

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



Stanford

HEALTH CARE

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

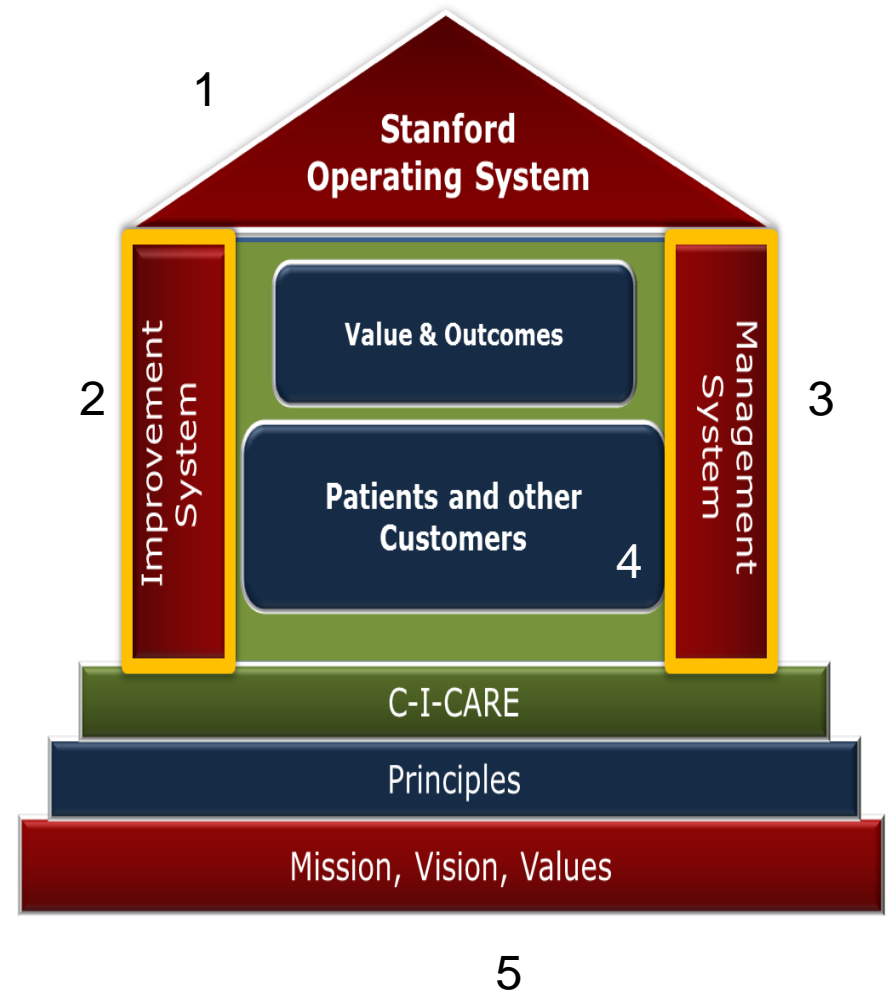
- 613 Licensed Beds
- Level I Trauma Center
- 2,330 Physicians (207 UHA)
- 408 House Staff
- 25,682 Admissions
- 57,606 Emergency Visits
- 337,630 Hospital Outpatient Visits
- 520,882 SHC Office Visits
- 453,454 UHA Office Visits
- Epic 2014



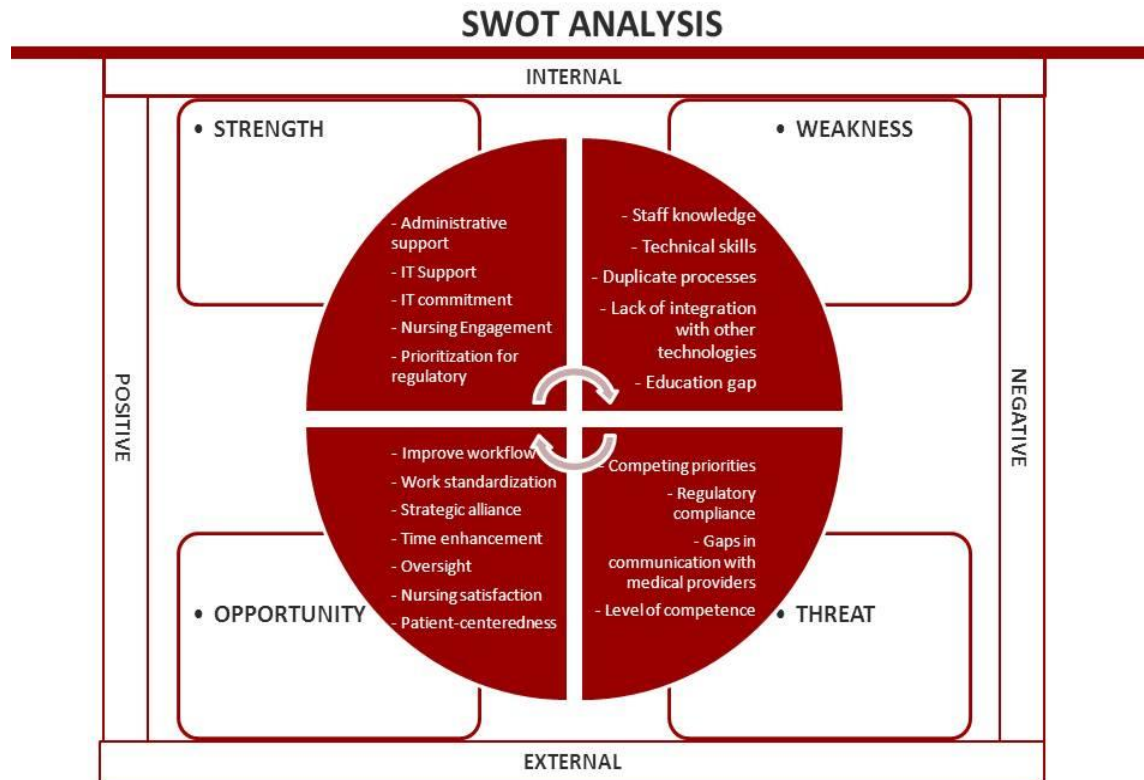
SHC: The Lean Transformation Model

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

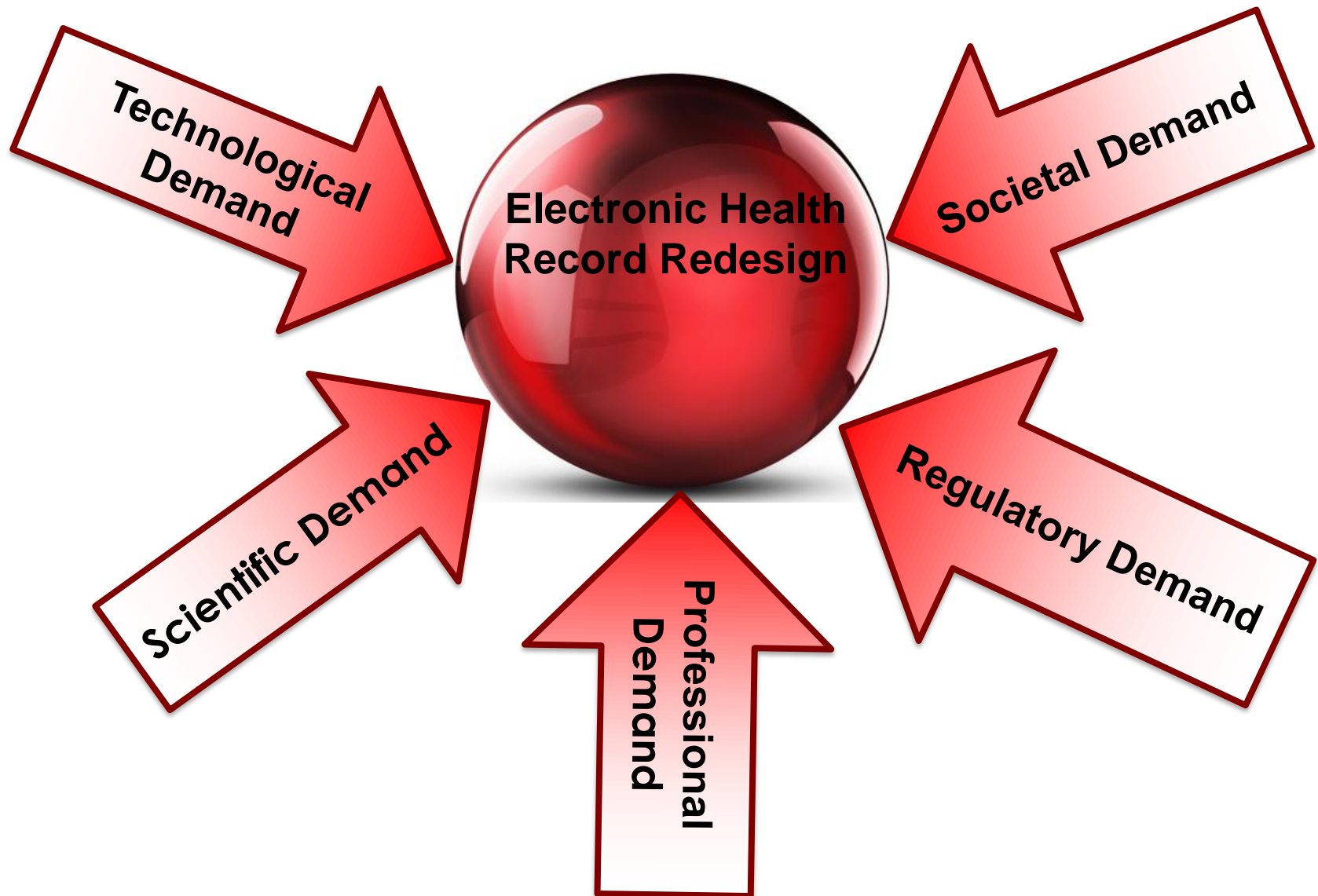


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Methods

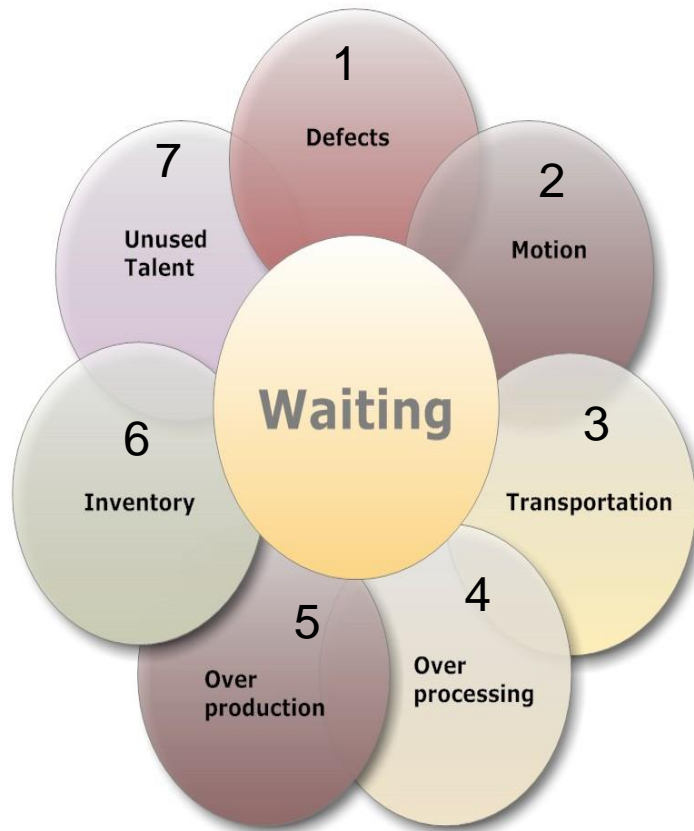
- ▶ Data were collected by multiple means
- ▶ Observation
- ▶ Nursing survey
- ▶ Chart abstraction
- ▶ Application of Lean methodology
- ▶ Application of Implementation Science
- ▶ IT Life Cycle Analysis

Needs Assessment



Current State of Electronic Medical Record and Lean Waste Analysis

Barriers to a Lean operation: The Eight Wastes



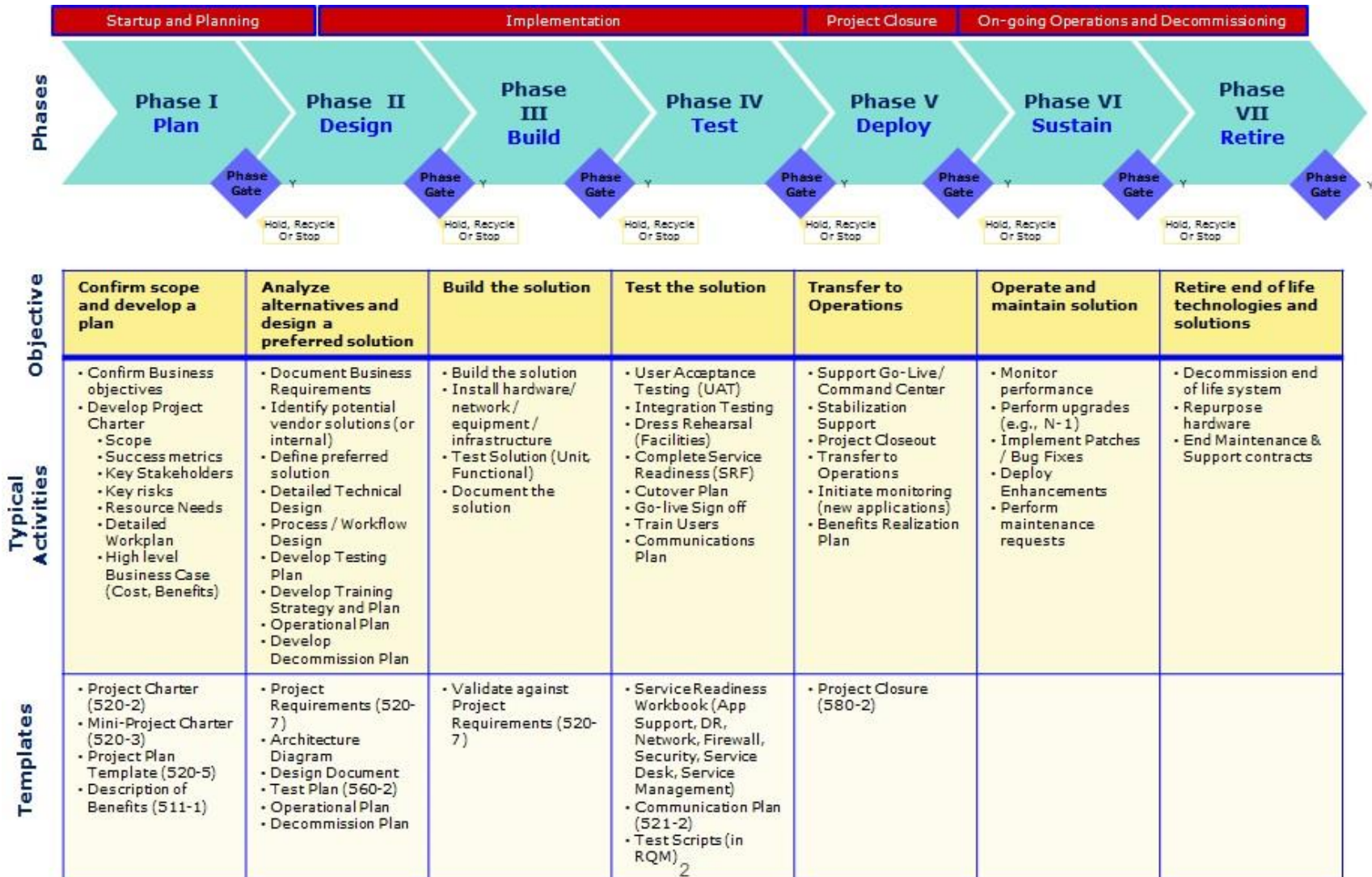
- 1. Defects:** errors
- 2. Motion:** not coordinated
- 3. Transportation:** communications systems
- 4. Over Processing:** inconsistent application of parameters
- 5. Over Production:** multiple variations of application
- 6. Inventory:** multiple variations of supplies
- 7. Talent:** Use of Skills



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

Work Breakdown Structure: Project Life Cycle



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

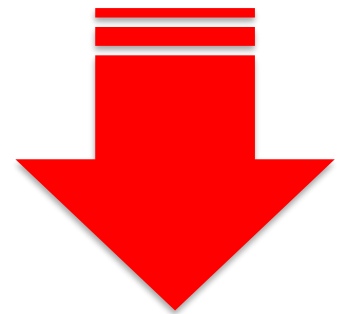
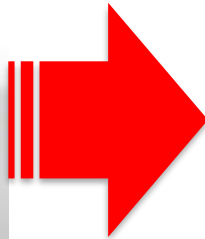
Dependencies & Risks

- 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



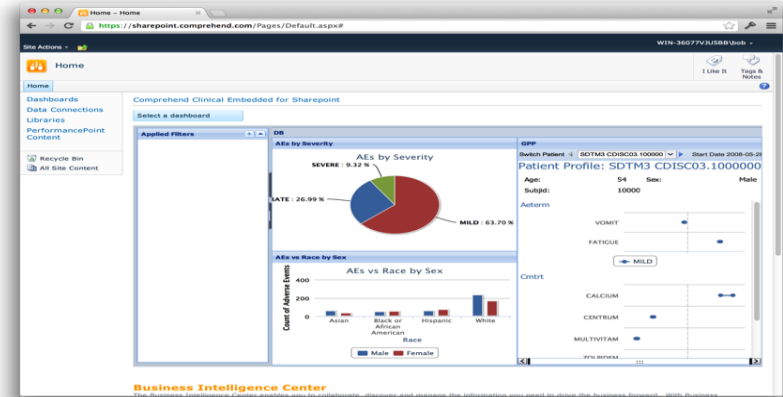
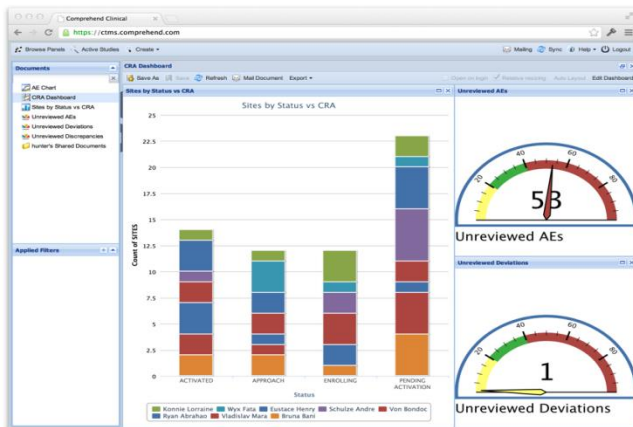
Steering Committee

- ▶ 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

Group	Participants	Frequency
Committee	Nursing, IT, Education, Executive Leadership and Staffing	3 All Day Workshops
Sub Committees	Subset of committee members with specialty in: Behavioral/Psych Skin and Tissue HEENT Regulatory	1 Workshop per subcommittee & Ad hoc as needed
IT and Executive Sponsors	IT, Education & Executive Sponsors from Nursing	Bi Weekly
IT Team	IT Team Members	Weekly

Design and Build



- ▶ 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

Medications	RN Orders
ADLs	Assessments
LDAs & I/O	Communication
Wounds	ADT Events

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

1

2

3

Within Defined Limits (WDL) Criteria

Row Information

Within Defined Limits (WDL) =

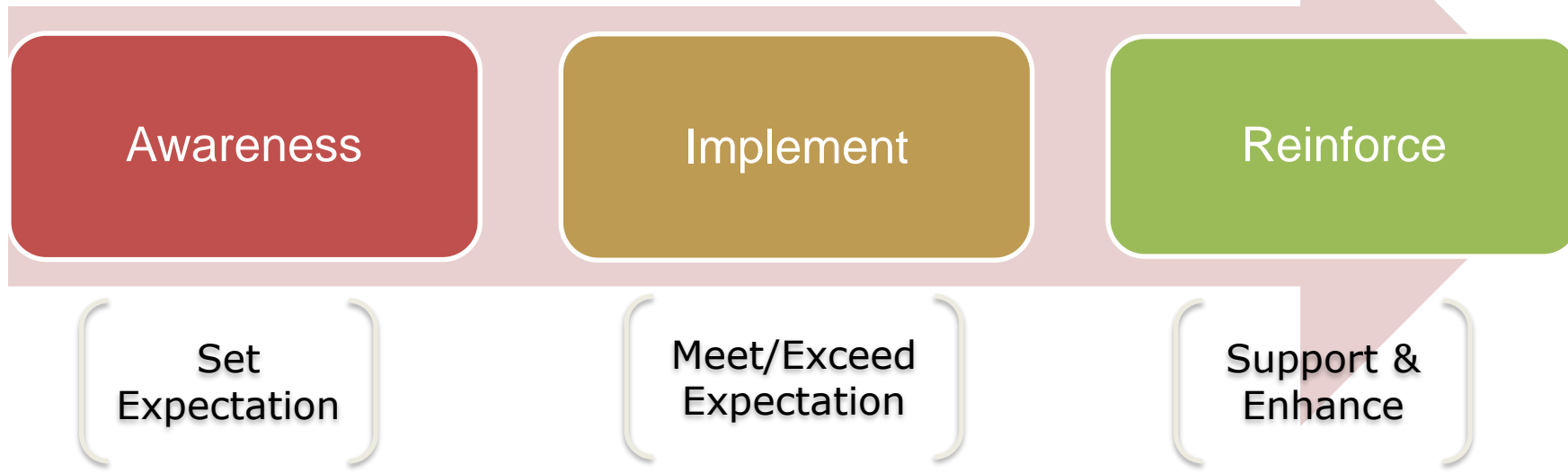
- Alert and oriented to person, place, time and situation
- Gag reflex is intact and speech is appropriate
- Purposeful motor function, strength, and sensation in all extremities
- Absence of confusion, mental status changes, posturing, seizures, headache, or coma
- Absence of spinal precautions, drains, or monitoring devices
- Absence of facial droop, slurred speech, unilateral weakness, or numbness

- 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



Key Documents

Road Show Acuity
PPT

EpiCenter Articles

Bed Meeting Flyer

Activation & Support Phase III



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

Readiness

Go-live

Support

*Documentation
& Approvals*

Announce

Reinforce

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

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

Outcomes – Admission Assessment

LEAD TIME			
Metrics	Pre-Implementation	Post Implementation	Results
Time to complete admissions assessment (average)	52m 11s	21m 41s	↓58%
Total number of clicks (average)	141 clicks	54 clicks	↓62%
Clicks per row (average)	7.5 clicks	5.2 clicks	↓34%
Minutes to complete a row (average)	4 minutes	Less than 1 minute	↓75%

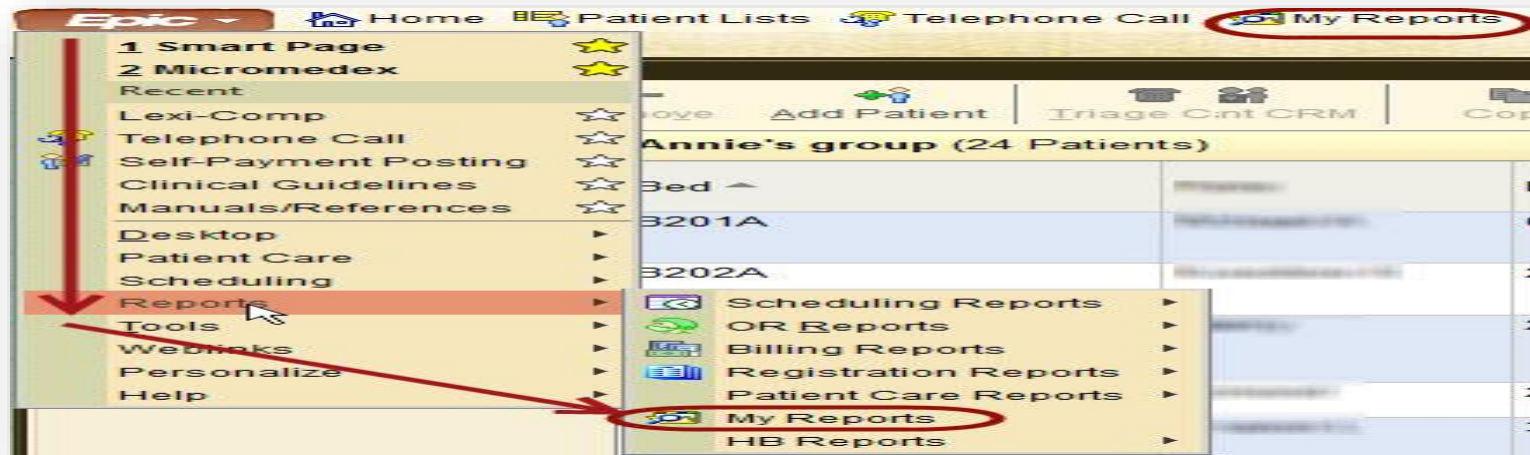
Outcomes – Documentation Compliance

The screenshot displays the Epic Hyperspace interface for a patient named SIDNEY APPLE. The main window is titled "Admission" and shows a list of "Admission Assessment Completion Checks". The checks are as follows:

Check Item	Status
Admit Complete Allergies	Complete
Admit Complete PTA Meds	Complete
Admit Complete Learning Assessment	Complete
Admit Complete Admission Information	Complete
Admit Complete Vaccine Assessment	Complete
Admit Complete Social History	Complete
Admit Complete Clinical Data	Complete
Admit Complete Screenings	Complete

Additional details in the interface include a sidebar with navigation options (MAR, Doc Flowsheets, Intake/Output, Care Plan, Patient Education, Order Entry, Order Review, Order Set, Work List, BestPractice Ad..., BPA Review, Enter/Edit Results, Notes, Daily Care, RN Navigators, Admission, More Activities) and a top navigation bar with icons for Home, In Basket, Schedule, Patient Lists, MDS, Unit Manager, Today's Patients, Telephone Call, Print, and Log Out. The patient information at the top includes MRN, CSN, Bed, Language (English), Age/Sex, and Allergies (Unknown).

Outcomes: View Unit-level SHC Acuity Scores in Real Time



Acuity Scores - Unit [1165313] as of Wed 9/24/2014 4:08 PM

Filters Options Hospital Chart Add to List

Detail	Total Acuity	ADLs	ADT	Assmnts	Comm	Meds	LDA	Wounds	Orders
D2 D221	47	3	16	16	0	1	4	6	2
D2 D235	29.875	4	0	7.625	3	3	1	2.25	9
D2 D221	22.25	9	0	4.25	3	1.5	1.5	2	1

Detail	Total Acuity	ADLs	ADT	Ass	Wounds	Orders	Official Acuity score for your unit.			
Department	Average	Maximum	Median	Minimum						
D2	53.36	96.5	53.19	22.25						

Outcomes:

The adoption of Lean methodology in healthcare provides a model for change that has not been successfully 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.



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