Care Paths and Reducing Unnecessary Variation

Patient Experience Summit:
Empathy + Innovation

May 19, 2014
U.S. Healthcare is Undergoing Dramatic Change

“Plan or be Planned For”

Russell L. Ackoff
Our strategy for adapting to the change
Shift to a focus on value
What Does ‘Value’ Really Mean?

Value = Outcomes
     Cost

Outcomes
- Quality
- Health Status
- Process
- Experience

Cost
- Event
- Episode
- Per Capita
Drivers of Value

- Unsustainable costs
- Variable quality outcomes
- Transparency
- Dissatisfaction

All providers are at financial and reputational risk
## The Shift

<table>
<thead>
<tr>
<th>Payment</th>
<th>Fee-for-Service</th>
<th>Outcomes Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Acute Episodes</td>
<td>Bundles &amp; Populations</td>
</tr>
<tr>
<td>Role of the Provider</td>
<td>Single Episodes</td>
<td>Care Continuum</td>
</tr>
<tr>
<td>Information</td>
<td>Retrospective</td>
<td>Real-time &amp; Predictive</td>
</tr>
</tbody>
</table>

Fundamentally new orientation & capabilities
Cleveland Clinic Integrated Care Model

A Value-Based Model of Care

- Retail Venues
- Home
- Community-Based Organizations
- Post-Acute (other)
- Independent Physician Offices
- Skilled Nursing Facilities
- MyChart
- CC Clinic
- Emergency
- Ambulatory D&T
- Hospitals
- Rehab
Care Path Defined

- Established multidisciplinary care plan used to optimize the value of care by reducing unnecessary practice variation and cost
  - Evidence or experience-based
  - Not always a single approach
  - Expected practice yet allows judgment
  - Some clinical activities will not apply
Fully Mature Care Path Guide Should Address:

- Quality metrics
- Appropriateness criteria
- Screening & prevention guidelines
- Health status measures
- Cost
Care Path Development Cycle

Create Guide  Develop Plan  Implement Pilot  Leverage Results  Build Technology

Output
- Rationale
- Algorithms
- Metrics
- Process Maps
- Education
- Data Review
- PDCA
- Lessons Learned
- Next Steps

Message
- Case for Change
- Vision
- What, where, when, why of change
- Performance updates
- Adjustments
- Successes
- Recognition

Enables Culture Shift
From Care Path Guides to Implementation

• Care Path Core Team
  - Physician champion (disease-specific)
  - Clinical lead (department-specific)
  - Continuous/Quality Improvement

• Care Path Examples
  - Hip and Knee Replacement
  - Induction of Labor
  - Sepsis
Hip and Knee Replacement Care Path

Create Guide -> Develop Plan -> Implement Pilot -> Leverage Results -> Build Technology

Create Guide
Develop Plan
Implement Pilot
Leverage Results
Build Technology

Leverage
Results

Build
Technology

Create
Guide

Develop
Plan

Implement
Pilot

Leverage
Results

Build
Technology

Create
Guide

Develop
Plan

Implement
Pilot

Leverage
Results

Build
Technology

Create
Guide

Develop
Plan

Implement
Pilot

Leverage
Results

Build
Technology

Create
Guide

Develop
Plan

Implement
Pilot

Leverage
Results

Build
Technology

Create
Guide

Develop
Plan

Implement
Pilot

Leverage
Results

Build
Technology
Knee and Hip Replacement

• Major focus for payors and employers
• Externally reported quality indicators
• Partnering with other organizations
• Cost and quality – transparency is growing
• Need to understand current variation in cost and performance for risk contracting
Guide to Technology Solution

- Goal to use existing technology tools to support clinical practice as described in guide
- Proof of concept of technology solution
- Multidisciplinary group of clinicians, technology, reporting, quality, clinical compliance, process improvement
Dashboard Development

- Metrics to define what parts of care path drive value
- Data by surgeon, facility and service line
- Peer review and peer to peer process improvement
# Results: Improvement in Utilization

<table>
<thead>
<tr>
<th>Month</th>
<th>THA</th>
<th></th>
<th></th>
<th>TKA</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Designation</td>
<td>Note</td>
<td>Both</td>
<td>Designation</td>
<td>Note</td>
<td>Both</td>
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<tr>
<td>January</td>
<td>27%</td>
<td>50%</td>
<td>23%</td>
<td>29%</td>
<td>49%</td>
<td>26%</td>
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<tr>
<td>February</td>
<td>45%</td>
<td>54%</td>
<td>34%</td>
<td>44%</td>
<td>59%</td>
<td>40%</td>
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<tr>
<td>March</td>
<td>54%</td>
<td>71%</td>
<td>48%</td>
<td>62%</td>
<td>81%</td>
<td>58%</td>
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<tr>
<td>1st Quarter</td>
<td>44%</td>
<td>60%</td>
<td>37%</td>
<td>48%</td>
<td>65%</td>
<td>45%</td>
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</table>
Utilization Rates by Surgeon: Slow adopters take extra work: Carrots and Sticks

<table>
<thead>
<tr>
<th>March 2014 Care Path Compliance</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
<th>Percent</th>
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<td></td>
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<td>100.00%</td>
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<td>2</td>
<td></td>
<td>7</td>
<td>71.43%</td>
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<tr>
<td>2</td>
<td>1</td>
<td></td>
<td>3</td>
<td>66.67%</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
<td>3</td>
<td>66.67%</td>
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<tr>
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<td>3</td>
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<td>6</td>
<td>50.00%</td>
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<td>7</td>
<td>42.86%</td>
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<td>2</td>
<td></td>
<td>3</td>
<td>33.33%</td>
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<tr>
<td>2</td>
<td>9</td>
<td></td>
<td>11</td>
<td>18.18%</td>
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<td>1</td>
<td>5</td>
<td></td>
<td>6</td>
<td>16.67%</td>
</tr>
<tr>
<td>1</td>
<td>31</td>
<td></td>
<td>32</td>
<td>3.13%</td>
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<tr>
<td>Grand Total</td>
<td>67</td>
<td>75</td>
<td>142</td>
<td>47.18%</td>
</tr>
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</table>
Early Outcomes

- Physician review of supply cost has reduced the use of miscellaneous supply cost categories by $250k (reduction of 75% on MC)
- Savings $1,200 direct cost per case in four months without change in cost of implant
- Result from following care path and reducing unnecessary variation in practice
Cost and LOS: Rapid Recovery Program

- One of the highest element in our cost is LOS
- LOS before/after care path implementation

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Variable</th>
<th>Care Path</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Pre</td>
</tr>
<tr>
<td>THA</td>
<td>LOS</td>
<td>3.1 days</td>
</tr>
<tr>
<td></td>
<td>Cost</td>
<td>-</td>
</tr>
<tr>
<td>TKA</td>
<td>LOS</td>
<td>3.2 days</td>
</tr>
<tr>
<td></td>
<td>Cost</td>
<td>-</td>
</tr>
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</table>
Structured Documentation: Improves Revenue

- Care path notes have improved documentation
- Better communication which improves provider and physician satisfaction
- DRG assurance has improved also (extra revenue)
Next Steps

- Optimization of technology based upon early findings
- Development of episode bundle products
- Deeper understanding of cost
- Identification of new opportunities for improvement
Lessons Learned

- Improvement in cost and quality occur before full care paths are fully implemented
- Accurate and validated data is required for provider engagement
- Staff education takes time
- Must define best practice and use data to drive to that expectation by provider
- Communication of defined goals and expectation by leadership is critical
Induction of Labor Care Path

Create Guide → Develop Plan → Implement Pilot → Leverage Results → Build Technology
Analysis: Births at ≥ 37 weeks

Induction of Labor: Impact

Outcomes
- C-section rate: 19.4% with vs. 10.2% without
- Longer length of stay

Cost
- Excess cost $3000-$5000 per birth

Care Path Guide
- Medical indications
- Low risk patient: induce at 41 weeks
Induction Pilot: Define & Plan

Define phase

1. Opportunity:
   30% not indicated

2. Pilot team

3. Current state:
   Baseline, process map

Plan phase

1. Future state:
   Metrics, process map

2. Staff notification:
   Go live date.

3. Monitoring plan:
   Weekly data review, PDCA
Induction Pilot: Implement Phase
Go Live December 4, 2013

Induction Request → RN Review

Escalate? [No] → Approve

Yes → Hospitalist/Chair Review

Approve → Review Form
Move Up
Postpone

Review Form
# Pilot Results: Induction Requests

<table>
<thead>
<tr>
<th></th>
<th># Cases since Pilot Launch*</th>
</tr>
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<tbody>
<tr>
<td>Total # Induction Requests</td>
<td>529</td>
</tr>
<tr>
<td>Physician Reviewed</td>
<td>51</td>
</tr>
<tr>
<td>Decision: Move Up</td>
<td>5</td>
</tr>
<tr>
<td>Decision: Postpone</td>
<td>10</td>
</tr>
</tbody>
</table>

1 patient was induced

↓ 20% induction requests

Source: Pilot Birthing Center Induction Log, all requests for induction, 12/4/13-3/31/14
Pilot Results: Induction Rate

Source: EMR data excludes EGA <37wk, 8/2013 – 4/2014
Pilot Results: Door to Admission*

* Admission criteria: 5 cm and/or ruptured membranes
Source: EMR data excludes EGA <37wk, 10/2013 and 2/2014
Induction Pilot: Transition Phase

- Results
- Reward and recognition
- Sustainment plan
- EMR changes
Lessons Learned

- Work with the willing
- Leaders must stay on message
- Care paths are about people: EQ
- Small-scale, rapid cycle
- Communication, rapid revision
- Change paper in minutes, change EMR in months
Sepsis Care Path

Create Guide → Develop Plan → Implement Pilot → Leverage Results → Build Technology
Sepsis

- Systemic response to infection that can lead to acute organ dysfunction (severe sepsis) and hypotension (septic shock)
- Incidence ↑83%
- Mortality 30-45%
- 1 of top 5 most costly diseases ($25,000-$50,000 per episode)
- 2/3 of sepsis patients > 65 years
- 1 of top 5 malpractice claims for ED
Sepsis: Target Opportunities

- Surviving Sepsis Guidelines est. in 2003
- No standard screening process or method
- No adherence to 3- or 6-hr sepsis bundles
- ED average length of stay = 5.5 hours
Severe Sepsis Care Path Guide

- Cross-institute and hospital collaboration
- Goals
  1. Early screening of patients for sepsis
  2. Compliance with 3- and 6-hr sepsis bundles
  3. Expedited admission process
Sepsis Pilot Planning

• Pilot Scope
  - ED arrival → Medical ICU admission
  - Main Campus and Fairview hospitals

• Assemble Team
  - ED, ICU, Pharmacy, RT, Lab, Throughput

• Assess current state
• Design future state
  - Sepsis screening form

Severe Sepsis Screening Tool

1. Are any two of following signs & symptoms of infection both present and new to the patient?
   - YES (2 or more present)
   - NO
   - Hyperthermia > 38.3 °C (101.0 °F)
   - Hypothermia < 36 °C (96.8°F)
   - Tachycardia > 90 bpm
   - Tachypnea > 20 bpm

2. Is the patient’s presentation suggestive of a new, serious infection?
   (E.g. Pneumonia, lung infection, urinary tract infection, meningitis, skin/soft tissue infection, wound infection, etc.)
   - YES
   - NO

If the answer is yes to both questions 1 and 2:
- Order SEPSIS SCREENING PANEL
- CT/RN hand form to Charge Nurse
- Charge Nurse obtain physician signature and hand off form for completion
# Sepsis Care Path

## ED Process Metrics

<table>
<thead>
<tr>
<th>Goal</th>
<th>Metrics</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earlier identification of ED patients with sepsis through triage screening</td>
<td>Positive screening to lactic acid result</td>
<td>≤ 30min</td>
</tr>
<tr>
<td>Expedited ICU admission process from ED</td>
<td>Sepsis alert to ED departure</td>
<td>≤ 60 min</td>
</tr>
<tr>
<td></td>
<td>ED Arrival to ED departure (LOS)</td>
<td>≤ 175 min</td>
</tr>
</tbody>
</table>
Sepsis Pilot
Education and Training

Content
- Disease (incidence, mortality, malpractice)
- Process (screening, bundles, ED LOS)
- Overcoming biases (fluids)

People
- Delivered by ED and ICU physician and nursing leadership
- Delivered to 100% ED/ICU nursing, providers and support
- High level of engagement

Monitoring Plan
- Data collection
- Continuing education
- Process adjustments
Sepsis ED Screening for Sepsis: Rate and Results

Main Campus ED

<table>
<thead>
<tr>
<th>Month</th>
<th>% of ESI 1, 2's &amp; 3's</th>
<th>Positive Patients Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb-14</td>
<td>62%</td>
<td>100%</td>
</tr>
<tr>
<td>Mar-14</td>
<td>40%</td>
<td>200</td>
</tr>
<tr>
<td>Apr-14</td>
<td>44%</td>
<td>150</td>
</tr>
</tbody>
</table>

Fairview ED

<table>
<thead>
<tr>
<th>Month</th>
<th>% Patients Screened</th>
<th>% Positive Patients Identified</th>
<th>Count of Positive Screens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb-14</td>
<td>49%</td>
<td>68%</td>
<td>0</td>
</tr>
<tr>
<td>Mar-14</td>
<td>53%</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Apr-14</td>
<td>68%</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Target 100%
Positive Screening to Lactate Result (30 min)

Main Campus ED

<table>
<thead>
<tr>
<th>Month</th>
<th>N</th>
<th>Average Time (Min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb-14</td>
<td>52</td>
<td>62</td>
</tr>
<tr>
<td>Mar-14</td>
<td>74</td>
<td>36</td>
</tr>
<tr>
<td>Apr-14</td>
<td>53</td>
<td>34</td>
</tr>
</tbody>
</table>

Fairview ED

<table>
<thead>
<tr>
<th>Month</th>
<th>N</th>
<th>Average Time (Min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb-14</td>
<td>78</td>
<td>53</td>
</tr>
<tr>
<td>Mar-14</td>
<td>61</td>
<td>30</td>
</tr>
<tr>
<td>Apr-14</td>
<td>40</td>
<td>28</td>
</tr>
</tbody>
</table>

*Data through 4/19/2014*
ED LOS for Sepsis ICU Admissions (175 min)

Main Campus ED

- Oct-13: 255, N=27
- Nov-13: 297, N=24
- Dec-13: 349, N=26
- Jan-14: 250, N=26
- Feb-14: 284, N=19
- Mar-14: 190, N=28
- Apr-14: 215

↓ 19%
(by 54 min)

Fairview ED

- Nov-13: 314, N=20
- Dec-13: 286, N=20
- Jan-14: 246, N=19
- Feb-14: 237, N=23
- Mar-14: 221, N=26
- Apr-14: 229

↓ 21%
(by 62 min)

*Data through 4/19/2014
Sepsis Care Path
Next Steps

• **ED Process**
  - Cost and discharge destination analysis
  - Plan for sustainment

• **Epic Changes**
  - Order sets
  - Electronic screening alert

• **Process Expansion**
  - Emergency Departments
  - Inpatient floors
Lessons Learned

1. Education: 100%, focus on case for change and address concerns
2. Data: review regularly and act on it (challenge of communication)
3. Process: must be simple and automation must occur quickly to hardwire results
Summary

• Strong physician and nursing champions

• Iterative communication focusing on individual caregiver concerns with change

• Performance data must be reviewed and shared (foundation for culture change)

• Optimal approach is pilot → learn → build
Care Path Development Cycle

Create Guide → Develop Plan → Implement Pilot → Leverage Results

Output:
- Rationale
- Algorithms
- Metrics

Message:
- Case for Change
- Vision
- What, where, when, why of change

Enables Culture Shift
Value is Created by Care Redesign

Traditional fragmented delivery

New Model of Care

Value creation
Management of the cost associated is required as our payment system evolves.

New model of care

Contracted cost savings

Health System Opportunity

New model of care

Cost

Savings

Time
Cleveland Clinic Integrated Care Model
A Value-Based Model of Care

Retail Venues
Home
Community-Based Organizations
Post-Acute (other)
Independent Physician Offices
Skilled Nursing Facilities
Rehab
MyChart
Ambulatory D&T
Hospitals
Emergency
CC Clinic
Cleveland Clinic

Every life deserves world class care.