Session 14: Improving Patient Outcomes Through Hardwiring Patient Care
Monday, February 20, 2016

Dr. Ferdinand Velasco, MD, SVP and CHIO
Dr. Joni Padden, DNP, APRN, BC, CPHIMS, NI Specialist
Speaker Introductions:

Dr. Ferdinand Velasco, MD, SVP and CHIO, Texas Health Resources

Dr. Joni Padden, DNP, APRN, BC, CPHIMS, NI Specialist, Texas Health Resources
Texas Health Resources

Mission: To improve the health of the people in the communities we serve.
Conflict of Interest Disclosures

Dr. Ferdinand Velasco
Dr. Joni Padden
Have no real or apparent conflicts of interest to disclose
Agenda

1. Background: organizational context and RCB definition
2. Organizational framework
3. Blueprint life cycle
4. Early results
5. Future direction
Learning Objectives

• Discuss the need for Reliable Care Blueprinting (RCB) and how Texas Health Resources is using technology to support hardwiring of clinical best practices across 14 hospitals.

• Explain the strategic and operational tactics for the entire life cycle of RCB; design, build, implementation, monitoring/measuring.

• Identify challenges and lessons learned through deployment of RCB in managing clinical workflows and EHR/technical requirements to support the work.
STEPS: Treatment/Clinical

RCB led to >50% reduction in CAUTI rates over 9 months

RCB resulted in > 4 % reduction of sepsis mortality
The Hard Work of Health Care Transformation

Richard M.J. Bohmer, M.B., Ch.B., M.P.H.

Governments and regulators influence the performance of health care organizations and practitioners primarily through positive and negative financial incentives, regulatory constraints on their licenses to practice, and support of performance-improvement activities through education, research, and measurement programs. The financial approaches aim to motivate change in the way organizations and practitioners configure their systems and deliver care, under the assumption that once they’re motivated to seek surplus or avoid sanction, they’ll be willing and able to make local operational changes to reduce cost and improve safety, patient experience, and outcomes. Unfortunately, experience shows that although a changed market may be a helpful precondition to local performance improvement, it hardly guarantees effective operational change.
Build a culture of safety and reliability

High Reliability Organization

Reliable Care Blueprinting

Design and implement processes to reliably deliver outcomes-driven care

IDENTIFY CRITICAL STEPS

ENGINEER THE PROCESS

HARDWIRE WORKFLOWS INTO THE CARE ENVIRONMENT

DEPLOY NEW PROCESS TO CARE AT THE BEDSIDE

SUSTAIN AND IMPROVE DESIGN
Reliable Care Blueprinting is Texas Health Resources’ approach to care model design to provide patients a safe, reliable experience at every Texas Health location, every time.

Implementing Reliable Care Blueprinting and principles of High Reliability Organizations will help us fulfill our Mission to improve the health of the people in the communities we serve.
Identify the critical things to achieve outcomes in four categories:
- Keep me safe
- Heal me
- Be kind to me
- …and do it efficiently
- EVIDENCED-BASED

Engineer the process in the most efficient way:
- Staffing
- Skill mix
- Top of license care
- Resource utilization
- Clinical support services

Hardwire workflows/measurement to ensure 100% reliability of the process:
- Care Connect
- Templates/tools
- Supply Chain
- Other assets, as needed

Deploy engineered processes and workflow to the bedside:
- Role-based communication and training plans
- IT and tools implementation
- Measurement/reporting

How do we SUSTAIN and continue to improve our design?
(e.g. governance, KPI alignment, process improvement, etc.)

Measure and REPORT performance to drive iterative cycles of improvement
RCB defines three categories of work to structure the care design efforts

- **Foundational Modules**
  - Every patient, every encounter
  - Vital Signs
  - Fall Prevention
  - Hand Off

- **Situational Modules**
  - Only applies to certain patients
  - Surgical Counts
  - PICC/Central Line
  - CAUTI
  - CLABSI

- **Conditional Modules**
  - Manage the same for specific diagnosis
  - Sepsis
  - COPD
  - Newborn Care
There are six steps in the RCB design processes completed for each care module

1. Define **goals** and outcomes

2. Define the **clinical specifications** to achieve desired outcomes for every patient

3. Identify the **enablers** required to reliably deliver the specifications

4. Depict people, process and technology in an integrated **workflow**

5. Finalize the **functional requirements** for creating the required enablers

6. Identify **process measures** to gauge how progress and success will be tracked
Design teams include technology representatives (clinical & build).

Design teams engineer processes and create Functional Requirements.

Cross-functional technology team designs solution to meet functional requirements.

Conceptual solution reviewed with design team, as needed.

Final build reflects design team requests to make the right thing easy.

Technology build deployed as part of the RCB module.

Integrated communication/education materials developed (including technology enablement).

Reporting requirements included in the build to support sustainment.

RCB organized into 4 phases:

Engage
Design
Deploy
Sustain
Iterative Learning Changes

Changes in Design Teams from Lessons Learned

• Potential impact on workflows during design
  – Current - broader focus on realistic operational design
  – Past - focus was on designing ‘ideal’ state

• Ability to report during design
  – Current - reporting considerations baked into design
  – Past - reporting was established after design

• Build Analysts during design
  – Current - fully integrated into design discussions
  – Past - were in the room but not part of discussion
Align EHR build to each specification

Current order set includes indications but modifications are needed:

– The “other” option needs to be removed.

– “Critically ill patients need for accurate measurements” indication needs to be updated to state “Critically ill patients requiring hourly urine output measurements”
Each module has a Care Blueprint:

- Highlight specifications and process changes that impact physicians
- Includes relevant EHR changes
- Identify the evidence/research utilized in the design of the module
Sustainment

• Sustainment work groups regularly meet to evaluate performance improvement opportunities and develop processes for long-term sustainability

• Each entity has a sustainment lead to support post-deployment local sustainment efforts including review of and response to feedback
  – Wave 1: Over 230 feedback submissions received via the RCB Feedback form
  – Encourage staff to continue utilizing this feedback tool!
Sepsis Enhancements

• Smart order sets based on discipline and location
  – Nursing
  – Inpatient and Emergency Room Physician
• Screening tools based on predictive analytics
  – Inpatient different the Emergency Room
  – Improved visualization of risk scores (MEWS/SIRS)
  – Collapsed in common reports
• Navigator to consolidate information
• Alerts based on location with smart elements to allow clinicians to manage and still keep reminders active

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Frontline Impact and Lessons Learned

CAUTI and Urinary Catheter changes
• Significant change to location of information and place to document *(Moved their cheese)*
• Leveraged the EHR capabilities

CLABSI and PICC/Central lines came several months later
• Experience with foley’s had big impact on how PICC/Central line went
• Lessons learned with PICC/Central Line
  – Iterative Design process
### Genitourinary

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<tr>
<th>Genitourinary Interventions</th>
<th>Urine Characteristics</th>
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<tr>
<td>GU (WDL)</td>
<td>Document UC assess. under Focused Doc</td>
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<tr>
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<td>Genitourinary Interventions</td>
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<td>Voiding Characteristics</td>
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<td>Foley-Urethra...</td>
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<td>catheter, see ...</td>
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- ED to Hosp-Admission (Current): 1000
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<th>High Performing Organizations (Prescriptive Analytics)</th>
<th>Analytics Platform</th>
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<td><strong>Executives</strong></td>
<td>System/Zone RCB Module Goals are being met</td>
<td>System Level Dashboards (Cognos) Monthly/Quarterly/Yearly</td>
<td>CBI EDW</td>
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<td><strong>CMOs, CNOs</strong></td>
<td>RCB Module Entity Goals are being met on a monthly basis</td>
<td>Epic Clarity (BOE/Crystal) Daily/Weekly/Monthly</td>
<td>Epic Clarity</td>
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<tr>
<td><strong>Clinicians</strong></td>
<td>Ensure Entity RCB Goals are being met by monitoring daily activities</td>
<td>Epic Radar/Workbench Real-time</td>
<td>Epic Hyperspace</td>
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<tr>
<td><strong>Clinician Leaders</strong></td>
<td>Real-time Clinician Reporting</td>
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<td>Overall Status</td>
<td>Module Deployment Date</td>
<td>Way</td>
<td>Gro</td>
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Reporting Drill Down

Reports are available by

• Facility
• Department
• Patient
### Central Lines (CVC Type) - Active - Per Entity
- Report completed: Fri 1/6 05:00 PM

<table>
<thead>
<tr>
<th>Primary Location</th>
<th>Total # CVCs</th>
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### Urethral Catheters (Foleys) - Active - Per Entity
- Report completed: Fri 1/6 04:59 PM

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<th>Primary Location</th>
<th>Total # Urethral Catheters</th>
<th># #4 Eyes Missing Documentation</th>
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### Central Lines (CVC Type) - Active - Per Department
- Report completed: Fri 1/6 05:00 PM

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<td>Other</td>
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### Urethral Catheters (Foleys) - Active - Per Department
- Report completed: Fri 1/6 04:59 PM

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### RCB MJR Hip and Knee Summary 1596

**Discharge Date Range:** 8/14/2016 to 8/20/2016

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<th>% No AMB</th>
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<th>% AMB &lt; -6</th>
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#### Patients PT’d 2X Daily

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<th>% Pats Attempted</th>
<th>% Pats Not Attempt</th>
<th>% Pats Not Attempted</th>
<th>% Pats D/C Day 0/1</th>
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**Total:** 109 99 90.8% 10 9.2% 86 78.9% 13 11.9% 79 71 89.9% 8 10.1% 30
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<th>Module</th>
<th>Start Date</th>
<th>Specification</th>
<th>Measure Long Name</th>
<th>Numerator</th>
<th>Denominator</th>
<th>Percentage</th>
<th>Gaps</th>
<th>Trend</th>
<th>Measure Trend Graph</th>
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<tr>
<td>Falls</td>
<td>2/15/16</td>
<td>RCB-39: Fall Risk assessment completed on admission</td>
<td>RCB-39: Fall Risk assessment completed on admission</td>
<td>63,642</td>
<td>65,593</td>
<td>97.9%</td>
<td>1,951</td>
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<td>RCB-40: Fall prevention intervention Documentation Completed within 2 hours</td>
<td>RCB-40: Fall prevention intervention Documentation Completed within 2 hours</td>
<td>26,392</td>
<td>33,192</td>
<td>79.5%</td>
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<td>MJR Hip and Knee</td>
<td>2/15/16</td>
<td>RCB-20: Compliance with Day 0 Ambulation Prior to Mid-Night</td>
<td>RCB-20: Compliance with Day 0 Ambulation Prior to Mid-Night</td>
<td>1,919</td>
<td>2,101</td>
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<td>RCB-21: Documentation of Physical Therapy Completed 2x Daily post-procedure</td>
<td>RCB-21: Documentation of Physical Therapy Completed 2x Daily post-procedure</td>
<td>1,347</td>
<td>1,496</td>
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<td>RCB-15: Indications for a Central Line Documented Daily</td>
<td>RCB-15: Indications for a Central Line Documented Daily</td>
<td>3,683</td>
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<tr>
<td></td>
<td>4/20/16</td>
<td>RCB-43: PICC Line Patients with Maintenance Order Sets Initiated within 24 hours</td>
<td>RCB-43: PICC Line Patients with Maintenance Order Sets Initiated within 24 hours</td>
<td>3,404</td>
<td>4,285</td>
<td>79.4%</td>
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<td>RCB-44: Indications for a PICC Line Documented Daily</td>
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<td>2/15/16</td>
<td>RCB-9: Indications for Urethral Catheter Documented Daily</td>
<td>RCB-9: Indications for Urethral Catheter Documented Daily</td>
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<td>Module</td>
<td>Performance change pre- vs. post-RCB?</td>
<td>Relationship between process and performance?</td>
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<td>Falls</td>
<td>❌ No: only a few entities show a difference in performance</td>
<td>😕 Maybe: some relationship identified between one process measure and outcomes</td>
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<tr>
<td>Urinary catheters</td>
<td>✔ Yes: catheter days and infections have both decreased post-RCB</td>
<td>✔ Yes: avg. catheter days per episode are less than half when process measure met</td>
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<tr>
<td>Hip/ knee</td>
<td>✔ Yes: at 11 out of 13 entities avg. LOS was lower from Feb-Jun 2016 vs. Feb-Jun 2015</td>
<td>✔ Yes: avg. LOS for “compliant” cases is almost half than for “non-compliant” cases</td>
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<tr>
<td>Sepsis</td>
<td>❔ Maybe: modest improvement in mortality</td>
<td>😕 Maybe: improved mortality and LOS for patients compliant with order set use, but not other components of RCB module</td>
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UC – Pre/Post RCB

NHSN Catheter Days and Infections

[Diagram showing catheter days and infections across different categories with specific numbers not transcribed.]
UC – Process compliance analysis

Catheter Days per Catheter Episode
March 2016 - September 2016

Compliant
Non-Compliant

HIMSS17
UC – Outcome analysis
Hip & Knee - Pre/Post RCB

Length of Stay Hip and Knee Impact Analysis
Length of Stay Observed/Expected ratio

Year
THA THAL THAMH THAZ THC THD THDN THFW THHEB THK THP THS THSW THR
1.00 1.15 1.16 1.49 1.45 1.25 1.31 1.24 1.37 1.46 1.45 1.32 1.40 0.99 0.97
0.90 0.62 0.80 1.02 1.11 1.14 1.37 1.46 1.46 1.37 0.87 0.86 0.65 0.66
0.62 0.72 0.65 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96

#HIMSS17
Hip & Knee - Outcome analysis

RCB 20 Hip and Knee Ambulatory Observed /Expected ratio
March 2016 to September 2016

[Bar chart showing observed to expected ratio for various measures and compliance levels]
Hip & Knee - Outcome analysis

RCB -21 Documentation of PT Completed Twice Daily
March 2016 to September 2016

THA, THAL, THAMH, THAZ, THC, THD, THDN, THFW, THHEB, THK, THP, THS, THSW, THR

Measure Names
- Compliant
- Noncompliant

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Sepsis – Pre/Post RCB analysis

2015 vs. 2016 (May-August) Sepsis Outcome Mortality O/E

Year of Discharge
- 2015
- 2016
Sepsis – Outcome analysis

Sepsis Outcome Population Mortality by Order Set Compliance Group (May-August 2016)
Future Direction

- Refine and optimize deployed RCB modules
- Expand across the care continuum
- Calibrate strategic roadmap with workforce capacity to adapt to change
Conclusion

• RCB appears to be achieving promising early results
• Rapidly incorporating lessons learned into process key
• Culture of accountability vital to RCB adoption
Fall rate decreases when assessment done within 4 hours.

RCB Sepsis showing an 11% increase in CMS Core Measure SEP-1.
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THR Physician Consensus Committee

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• Ben Fragano, Clinical Decision Support
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• Jack Germaine, Clinical Business Intelligence
• Shawn-Marie Herring, Clinical Business Intelligence
Questions ???????

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