Emory Healthcare’s Approach to Clinical Effectiveness

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Director, New Care Models, Emory Healthcare
Disclosures

- Consultant, NeuroOne, Inc.
- Board Member, Georgia Tech Masters of Science in Analytics
- Expert witness, Bradley Arant Bolt and Cummings LLP
Objectives

- Define the impetus for change within a health system
- Describe payment models affecting health care requiring clinical innovation
- Describe Emory Healthcare’s Value Acceleration Program – Clinical Effectiveness
- View the data dashboard that makes improvement possible
- Describe success metrics
The pace of change to the new model varies significantly by market and health system.
The Association Between Hospital Finances and Complications After Complex Abdominal Surgery

Deficiencies in the Current Health Care Reimbursement System and Implications for the Future

William S. Knechtle, MPH,* Sebastian D. Perez, MSPH,* Rachel L. Medbery, MD,† Bryce D. Gartland, MD,‡ Patrick S. Sullivan, MD,§ Stuart J. Knechtle, MD,¶ David A. Kooby, MD,§ Shishir K. Maithel, MD,§ Juan M. Sarmiento, MD,† Virginia O. Shaffer, MD,† Jahnavi K. Srinivasan, MD,† Charles A. Staley, MD,§ and John F. Sweeney, MD†
Contracting Model: Shared Savings Model

Cost per patient per year

Time

Unmanaged Performance
Savings
Contributed to bonus opportunity
Actual Performance

Distributed based on quality performance
Capitation

- Capitation
- Fixed Costs
- Variable Costs
- Revenue (PMPM *# lives)
- Net Income
- Net Loss
- Fixed Costs
- Volume

Net Income

Net Loss

Variable Costs

Revenue (PMPM *# lives)
PAYMENT MODELS
RISK VS. REWARD VS. SYSTEM CHANGE

Fee for Service
Pay for Performance
Bundled Payments
Shared Savings
Capitation
Provider & Payer
System Redesign
Individual Effort
Team Redesign
System Transformation

Accountability for Outcomes/Experience/Cost
Reward or Performance
How do we maximize value for our patients and remain competitive as a health system?

How do we reduce internal variation to streamline care?

How do we make Emory Healthcare the premier destination to receive care for a specific illness?
Value Acceleration Program: Clinical Effectiveness (VAP-CE)
The Average Variable Direct Cost of the best performing hospital across the system becomes the target for all the cases in the system. The best performing hospital can change by MSDRG. Cases already below the target ("favorable variance") are excluded.
<table>
<thead>
<tr>
<th>Clinical Value Bundle</th>
<th># Encounters</th>
<th>Annualized Low Opportunity ($M)</th>
<th>Annualized High Opportunity ($M)</th>
<th>% of Total Annualized Low Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECMO or Trach</td>
<td>248</td>
<td>$3.08</td>
<td>$4.58</td>
<td>7%</td>
</tr>
<tr>
<td>Leukemia</td>
<td>492</td>
<td>$1.67</td>
<td>$2.45</td>
<td>4%</td>
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<tr>
<td>Septicemia</td>
<td>866</td>
<td>$1.58</td>
<td>$2.35</td>
<td>4%</td>
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<tr>
<td>Cardiac Valve Procedure – TAVR</td>
<td>530</td>
<td>$1.56</td>
<td>$2.59</td>
<td>3%</td>
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<tr>
<td>Craniotomy</td>
<td>484</td>
<td>$1.39</td>
<td>$2.08</td>
<td>3%</td>
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<tr>
<td>Major Cardiovascular Procedure</td>
<td>287</td>
<td>$1.38</td>
<td>$2.02</td>
<td>3%</td>
</tr>
<tr>
<td>Spinal</td>
<td>830</td>
<td>$1.19</td>
<td>$1.95</td>
<td>3%</td>
</tr>
<tr>
<td>Small &amp; Large Bowel Procedure</td>
<td>445</td>
<td>$1.11</td>
<td>$1.66</td>
<td>2%</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>937</td>
<td>$0.91</td>
<td>$1.40</td>
<td>2%</td>
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<tr>
<td>Intracranial Hemorrhage/Infarct</td>
<td>477</td>
<td>$0.82</td>
<td>$1.19</td>
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<tr>
<td>Extensive OR Procedure Unrelated to Principal Diagnosis</td>
<td>176</td>
<td>$0.73</td>
<td>$1.06</td>
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<tr>
<td>Psychological and Behavior Disorders</td>
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<td>Circulatory System Diagnosis</td>
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<td>$0.99</td>
<td>2%</td>
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<tr>
<td>Lymphoma</td>
<td>200</td>
<td>$0.67</td>
<td>$0.99</td>
<td>1%</td>
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<tr>
<td>Infectious &amp; Parasitic Diseases w OR Procedure</td>
<td>144</td>
<td>$0.64</td>
<td>$0.96</td>
<td>1%</td>
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<tr>
<td>Kidney &amp; Urinary Tract Diagnosis</td>
<td>304</td>
<td>$0.63</td>
<td>$0.92</td>
<td>1%</td>
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<tr>
<td>Stenting Procedure</td>
<td>485</td>
<td>$0.62</td>
<td>$0.99</td>
<td>1%</td>
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<tr>
<td>Lower Extremity Joint</td>
<td>1462</td>
<td>$0.61</td>
<td>$1.00</td>
<td>1%</td>
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<tr>
<td>Skin Graft</td>
<td>160</td>
<td>$0.61</td>
<td>$0.89</td>
<td>1%</td>
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<tr>
<td>Red Blood Cell Disorder</td>
<td>493</td>
<td>$0.57</td>
<td>$0.84</td>
<td>1%</td>
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<tr>
<td>Diagnostic Cath</td>
<td>302</td>
<td>$0.55</td>
<td>$0.80</td>
<td>1%</td>
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<tr>
<td>Vascular Procedure</td>
<td>242</td>
<td>$0.52</td>
<td>$0.78</td>
<td>1%</td>
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<tr>
<td>Stomach, Esophageal &amp; Duodenal Procedure</td>
<td>204</td>
<td>$0.52</td>
<td>$0.77</td>
<td>1%</td>
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<tr>
<td>Circulatory System OR Procedure</td>
<td>121</td>
<td>$0.51</td>
<td>$0.70</td>
<td>1%</td>
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<tr>
<td>Coronary Bypass</td>
<td>322</td>
<td>$0.49</td>
<td>$0.81</td>
<td>1%</td>
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<tr>
<td>Renal</td>
<td>450</td>
<td>$0.48</td>
<td>$0.73</td>
<td>1%</td>
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<tr>
<td>GI Hemorrhage</td>
<td>383</td>
<td>$0.44</td>
<td>$0.66</td>
<td>1%</td>
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<tr>
<td>Coagulation Disorder</td>
<td>40</td>
<td>$0.42</td>
<td>$0.59</td>
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<tr>
<td>Lower Extremity Ortho</td>
<td>234</td>
<td>$0.40</td>
<td>$0.62</td>
<td>1%</td>
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<tr>
<td>Liver Disorder</td>
<td>201</td>
<td>$0.40</td>
<td>$0.58</td>
<td>1%</td>
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<tr>
<td>TOP 30</td>
<td>12418</td>
<td>$25.91</td>
<td>$39.02</td>
<td>57%</td>
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<tr>
<td>Grand Total</td>
<td>30271</td>
<td>$45.20</td>
<td>$68.35</td>
<td>100%</td>
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</table>
## EHC Executive Leadership Team

<table>
<thead>
<tr>
<th>Leadership</th>
<th>MD Lead (Gregory Esper)</th>
<th>PMO Lead (Christina Hummel)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data Lead (Mathu Kumarasamy)</td>
<td>Finance Lead (Karen O’Donald)</td>
</tr>
<tr>
<td>Support</td>
<td>Project Manager Consultant</td>
<td>Project Manager Consultant</td>
</tr>
<tr>
<td>Teams</td>
<td>Teams</td>
<td>Teams</td>
</tr>
<tr>
<td></td>
<td>Spine</td>
<td>Sepsis</td>
</tr>
<tr>
<td>Team Lead</td>
<td>Pam Sapp</td>
<td>Mary Still</td>
</tr>
<tr>
<td>Physician Champion</td>
<td>Scott Boden (Dan Refai)</td>
<td>David Murphy</td>
</tr>
<tr>
<td>Members</td>
<td>nurses, anesthesia, admin, ops, docs, purchasing</td>
<td>nurses, care coord, docs, pharmacy</td>
</tr>
</tbody>
</table>

### Entity leads report to CEEOC

Entity leadership

DATA

Master Dashboard with Democratized Data
EXECUTIVE STEERING COMMITTEE / SYSTEM GROUP

SYSTEM MD AND RN LEAD

ESJH MD and RN Lead
EUHM MD and RN Lead
EUH MD and RN Lead
EJCH MD and RN Lead

ESJH CEEOC
EUHM CEEOC
EUH CEEOC
EJCH CEEOC
Benefit Tracking and the General Ledger

<table>
<thead>
<tr>
<th>Line Item costs</th>
<th>Cost Buckets</th>
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</thead>
<tbody>
<tr>
<td>Neuromonitoring Charges</td>
<td>Direct Variable Cost – Labor and Benefits</td>
</tr>
<tr>
<td>Cellsaver Charges</td>
<td>Direct Variable Cost – Implants</td>
</tr>
<tr>
<td>Joint Prices</td>
<td>Direct Variable Cost – Drugs</td>
</tr>
<tr>
<td>Aquamantys Charges</td>
<td>Direct Variable Cost – Med Surg</td>
</tr>
<tr>
<td>Length of Stay</td>
<td>Direct Variable Cost – Blood Products</td>
</tr>
<tr>
<td>ICU utilization</td>
<td></td>
</tr>
</tbody>
</table>

emoryhealthcare.org/brainhealth
VAP CE Process

**Design (8 wks)**
- Define Opportunities
- Define Tangible workflows
- Define Execution plan

**Implement (8 wks)**
- Implement execution plan
- Track improvements
- Tests of change

**Sustain and Evolve**
- CQI
- Iterate - existing processes
- Define and execute new processes
DATA TRACKING

QUALITY
- MORTALITY
- HACs
- PSIs

PROCESS
- Order set use
- Discharge timing
- Consult utilization

PATIENT SATISFACTION
- Likelihood to Rec
- HCAHPS Individual questions

COST
- Internal Cost
- External Cost
Specifics of Design Work

1. Analysis of the data, identify variation
2. LOS reduction opportunities including ICU LOS
3. Coding Documentation Initiative opportunities
4. Supply chain opportunities
5. Pharmacy opportunities
6. Order set standardization
7. Labor / FTE efficiencies (especially overtime and contract labor)
8. Market Analysis (GA and Southeast) to show the business opportunities
9. Aggressively manage the introduction of new technology and research initiatives.
Specifics of Implementation

- Physician consensus calls across entities (e.g. Ortho)
- At least every other week team meetings
- Weekly meetings of subgroups (i.e. ERAS)
- Develop and follow Key Performance Indicators (quality/safety, finance, pt sat)
- Begin report cards on KPIs
- **Process work on Design initiatives:**
  - order set implementation to reduce LOS
  - supply chain reduction
  - Pharmaceutical reduction
  - CDI changes
- **Realize projected one-time savings immediately**
The Dynamic Democratization of Data
Welcome to the VAP CE KPI Dashboard. This tool is used to monitor the progress of ongoing VAP CE teams. This dashboard houses quality, process, satisfaction, and financial data which is available at the encounter level.

Please click the video link below for a tutorial on how to navigate the dashboard. For additional assistance, please contact Mathu A. Kumarasamy at mathu.kumarasamy@emoryhealthcare.org.
Dashboard View

Vizient "External" LOS Index (Actual / Expected)

Vizient "External" LOS Index By Month

Vizient 30-Day All-Cause Readmission Rate By FY

Vizient 30-Day All-Cause Readmission Rate By Month

Vizient Mortality Index (Observed / Expected) By FY

Vizient Mortality Index (Observed / Expected) By Month

Mortality Rate By FY

Mortality Rate By Month

HACs & PSI5s By FY

HACs & PSI5s By Month
Total Average Direct Variable Cost

- **SOCIETY FOR HEALTH SYSTEMS**

**Total Average Direct Variable Cost Per Encounter By Fiscal Year**
- **FINANCE**
  - **MS DRG VNP Category**
    - **(A)**
  - **Healthcare Entity**
    - **(A)**
  - **Inlier/Outlier Indicator**
    - **(A)**

**Labor and Benefits Average Variable Direct Cost Per Encounter**

**Implants Average Variable Direct Cost Per Encounter**

**Drugs Average Variable Direct Cost Per Encounter**

**Med Surg Average Variable Direct Cost Per Encounter**

**Blood Product Average Variable Direct Cost Per Encounter By FY**
Provider view – LE joints
Sepsis Mortality rate FY 14-17

Mortality Rate By FY

- FY 2014: 11.41%
- FY 2015: 7.92%
- FY 2016: 7.47%
- FY 2017: 8.14%
Vizient 30-day All Cause RAR FY 14-17

Vizient 30-Day All-Cause Readmission Rate By FY

- FY 2014: 12.77%
- FY 2015: 12.94%
- FY 2016: 12.48%
- FY 2017: 11.73%
Sepsis “Pre-Post implementation” Analysis

**Sepsis DRG SOI and ROM**

- **SOI**
- **ROM**

**Sepsis Patient Financial Group**

- Blue Cross
- HMO
- Medicaid
- Medicare
- Other
- PPO
- Self-Pay

[Graphs showing pre, implementation, and post data for Sepsis DRG SOI and ROM, and Sepsis Patient Financial Group.]
# Sepsis “Pre-Post implementation” Analysis

<table>
<thead>
<tr>
<th>Metric</th>
<th>Pre</th>
<th>Post</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td># Patients</td>
<td>3977</td>
<td>5588</td>
<td>0.000001</td>
</tr>
<tr>
<td>30-day readmission rate</td>
<td>9.30%</td>
<td>11.90%</td>
<td>0.000001</td>
</tr>
<tr>
<td>Mortality</td>
<td>13.30%</td>
<td>7.90%</td>
<td>0.000001</td>
</tr>
<tr>
<td>Power Plan encounters</td>
<td>18.60%</td>
<td>61.30%</td>
<td>0.000001</td>
</tr>
<tr>
<td>LOS</td>
<td>6.99</td>
<td>6.16</td>
<td>0.000001</td>
</tr>
<tr>
<td>ICU LOS</td>
<td>4.37</td>
<td>3.77</td>
<td>0.000001</td>
</tr>
<tr>
<td>Total Variable Direct Cost</td>
<td>$9,105</td>
<td>$7,582</td>
<td>0.000001</td>
</tr>
</tbody>
</table>
Success vs. Challenges

“Successful”
- Sepsis
- Transaortic Valvular Repair
- Lower Ext Joints
- Heart Failure
- PCI 1.0
- AMI + PCI 2.0
- CABG/Valve

“Challenging”
- Lumbar Spine
- Tracheostomy
- Cystectomy
- Small/Large Bowel
- Aortic Endograft
- Leukemia
- Hemorrhagic stroke
Financial Performance across EHC

$29.8 MM
Next steps

- Daily Management System
- Standard Work
- Implement Huddles
- Continue to Encourage Ideas from Clinicians
- Process Engineers
- Predictive Analytics – Real Time
- Emory / Registry Dataset Unification
Thank you!

Society for Health Systems

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