Nursing: a Catalyst to Drive Value in Healthcare

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Beatrice Renfield Lecture
Rockefeller University
March 20, 2018
Objectives

- Briefly discuss value as a driver of contemporary healthcare

- Provide selected examples of nurses driving value in health care settings

- Discuss how this work can serve as a catalyst for improving health
The Volume to Value Transformation

- 1990s Managed Care Era focus on cost containment

- 2005-2008: CMS proposed P4P as a solution to the sustainable growth rate

- Transition from fee-for-service to alternate payment models
  - Changing how we get paid for health care services

- Transition from solo practices and freestanding hospitals to medical homes, accountable care organizations, large hospital systems, and organized clinics
  - Changing how we organize and deliver health care services

Our goal is to have 50% of Medicare payments tied to quality by the end of 2018.

**Rewards volume**
- The more you do, the more you get paid

**Rewards value**
- Higher revenue for higher quality

Strategies to Drive Value in Health Care

- Value-Based Payments (Upside/Downside)
- Bundles...managing patients and care across time
- Accountable Care Organizations
- Patient-Centered Medical Homes
- Oncology Medical Homes
- MIPS (Merit Based Incentive Payment System)
- MACRA (Medicare Access and CHIP Reauthorization Act of 2015)
What does Value Mean?

- Quality divided by cost\(^1\)
- Higher quality for lower cost
- Health outcomes achieved per dollar spent\(^2\).
- Outcomes that matter to patients over the cost of delivering those outcomes


In the history of modern healthcare, there has not be a better time to capitalize on the knowledge and skills of nurses.
Selected Nursing Exemplars

- Reaching for Zero Defect CAUTI Rates
- The Mepilex® Story in Cardiac Surgery
- Letting APPs Practice
- Enriching Patient Experience Through Effective Nurse Communication
Reaching for Zero Defect in CAUTI Rates

- Bridget Major-Joynes, MSN, RN and Sitha Dy, MSN, RN, CCNS

- Led UTI-EBP group that drove broad nursing efforts to translate infection prevention-related evidence into clinical practice

- Identified and studied best practice on one unit
  - Nurses had implemented CDC Guidelines which outlined a process for nurse-initiated removal of indwelling urinary catheters. Systematically assessed need and dialogued with providers

- Proposed expansion of this practice across the organization and system

- Convened IP group, developed EB protocol, translated to EMR, piloted, educated, implemented, and continuously evaluate
Implications of Good CAUTI Control Practices

Data Source: NDNQI, 2014

Hospital of the University of Pennsylvania Cost Assessment

- Catheter-associated UTIs increase the direct costs by $11,800
- Catheter-associated UTI increases Length of Stay by 17.8 days
CAUTI Counts, UPHS, Q3 2012- Q2 2018

- **HUP:**
  - FY12 Q3: 47
  - FY12 Q4: 58
  - FY13 Q1: 55
  - FY13 Q2: 49
  - FY13 Q3: 40
  - FY13 Q4: 56
  - FY14 Q1: 37
  - FY14 Q2: 33
  - FY14 Q3: 40
  - FY14 Q4: 11
  - FY15 Q1: 10
  - FY15 Q2: 17
  - FY15 Q3: 19
  - FY15 Q4: 16
  - FY16 Q1: 13
  - FY16 Q2: 16
  - FY16 Q3: 14
  - FY16 Q4: 16
  - FY17 Q1: 15
  - FY17 Q2: 7
  - FY17 Q3: 14
  - FY17 Q4: 17
  - FY18 Q1: 11

- **PPMC:**
  - FY12 Q3: 2
  - FY12 Q4: 7
  - FY13 Q1: 4
  - FY13 Q2: 3
  - FY13 Q3: 4
  - FY13 Q4: 1
  - FY14 Q1: 3
  - FY14 Q2: 7
  - FY14 Q3: 5
  - FY14 Q4: 4
  - FY15 Q1: 1
  - FY15 Q2: 3
  - FY15 Q3: 7
  - FY15 Q4: 3
  - FY16 Q1: 3
  - FY16 Q2: 6
  - FY16 Q3: 6
  - FY16 Q4: 6
  - FY17 Q1: 6
  - FY17 Q2: 5
  - FY17 Q3: 6
  - FY17 Q4: 6
  - FY18 Q1: 4
  - FY18 Q2: 2

- **PAH:**
  - FY12 Q3: 10
  - FY12 Q4: 8
  - FY13 Q1: 7
  - FY13 Q2: 6
  - FY13 Q3: 7
  - FY13 Q4: 6
  - FY14 Q1: 7
  - FY14 Q2: 5
  - FY14 Q3: 7
  - FY14 Q4: 2
  - FY15 Q1: 6
  - FY15 Q2: 6
  - FY15 Q3: 7
  - FY15 Q4: 2
  - FY16 Q1: 7
  - FY16 Q2: 7
  - FY16 Q3: 2
  - FY16 Q4: 4
  - FY17 Q1: 2
  - FY17 Q2: 0
  - FY17 Q3: 2
  - FY17 Q4: 2
  - FY18 Q1: 4

- **CCH:**
  - FY12 Q3: 6
  - FY12 Q4: 1
  - FY13 Q1: 4
  - FY13 Q2: 8
  - FY13 Q3: 6
  - FY13 Q4: 7
  - FY14 Q1: 3
  - FY14 Q2: 1
  - FY14 Q3: 1
  - FY14 Q4: 2
  - FY15 Q1: 2
  - FY15 Q2: 3
  - FY15 Q3: 2
  - FY15 Q4: 3
  - FY16 Q1: 2
  - FY16 Q2: 0
  - FY16 Q3: 1
  - FY16 Q4: 2
  - FY17 Q1: 2
  - FY17 Q2: 2
  - FY17 Q3: 2
  - FY17 Q4: 2
  - FY18 Q1: 2

**Important Dates and Events:**
- **4/2014:** NDRP
- **11/2015:** RUA/reflex urine culture CDS
- **1/2015:** NHSN definition change—exclude low colony count cultures and candiduria
How does this practice change drive value?

CAUTI reduction lowered additional costs across the 4 hospitals by an estimated $5.1M and freed up 7,753 patient days in the post period (this does not include back fill opportunity).

### Average Additional Costs per Quarter Due to CAUTI

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
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<tbody>
<tr>
<td>$532,311</td>
<td>$165,200</td>
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### Average Additional Patient Days per Quarter Due to CAUTI

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
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<tbody>
<tr>
<td>803 days</td>
<td>249 days</td>
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</table>

### Total Additional Costs in Post Period if Performed at Avg Pre Levels

<p>| | |</p>
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<tbody>
<tr>
<td>$7,452,356</td>
<td>Difference = $5.1M</td>
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</table>

### Total Additional Patient Days in Post Period if Performed at Avg Pre Levels

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>11,242 days</td>
<td>Difference = 7,753 days</td>
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</table>

### Total Actual Additional Costs in Post Period

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>$2,312,800</td>
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</table>

### Total Actual Additional Patient Days in Post Period

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<tbody>
<tr>
<td>3,489 days</td>
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Note: Additional CAUTI costs are based on 60% of direct costs.
Supply Standardization

- OPEN OUTSIDE STERILE FIELD
- DON STERILE GLOVES
- MAINTAINING ASEPTIC TECHNIQUE
- CUFF END
Improving Care in Cardiac Surgery
Preventing Deep Tissue Injuries Post-Op

- **Problem: Nurses noted patients developing deep tissue injuries (DTIs) within days following cardiac surgery (CSU)**
  - DTI: serious type of pressure injury that rapidly deteriorates despite optimal treatment
  - DTI pathophysiology not yet well understood; bone/muscle interface
  - Multiple risk factors: age, BMI, anemia, vasopressors, length of surgery, time on bypass, comorbidities, etc.
  - Like stage 3 or 4 pressure injuries, DTIs are a “never event” per CMS
  - Pre intervention incidence: 2.3%

- **Proposed Intervention: Apply prophylactic foam dressing**
  - Emerging evidence
  - Molnlycke 9X9 Mepilex® Border Sacrum Dressing X 5 days
  - Collaborated with nurses across units
  - Post intervention incidence 0%
  - Maintained at 0 since February 2016
Deep Tissue Injuries Following Cardiac Surgery

Proposed intervention: prophylactic sacral foam dressing

Deterioration of DTI discovered immediately post-op to patients’ skin

1 Rao, Preston, Strauss, Stamm, & Zalman (2016). Risk Factors Associated with Pressure Ulcer Formation in Critically Ill Cardiac Surgery Patients: A Systematic Review. JWOCN.
How does this practice change drive value?

**37 fewer patients per year develop a DTI**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Average Additional Costs per DTI</td>
<td>$40,200</td>
</tr>
<tr>
<td>Average Additional Patient Days Due to DTI</td>
<td>40.8 days</td>
</tr>
<tr>
<td>Total Additional Costs Due to DTI (n = 37)</td>
<td>$1,487,400</td>
</tr>
<tr>
<td>Total Costs of Mepilex Dressings ($9.80 x 2800)</td>
<td>$27,440</td>
</tr>
<tr>
<td>Total Additional Patient Days Due to DTI (n = 37)</td>
<td>1509.6 days</td>
</tr>
</tbody>
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DTI reduction lowered additional costs by an estimated $1,459,960 ($1,487,400 - $27,440) and freed up 1509.6 patient days (this does not include back fill opportunity).
How do these nursing initiatives drive value?

- Improvements in *outcomes that matter to patients*

- Better care

- Lowers costs

- Drives standardization of practice and supplies

- Drives efficiency

- Promotes autonomy

- Improves organizational revenue
Developing a Nurse Communication “Bundle”

**Shaping the Patient Experience**

- Setting the Stage and Expectation – Nursing Orientation
- Unit-specific goals…*driven by data* through front line leaders
- Leonard Davis Institute Study – Understanding patient perceptions, salient episodes
- Continuum-based thinking – It’s not just the discharging units! SPEACS in critical care
- Let’s get patients and families front and center – PCNR
- SCIP Phones
Nurse Communication Bundle Timeline Slide

HUP Nurse Comm Scores

- Nursing Orientation
- Unit Goals
- PCNR
- LDI Study
- SPEACS
- SCIPs

HUP Nurse Comm Scores
## Financial Impact of Improving Nurse Comm

### HCHAPS Reimbursement for Nurse Communication

<table>
<thead>
<tr>
<th></th>
<th>FFY 16</th>
<th>FFY 17</th>
<th>FFY 18 (Estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(9,100)</td>
<td>91,000</td>
<td>130,200</td>
<td></td>
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</tbody>
</table>

Data Source: Hospital Association of Pennsylvania, 2018
What did the LDI study uncover?

Patients identify **specific behaviors** that convey **courtesy & respect, careful listening and specific moments** when these behaviors matter most.

**What behaviors can nurses employ to strengthen communication with patients?**

- Introduce yourself, *explain why you’re there*
- Provide *undivided attention*
- Be *mindful of the environment*
- **Elicit concerns** up front
- Take concerns seriously
- Provide *time frames for follow up*
- **Check back with patient** even if concern isn’t resolved
- Engage in *patient-centered nurse report*
- **Protect sleep:** check in with patients *overnight*
- Avoid jargon, be gentle and honest during *invasive/ painful procedures*
- Provide *step-by-step explanations with return demos* when teaching

**When do these behaviors matter most?**

- Entering patient room
- Night time
- Painful/ invasive procedure (e.g., shots)
- Responding to individual concern
- Responding to vulnerable moments
- At discharge
Improving Communication with Non-Vocal ICU Patients

**SPEACS Intervention:** Algorithm to determine patients’ communication preferences and ability and use of assistive communication methods

<table>
<thead>
<tr>
<th>Date Range</th>
<th>n</th>
<th>Pre-Implementation</th>
<th>Post-Implementation</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-Jun-15 to 23-Jun-15</td>
<td>136</td>
<td>17.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-Jun-15 to 9-Aug-15</td>
<td>122</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-Aug-15 to 23-Aug-15</td>
<td>89</td>
<td>16.8</td>
<td></td>
<td>0.004</td>
</tr>
<tr>
<td>24-Aug-15 to 6-Sep-15</td>
<td>109</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-Sep-15 to 20-Sep-15</td>
<td></td>
<td>11.7</td>
<td></td>
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</tr>
</tbody>
</table>

* Ease of Communication Score

- *p = 0.004*
Mobilization in Neurosurgical Patients

- **Problem:** Neurocritical care nurses concerned about limited mobility in patients with subarachnoid hemorrhage who have EVDs
  - Historical conservative approach to activity for patients with an EVD
  - High fall risk
  - Impulsivity
  - Concerns about exacerbating delayed cerebral ischemia
  - Potential complications of mobilizing patients with an EVD (catheter dislodgement, over-drainage of CSF, infection)

- **Developed a standard mobility protocol with specific inclusion and exclusion criteria to test 2 different mobility interventions**
  - **Inclusion:** SAH, EVD, able to tolerate drain clamping x 20 minutes
  - **Exclusion:** Sustained ICP > 20, unstable neuro exam, pulmonary or cardiovascular instability, unable to tolerate 20 minutes of drain clamping, patient refusal
### Methods

**Phase 0:** No mobilization until EVD removal

<table>
<thead>
<tr>
<th>Phase I</th>
<th>Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT/OT (therapy)-driven mobility</td>
<td>Nurse-driven mobility</td>
</tr>
<tr>
<td>Activity only during PT/OT sessions</td>
<td>Nurses independently mobilize patients; able to mobilize patients prior to PT/OT evaluation</td>
</tr>
<tr>
<td>Continuous RN and therapist observation</td>
<td>Allowance to stay out of bed in a chair with intermittent nursing assessment</td>
</tr>
<tr>
<td>Average duration of activity: 32 minutes</td>
<td>Maximum time out of bed with drain clamped: 3 hours</td>
</tr>
</tbody>
</table>
| Bedside activity:  
  • Sit at edge of bed  
  • Stand at bedside  
  • March in place | Progressive mobility:  
  • Lift to chair  
  • Stand and pivot  
  • Mobility in hallway |
## Results

<table>
<thead>
<tr>
<th></th>
<th>Phase 0 (N = 15) No mobility</th>
<th>Phase 1 (N = 24) Therapy-Driven</th>
<th>Phase 2 (N = 17) Nurse-Driven</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Mobilization</td>
<td>20.1 days (± 7.02)</td>
<td>6.0 days (± 3.16)</td>
<td>4.9 days (± 3.46)*</td>
</tr>
<tr>
<td>No. Sessions</td>
<td>0</td>
<td>3.0 (± 1.33)</td>
<td>7.1 (± 4.37)*</td>
</tr>
<tr>
<td>Hospital LOS</td>
<td>28.2 (± 10.08)</td>
<td>24.6 (± 8.29)</td>
<td>20.9 (± 7.56)</td>
</tr>
<tr>
<td>ICU LOS</td>
<td>21.4 (± 8.74)</td>
<td>18.7 (± 6.00)</td>
<td>16.1 (± 7.53)</td>
</tr>
<tr>
<td>Ventilator Days</td>
<td>12.3 (± 13.89)</td>
<td>6.3 (± 10.47)</td>
<td>3.1 (3.84)</td>
</tr>
<tr>
<td>Tracheostomy</td>
<td>40%</td>
<td>16.7%</td>
<td>0</td>
</tr>
<tr>
<td>Discharge Disposition</td>
<td>Home = 6.7%</td>
<td>Home = 33.3%</td>
<td>Home = 29.4%</td>
</tr>
<tr>
<td></td>
<td>Rehab = 53.3%</td>
<td>Rehab = 54.2%</td>
<td>Rehab = 70.6%</td>
</tr>
<tr>
<td></td>
<td>LTACH = 33.3%</td>
<td>LTACH = 8.3%</td>
<td>LTACH = 0</td>
</tr>
<tr>
<td></td>
<td>Acute Care Hospital = 6.7%</td>
<td>SNF = 4.2 %</td>
<td>SNF = 0</td>
</tr>
</tbody>
</table>
Care Variation

- Major area of focus as healthcare shifts from volume to value

- Recent study from the Advisory Board Company showed that more hospital CFOs consider care variation reduction their single most important cost opportunity (ahead of labor and supplies)

- One study of 1000 hospitals estimated that the typical organization has the potential to save $20M-30M through reductions in care variation
How well are we doing?

Original Scholarship

Transformation of the Health Care Industry: Curb Your Enthusiasm?

LAWTON R. BURNS and MARK V. PAULY

The Wharton School, University of Pennsylvania
Connecting Quality + Value at the Front Line

https://vimeo.com/arsenalmediaworks/review/230835886/2664731519