Journey to HIMSS Stage 7

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Northwestern Medical Center

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Vice President, Associate CIO
Yale New Haven Health
About the Presenters

Northwestern Medical Center

- 70 Bed Community Hospital
- 2 Urgent Cares, 11 Physician Clinics
- 30+ Employed Providers
- HIMSS Stage 6

Presentation Team:
- **Jodi Frei**, MS, PT
  Manager of Organizational Informatics
- **Chris Giroux**
  Manager Data Management and Integration Services
- **Brad Peduzzi**, BSN, RN-BC
  Clinical Informatics
About the Presenters

Northwestern Medical Center

has attained the status of Stage 6 as designated by the HIMSS Analytics EMR Adoption Model.

Attaining a Stage 6 designation indicates that this hospital has achieved a high degree of clinical automation that is incorporated into the patient care services it delivers. This hospital is able to provide the highest levels of patient safety and quality outcomes for the care it provides to its patients.
About the Presenters

Yale-New Haven Hospital

- 1,541-bed Academic Medical Center
- 4,000+ Medical Staff and 12,000+ employees
- Primary teaching hospital for Yale University
- HIMSS Stage 7

Presenter:
- Lisa S. Stump, MS, RPh, FASHP
  Vice President, Associate Chief Information Officer
  Yale New Haven Health System
Presentation Goals

- Why achieve HIMSS Stage 7?
- Stage 7 Requirements
- The importance of organizational culture and readiness
  - Ability to leverage technology to improve patient outcomes
  - Focus on Quality and Process Improvement
  - Focus on your strengths
  - Partnership with VITL and other HIE Strategies
- Data Analytics
  - What is the data telling you?
  - How are you using data to improve outcomes?
- Experiences and strategies to achieve HIMSS Stage 7
  - We’re on our own journeys and sharing our stories
- Potential barriers
- Partnering with your HCIS vendor
# Stages of HIMSS Certification

<table>
<thead>
<tr>
<th>Stage</th>
<th>Cumulative Capabilities</th>
<th>Applications &amp; Interfaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 7</td>
<td>Complete EMR; CCD transactions to share date; Data warehousing; Data continuity with ED; ambulatory, OP</td>
<td>EDM, SCA, HIM, DR, CCD, Hemodynamic Monitor Interface plan for OR &amp; ED, TAR, Bar Coded Expressed Breast Milk (NICU only)</td>
</tr>
<tr>
<td>Stage 6</td>
<td>Physician documentation (structured templates), full CDSS (variance &amp; compliance), full R-PACS</td>
<td>Physician Documentation Full Radiology-PACS</td>
</tr>
<tr>
<td>Stage 5</td>
<td>Closed loop medication administration</td>
<td>BMV</td>
</tr>
<tr>
<td>Stage 4</td>
<td>CPOE, Clinical Decision Support (clinical protocols)</td>
<td>CPOE</td>
</tr>
<tr>
<td>Stage 3</td>
<td>Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology</td>
<td>NUR, OR, PACS Interface Suite</td>
</tr>
<tr>
<td>Stage 2</td>
<td>CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging, HIE capable</td>
<td>EMR/Clinical Review, QE</td>
</tr>
<tr>
<td>Stage 1</td>
<td>Ancillaries - Lab, Rad, Pharmacy - All Installed</td>
<td>LAB, MiC, BBK, PTH, ITS or RAD/DPT, SCH, PHA</td>
</tr>
<tr>
<td>Stage 0</td>
<td>All Three Ancillaries Not Installed</td>
<td></td>
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</tbody>
</table>
## 2015 EMR Adoption in the U.S. Market

<table>
<thead>
<tr>
<th>Stage</th>
<th>Cumulative Capabilities</th>
<th>2015 Q1</th>
<th>2015 Q2</th>
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<tbody>
<tr>
<td>Stage 7</td>
<td>Complete EMR; CCD transactions to share data; Data warehousing; Data continuity with ED, ambulatory, OP</td>
<td>3.7%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Stage 6</td>
<td>Physician documentation (structured templates), full CDSS (variance &amp; compliance), full R-PACS</td>
<td>22.2%</td>
<td>23.6%</td>
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<tr>
<td>Stage 5</td>
<td>Closed loop medication administration</td>
<td>30.8%</td>
<td>32.3%</td>
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<tr>
<td>Stage 4</td>
<td>CPOE, Clinical Decision Support (clinical protocols)</td>
<td>13.6%</td>
<td>13.2%</td>
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<tr>
<td>Stage 3</td>
<td>Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology</td>
<td>19.7%</td>
<td>18.2%</td>
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<tr>
<td>Stage 2</td>
<td>CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging; HIE capable</td>
<td>4.3%</td>
<td>3.6%</td>
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<tr>
<td>Stage 1</td>
<td>Ancillaries - Lab, Rad, Pharmacy - All Installed</td>
<td>2.2%</td>
<td>1.9%</td>
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<tr>
<td>Stage 0</td>
<td>All Three Ancillaries Not Installed</td>
<td>3.5%</td>
<td>3.3%</td>
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</table>

Data from HIMSS Analytics® Database ©2014

PLEASE NOTE: These graphics are an abbreviated version of the HIMSS Analytics EMR Adoption Model. All organizations must secure permission to post our model on any public notices and to obtain their score they must complete the HIMSS Analytics study prior to validation of their score.
About the Audience

Polling Questions:

- What hospitals are represented today?
- Do you know your hospital’s HIMSS Stage ranking?
  - Have you applied?
- Does your organization value this recognition: leveraging technology to improve the care delivery process and quality outcomes?
- Is HIMSS Stage 7 part of your strategic plan?
Why HIMSS Stage 7?

- A benchmarking tool
  - Provides an IT strategy road map to achieve clinical and operational excellence

- Demonstrates a commitment to patient outcomes, satisfaction and safety

- Signifies a cultural adoption of innovation in the use of technology
  - LEAN
  - Efficient
  - Connected
  - Quality
  - High Reliability Organization (HRO)

- Emphasizes Data Analytics – identify opportunities/problems, monitor compliance and demonstrate outcomes

- Value
  - Comparative Quality Advantage
  - Bond Rating
  - Return on Investment (HCAHPS)
Value Based Purchasing Tipping Point

Source: HIMSS Analytics - Changes are only authorized by HIMSS Analytics
Key Stage 7 Requirements

>=95% Barcode Enablement: Medications, Blood Products, Expressed Breast Milk (NICU only) for 4 consecutive months

>=90% CPOE for 4 consecutive months

Physician Documentation with structured templates capturing discrete data to drive a "rules engine".

ED - LIVE with BV, CPOE, physician documentation (no percent requirement)

Medications - all medications on the eMAR or patient profile (Including Code & Anesthesia Medications)

Data Analytics used to drive change with demonstrated improved outcomes

Scanning - clinically relevant paper within 24 hours of creation

CCD - LIVE exchange of information with outside organizations
The Importance of Culture

- Philosophy of transformational versus transactional change
- Commitment to quality and cost containment
- Ability to leverage technology to maximize patient and financial outcomes
- Culture of collaboration - both with internal and external partners
- Dedication to innovation and creativity
- Tolerance for managing multiple projects and priorities simultaneously
- Challenging the limits
Partner with your HCIS Vendor

♦ Build a relationship
  ♦ request and accept guidance

♦ Know your vendor’s resources

♦ Some vendors may come on site to assess HIMSS status and readiness
NMC’s Journey

2014: Development of IT Technology Plan

- Organization formally recognized the value of national recognition
- Acknowledged the strong association between HIMSS Stage 7 and improved HCAPHS
- Created the roadmap
Key Stage 7 Milestones - NMC

- Converting the ED from Best in Breed to Meditec HCIS
  - Creating closed loop medication reconciliation
  - Challenges and successes – cultural readiness
- CCD exchange
  - Months worth of work with external partners
    - VITL
    - Meditec and Medent
    - HISPs
    - Other hospitals and physician clinics
    - MU reporting vendor
Day 1 - Session 2: The Road to HIMSS Stage 7 Hospital Certification
NMC’s Paperless Efforts

♦ Paper Reduction Team
  ♦ Assessment of existing paper/forms
    ♦ Who is creating it?
    ♦ For whom?
    ♦ Why does it exist?
  ♦ Can we leverage our systems to eliminate it?
  ♦ Action steps:
    ♦ Daily HIM rounding
    ♦ Education
    ♦ Creating new EMR workflows versus new forms, ie referrals
Data Analytics

- NMC demonstrated a commitment to Data Management
  - Re-Organization of Information Technology
    - New division called Data Management and Integration Services
    - Focus shifts from individual data to measures & information
  - Organizational Investment in Reporting Systems
    - Data validated and pulled from appropriate data source
    - Positions NMC for enhanced data analytics
      - Real-time access to dashboard views
  - Improved process for report requests
    - Involves committee review
Our YNHH Journey

- Contract Sign July 2010
- 1st Ambulatory Go Live October 2011
- 1st Hospital Go Live Greenwich April 2012
- 2nd Hospital Live Yale New Haven – York February 2013
- 3rd Hospital Live Yale New Haven – St. Raphael June 2013
- 4th Hospital Live Bridgeport Sept 2013
- Univ Health Plan Live January 2014
- Upgrade to Denali/Version 2012 December 2012
Our Alignment Strategy

Day 1 - Session 2: The Road to HIMSS Stage 7 Hospital Certification
The Right Focus Drives Outcomes

80% people
15% process
5% technology
Epic at YNHHS/YSM: It’s all in… unless it can’t be

Identity (HIM)
Prelude (Registration)
Cadence (Scheduling)
Resolute - Hospital Billing
Resolute - Professional Billing
Clarity (Reporting)
My Chart (Patient Portal)

Epic Care Inpatient
Willow (Pharmacy)
Radiant (Radiology)
Cardiant/Cupid (Cardiology)
Stork (Obstetrics)
ASAP (Emergency Dept)
OpTime/Anesthesia (Periop)

Epic Care Ambulatory
Phoenix (Transplant)
Beacon (Oncology)
Kaleidoscope (Ophthalmology)

Healthy Planet

2015-16 Adds:
Welcome (Kiosks)
CareManagement
Beaker (Lab)
ICON (Infection Control)

CPM-RC
(care plan content)

Capsule BMDI

Bed Management, EVS, Transport

Helix (Cogito) Data Warehouse
Third Party Complement

- Laboratory (SoftLab) – Epic Beaker implementation in April 2016
- Anatomic Pathology (CoPath)
- Blood Bank (SoftLab)
- Radiation Oncology (Aria)
- Automated Dispensing Devices (Pyxis)
- CTMS (Oncore)
- PACS (Fuji)
- Document Management (McKesson HPF)
- ECG (Tracemaster)
Improving Quality & Safety

♦ A single, integrated record across all sites of care
♦ Barcode Medication Verification
♦ Interdisciplinary care planning (CPM-RC)
♦ Integrated Fetal Monitoring (OBIX)
♦ Bio-medical Device Integration (BMDI)- all IP units
♦ e-Prescribing (Surescripts)
♦ Electronic discharge instructions (ExitCare)
♦ Real time eligibility checking (Emdeon); computer assisted coding (3M)
♦ Scanned image and document management solutions (McKesson HPF;ImageNow)
♦ Legacy data access (Mediquant DataArk)
♦ Multi-media patient outreach and education (Emmi)
Enhancing Timely Electronic Access

Streamline handling of paper documents
Eliminate confusion about data sources
Collaboration between HIM, Clinicians, Unit Staff and ITS
A Picture is Worth 1,000 Words...
Reporting & Analytics Infrastructure & Tools

Ontologies Used in Helix:
- ICD-9 & ICD-10
- LOINC
  - Also used for i2b2
- SNOMED
- CPT codes
- HCUPs
- RxNorm
Helix Reporting Tools:
- Reporting Workbench
- Crystal Reports
- Radar Dashboards
- Epic Registries
- SAP Business Objects
- Tableau
- i2b2
- Slicer Dicer in validation stage
Day 1 - Session 2: The Road to HIMSS Stage 7 Hospital Certification

Reporting Lifecycle

- Single online form for all JDAT requests
- Daily triage 8:30a
- Quick wins
  - Cancer Hospital
  - ED
  - Clinical Redesign
  - Research
  - Financial/Ambulatory
- Weekly 1:1 with Managers to ‘run the list’
  - Customer online portal
- Weekly tracking of analyst billing & workload
- Helix brand
  - Managers close projects
- Web based survey automatically emailed when projects marked complete
- Searchable wiki of all reports for customers
- Wiki of common queries for analysts
Interoperability and Data Exchange

Today, at no cost, every physician in Connecticut can log in at any time from anywhere and view the full patient record of each one of their patients cared for by YNHHS.
YNHHS is part of the largest exchange network in the country.

Data exchange strategies leverage direct access, direct messaging, interfaces, application protocols (APIs), and native EMR capabilities including exchanges with:

- Hospitals, long-term care facilities, health agencies, retail clinics
- the local public school system and Social Security Administration, and internationally

Interfaces to commercial EMRs:

- Greenway, athenahealth, eCW, AllScripts, Meditech
Patient Record Exchange Statistics
Yale New Haven Health System and Yale University
Care Everywhere Quarterly Update - July 2015

We've exchanged with organizations spanning 47 states.

45,140 records exchanged in 2015
18,120 records exchanged in 2014
63,771 since Care Everywhere Go-Live in 2011

Top Exchange Partners In 2015

<table>
<thead>
<tr>
<th>Partner Name</th>
<th>Sent</th>
<th>Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYU Langone Medical Center</td>
<td></td>
<td>11,190</td>
</tr>
<tr>
<td>Social Security Administration</td>
<td></td>
<td>6,022</td>
</tr>
<tr>
<td>SureScripts HISP</td>
<td></td>
<td>5,274</td>
</tr>
<tr>
<td>Griffin Faculty Practice</td>
<td></td>
<td>3,854</td>
</tr>
<tr>
<td>CVS/MinuteClinic</td>
<td></td>
<td>2,490</td>
</tr>
<tr>
<td>Partners Healthcare</td>
<td></td>
<td>2,449</td>
</tr>
<tr>
<td>Montefiore Medical Center</td>
<td></td>
<td>1,444</td>
</tr>
<tr>
<td>St Francis Care</td>
<td></td>
<td>813</td>
</tr>
<tr>
<td>Children's Medical Group - Hamden</td>
<td></td>
<td>735</td>
</tr>
<tr>
<td>AdvantageCare Physicians</td>
<td></td>
<td>554</td>
</tr>
</tbody>
</table>
YNHHS Image Exchange

- Image sharing venture between 40 institutions and Yale-New Haven Health System using LifeIMAGE, a third party image sharing provider.

- Supports SkyHealth emergency patient transport helicopter service, where regional image sharing in a timely fashion becomes imperative.

- Supports image sharing across the community of providers with whom we share patients.
YNHHS Data Concierge Service

- Personal calls/visits to referring providers
- Access to EpicCare Link
- Contracts for data interfaces
- Education about Care Everywhere
- Direct messaging address
- CCD, CCD-A exchange via Direct Protocol
Preparing for the Visit

- Select the care units that best demonstrate adoption and culture
  - Medicine/Surgery, ICU, ED, Pharmacy, Radiology, Blood Bank and HIM
- Meet with nurses and physicians to set expectations
- Walk-through with eyes on details
- Daily HIM and Informatics Rounds
- “Not an IT Event”
- Administrative and clinical leadership engagement and presence
- Areas of focus:
  - Use of clinical documentation to drive decision support
  - Paperless-ness throughout
  - Outcomes
  - Convergent validity - presentation to observation; unit-to-unit; within and between departments
  - Down time readiness and awareness
  - What the future holds
Stage 7 Hospitals Uniquely Positioned

- Population health improvement
- Improving performance on Core Measures
- Reducing readmission rates
- Lowering the incidence of infections
- Early identification of possible sepsis
- Decreasing medication error occurrences
- Increasing value