomes: View Unit-level SHC Acuity Scores in Real Time
Outcomes:

The adoption of Lean methodology in healthcare provides a model for change that has not been successful provided by traditional nursing theories. The admission redesign successfully improved documentation efficiency, accuracy and nursing satisfaction. There is a beneficial rate of return for a working EMR that nurses can use to deliver patient-centered care. Of the essence, is the ability to chart data that meet the regulatory standards and allows nurses to return priority time to the bedside.
Governance

- Quarterly Acuity Committee Meeting (Go-live to +1 year) & Annual Acuity Committee meeting thereafter
  - Reports to Shared Leadership Education and Informatics Council
  - Review and Validate using validation and Discrepancy Audits Tools

- IT Monitors system changes for impact to acuity
  - Build scoring rules and modify as needed

- Staffing Grids revised and updated by Operations quarterly
  - Leverages Clarity reporting trending data
Project Reflections and Opportunities

Successes

• Interdisciplinary and Intra Organizational Cooperation
• GEMBA
• Positive Feedback
• IT Collaboration
• Communication Strategy
• Implementation Strategy

Lessons Learned

• Vendor relationship & functionality development
• Work design
• Importance of Pre-evaluation
• Increased Visibility
• Scope
• Time Line
Electronic Safe Guards

- Risk Analysis conducted
- Staff trained in how to protect patient health information
- Written policies that dictate how to manage compliance
- Governance Structure
- Standardized Reviews
Conclusion

An EMR Redesign that is intended to translate policy and practice needs to be more contextual, integrate documentation factors through the employing responsive and pragmatic designs that report data more transparently to support patients, clinicians and organizational decision makers. We outline an assessment model, summarize implementation science practices integrated with Lean methodology that focus on alignment of technology to match work flow and real-time data to improve care and financial outcomes.
References


References


http://www.cms.gov/