Volume to Value: 
Building the infrastructure and alignment

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VOLUME TO VALUE

• Context and challenges
• How we are the same and different
• Our response and what we have done
• Successes, challenges, and lessons learned
OVERVIEW OF UAB MEDICINE INPATIENT SERVICES

- 1,157-bed, flagship facility for the UAB Health System and primary teaching site for the UAB School of Medicine
- Only ACS-designated Level 1 Trauma Center in Alabama
- Only Burn Center in Central Alabama
- Only Magnet Designated Hospital in the State of Alabama
- Largest comprehensive transplantation program in the southeastern United States
- Level 3 Regional Neonatal Intensive Care Unit
- 57 Operating Rooms
- State-of-the-art Heart and Vascular Center
- ~ 330,000 inpatient days
- ~ 95,000 ED visits
- ~ 32,000 surgical cases
OVERVIEW OF UAB MEDICINE AMBULATORY SERVICES

- Over 50 Multispecialty Clinics at UAB Hospital
  - The Kirklin Clinic of UAB Hospital: A 440,000 square foot ‘super clinic’ designed by the renowned architect, I.M. Pei
  - UAB Medicine Hospital Based Clinics

- Average annual appointments: 619,000
- Average unique patients per day: 3,004

- Clinic services include:
  - Primary Care
  - Cardiology
  - Hematology/Oncology
  - Infusion
  - Pain
  - Digestive Health
  - Transplant Services
  - Pulmonary
  - Oral Maxillofacial Surgery
  - Radiation/Oncology
  - Hyperbaric & Wound Care
CHALLENGES AND REALITIES

- Speed of change, payors and marketplace is accelerating
- Many programs, many metrics, some overlap
- We must have an eye on today and tomorrow
- Straddling of volume and value will continue
- We must change faster to be ready
- Significant financial risk and patient-centric considerations
- Do our current structures and process support continued success?
# CHALLENGES AMCS FACE

<table>
<thead>
<tr>
<th>Threats to Clinical Revenues</th>
<th>Threats to Education and Research Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Medicare payment reductions</td>
<td>✓ Reduced IME payments</td>
</tr>
<tr>
<td>✓ Value Based Purchasing</td>
<td>✓ Limits on tuition income</td>
</tr>
<tr>
<td>✓ Commercial payment follows Gov’t lead</td>
<td>✓ Reduced grants and contracts – both funding &amp; wage limits</td>
</tr>
<tr>
<td>✓ Price Transparency</td>
<td>✓ Sequestration</td>
</tr>
<tr>
<td>✓ High Deductible Health Plans</td>
<td>✓ GME Reallocation</td>
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<tr>
<td>✓ Disproportionate Share Hospital (DSH) payment reductions</td>
<td>✓ Constraints to State funding</td>
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<tr>
<td>✓ Increased regulatory burden</td>
<td>✓ Diminished Philanthropy</td>
</tr>
<tr>
<td>✓ Lack of Medicaid expansion</td>
<td></td>
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<tr>
<td>✓ Low revenue</td>
<td></td>
</tr>
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</table>
INSUFFICIENT FUNDS TO MEET STRATEGIC PLANS

Uses of Cash
$2.1 Billion

Sources of Cash
$1.1 Billion

Total Strategic Shortfall
$1 Billion

Annual “Gap”
$120 Million
**QUALITY MEASURES BRIDGE PROGRAMS AND PAYERS**

<table>
<thead>
<tr>
<th>Hospital Metrics</th>
<th>Value Based Purchasing</th>
<th>Hospital Acquired Conditions</th>
<th>Blue Cross Blue Shield</th>
<th>Medicaid</th>
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<tbody>
<tr>
<td>PSI 90</td>
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<tr>
<td>CLABSI</td>
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<tr>
<td>CAUTI</td>
<td>HbA1c</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C Diff</td>
<td>MRSA</td>
<td>LDL- C</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SSI Abdominal Hysterectomy</td>
<td>Medical Attention for Nephropathy</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SSI Colon</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality: HF, PN, AMI</td>
<td>Influenza Vaccination</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Readmissions: AMI, HF, P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complications TH/TK</td>
<td>Pneumococcal Vaccination</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PC 01: Elective Deliveries</td>
<td>Diabetic Eye Exam</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Tobacco Use</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tobacco Cessation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult BMI assessment and counseling</td>
<td></td>
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</tr>
</tbody>
</table>

**many programs, many metrics, some overlap**
CHALLENGES

• Education of the organization and faculty
• Distribution of provider level data
  » Understanding data limitations
• Data transparency and availability
• Ongoing/evolving metrics and definitions
• Agility in taking action
• Time required to affect and sustain change
• Competing priorities
• Simplifying the message
OUR PAST & LIMITATIONS

- Approach to Quality and Patient Safety historically siloed within health system
- No specifically defined or consistent strategy or methodology for improvement
- Misaligned resources
- Investment yielded poor UHC mortality ranking
LEADERSHIP REORGANIZATION AND INTEGRATION

2013

- Restructured Organizational Leadership
  - COO-UAB Health System
  - Sr. Vice President-Inpatient
  - Sr. Vice President-Ambulatory
  - Chief Quality and Patient Safety Officer

2014

- Provider Based The Kirklin Clinic
- Formation of Senior Operations Group
- Implementation of Funds Flow
- Realignment to CQO (Quality Resource/IP)
- Combined Patient Safety Committee
- Combined Patient and Family Centered Committee
- Combined Grievance Committee

2015

- Restructured Medical Staff Leadership
  - Chief Medical Officer
  - Chief of the Medical Staff
- Formation of Health System Leadership Committee
- Refining Medical Director Roles
GOALS OF NEW QUALITY STRUCTURE

- Better align efforts and outcomes, establish synergies with existing resources, leverage technology to reduce cost
- Continue improvement in UHC O/E ratio, seek to make UAB among top UHC performing hospitals
- Undertake clinical variation analysis, develop evidence based care protocols, effect change management to improve clinical and financial outcomes
- Develop coordinated clinical quality database, collaborate with established databases, offer “one stop shopping” for data analysis
- Develop an academic focus on quality and safety efforts—publications, presentations, grants
UAB Care
Comprehensive Care Redesign Goals:

1. Improve Quality of Care
2. Reduce Practice Variation
3. Control Cost

VALUE
VALUABLE Care
## WHERE TO START?
### IDENTIFIED OPPORTUNITIES

<table>
<thead>
<tr>
<th>APR-DRG</th>
<th>APR-DRG Description</th>
<th>UAB Total Cases</th>
<th>OEM</th>
<th>Cost Savings Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>161</td>
<td>Cardiac defibrillator &amp; heart assist implant</td>
<td>115</td>
<td>1.2</td>
<td>$ 2,509,680</td>
</tr>
<tr>
<td>175</td>
<td>Percutaneous cardiovascular procedures w/o AMI</td>
<td>351</td>
<td>1.2</td>
<td>$ 901,747</td>
</tr>
<tr>
<td>194</td>
<td>Heart failure</td>
<td>801</td>
<td>1.2</td>
<td>$ 847,528</td>
</tr>
<tr>
<td>301</td>
<td>Hip joint replacement</td>
<td>409</td>
<td>1.41</td>
<td>$ 697,083</td>
</tr>
<tr>
<td>302</td>
<td>Knee joint replacement</td>
<td>315</td>
<td>1.41</td>
<td>$ 645,342</td>
</tr>
<tr>
<td>308</td>
<td>Hip &amp; femur procedures for trauma except joint replacement</td>
<td>186</td>
<td>1.41</td>
<td>$ 1,159,627</td>
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<tr>
<td>313</td>
<td>Knee &amp; lower leg procedures except foot</td>
<td>421</td>
<td>1.41</td>
<td>$ 1,959,898</td>
</tr>
<tr>
<td>315</td>
<td>Shoulder, upper arm &amp; forearm procedures</td>
<td>292</td>
<td>1.41</td>
<td>$ 950,436</td>
</tr>
<tr>
<td>720</td>
<td>Septicemia &amp; disseminated infections</td>
<td>821</td>
<td>1.56</td>
<td>$ 1,512,455</td>
</tr>
<tr>
<td>1</td>
<td>Liver transplant &amp;/or intestinal transplant</td>
<td>94</td>
<td>2.04</td>
<td>$ 3,821,277</td>
</tr>
<tr>
<td>23</td>
<td>Spinal procedures</td>
<td>101</td>
<td>1.18</td>
<td>$ 609,455</td>
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<tr>
<td>130</td>
<td>Respiratory system diagnosis w ventilator support 96+ hours</td>
<td>42</td>
<td>1.05</td>
<td>$ 603,264</td>
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<tr>
<td>321</td>
<td>Cervical spinal fusion &amp; other back/neck proc exc disc excis/decomp</td>
<td>227</td>
<td>1.18</td>
<td>$ 647,751</td>
</tr>
<tr>
<td><strong>Grand Total - Top 13 DRGs</strong></td>
<td></td>
<td><strong>4,175</strong></td>
<td></td>
<td><strong>$ 16,865,549</strong></td>
</tr>
</tbody>
</table>
MAKING THE CASE FOR CHANGE

- Engage frontline staff
- Common appreciation of challenges?
- What does clinical variation look like?
- Why does it matter?
Average Contribution Margin % = 11%

Average Cost per Case (Severity Adjusted) = $3,991

EXAMPLE: VARIATION IN HEART FAILURE CARE

Note: Based on UAB IP Claims Data March 2012 – March 2013
ONLY includes physicians with >=10 cases for the time period.
“MRS. SMITH”

December

Urgent Care 'walking pneumonia’

Clinic (COUGH)

Emergency Department

January

General Medicine CHF Exacerbation

Discharged Home

Emergency Department Fall / Trauma

Discharged Home

6 Day LOS

Trauma Service

Emergency Department CHF Exacerbation

Discharged Home

4 Day LOS

General Medicine CHF Exacerbation

Discharged Home

April

CHF Clinic

Labs & Imaging

BMP = 34
CE = 17 Sets
TSH = 3
CBC = 24
BNP = 4
CXR = 9
Echo = 4
LHC = 1
OUR REDESIGN PROCESS IS PATIENT CENTERED

Analytics
- Determine conditions with specific opportunities
- Prioritize opportunities for success
- Establish baseline metrics

Launch
- Establish leadership structure
- Develop guidelines/practice elements and gain consensus
- Determine design session specific goals and attendance

Design Sessions
- Understand current state & design ideal future state
- Determine barriers to implementing each practice element
- Develop workplan elements during facilitated session

Implement
- Execute work plan elements
- Establish infrastructure for organizational success
- Provide ongoing support for change management

Sustain
- Ensure infrastructure support
- Provide transition support
- Confirm monitoring metrics
UAB CARE REDESIGN PROCESS AND TIMELINE (HF EXAMPLE)

- **Discovery assessment**
  - Process observation, staff interviews, data analysis, stakeholder feedback

- Work with administrative, physician, and nurse leaders to finalize project charter, develop LPGs, and ensure consensus

- **Two Rapid Redesign Sessions**
  - Create Leading Practice Guidelines (LPGs)
  - Develop Key Initiatives (KIs)

- **First Implementation Meeting**
  - Assign key initiative teams

- **Implementation Meetings**
  - Meet every two weeks to provide KI team updates

- **Key Initiative (KI) team meetings**
  - Meet independently to implement solutions to achieve KI goals

- **Educate staff and stakeholders**

- **Celebration and project handover**
REDESIGN SESSION
<table>
<thead>
<tr>
<th>WHAT WILL SUCCESS LOOK LIKE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of care</td>
</tr>
<tr>
<td>Clinical variation</td>
</tr>
<tr>
<td>Cost of care</td>
</tr>
<tr>
<td>Experience</td>
</tr>
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</table>
# UAB CARE
OUTCOMES PHASE I – III

<table>
<thead>
<tr>
<th>APR-DRG Description</th>
<th>Baseline OEM (3/12 - 3/13)</th>
<th>Baseline Mean LOS Index (3/12 - 3/13)</th>
<th>OEM (FY 2015 YTD )</th>
<th>Mean LOS Index (FY 2015 YTD )</th>
<th>Savings FY 2015 YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>161 - Cardiac defibrillator &amp; heart assist implant</td>
<td>1.91</td>
<td>1.04</td>
<td>0.65</td>
<td>0.82</td>
<td>$26,258</td>
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<tr>
<td>175 - Percutaneous cardiovascular procedures w/o AMI</td>
<td>2.10</td>
<td>1.05</td>
<td>0.44</td>
<td>0.81</td>
<td>-</td>
</tr>
<tr>
<td>194 - Heart failure</td>
<td>1.80</td>
<td>1.02</td>
<td>0.92</td>
<td>1.01</td>
<td>$282,850</td>
</tr>
<tr>
<td>303 - Hip &amp; femur procedures for trauma except joint replacement</td>
<td>1.49</td>
<td>1.15</td>
<td>0.00</td>
<td>0.91</td>
<td>$498,899</td>
</tr>
<tr>
<td>301 - Hip joint replacement</td>
<td>1.52</td>
<td>1.22</td>
<td>1.65</td>
<td>1.10</td>
<td>$531,830</td>
</tr>
<tr>
<td>302 - Knee joint replacement</td>
<td>0.00</td>
<td>1.11</td>
<td>4.45</td>
<td>1.09</td>
<td>$345,873</td>
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<tr>
<td>313 - Knee &amp; lower leg procedures except foot</td>
<td>5.82</td>
<td>1.06</td>
<td>1.36</td>
<td>0.88</td>
<td>$101,813</td>
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<tr>
<td>315 - Shoulder, upper arm &amp; forearm procedures</td>
<td>2.39</td>
<td>1.09</td>
<td>2.01</td>
<td>0.83</td>
<td>$285,691</td>
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<tr>
<td><strong>720 - Septicemia &amp; disseminated infections</strong></td>
<td>1.51</td>
<td>1.01</td>
<td>1.00</td>
<td>0.96</td>
<td>$2,850,694</td>
</tr>
<tr>
<td>001 - Liver transplant &amp;/or intestinal transplant</td>
<td>2.55</td>
<td>1.18</td>
<td>0.86</td>
<td>0.92</td>
<td>-</td>
</tr>
<tr>
<td>004 - Trach w/ extra procedures</td>
<td>1.36</td>
<td>1.80</td>
<td>1.00</td>
<td>1.56</td>
<td>$241,900</td>
</tr>
<tr>
<td>005 - Trach w/o extra procedures</td>
<td>1.75</td>
<td>2.91</td>
<td>1.07</td>
<td>2.08</td>
<td>$660,535</td>
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<tr>
<td>130 - Respiratory system diagnosis w ventilator support 96+ hours</td>
<td>1.08</td>
<td>1.35</td>
<td>0.81</td>
<td>1.18</td>
<td>$314,030</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$6,140,373</strong></td>
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</table>
SEPSIS REDESIGN OUTCOMES

- Reduced O/E mortality index: 1.47 (baseline) to 0.94 (FYTD2015)
- Reduced O/E LOS index: 1.07 (baseline) to 0.99 (FYTD2015)
- Reduced % ICU days: 41.5% (baseline) to 31.3% (FYTD2015)
- Reduced variable cost per case: $13,924 (baseline) to $11,398 (FYTD2015)
- Additional initiatives implemented:
  - Hospital wide Early Warning Score implementation to proactively capture early clinical decline and sepsis
  - Antibiotic protocol to reduce delays in treatment of infections.
  - Point of care lactic acid testing assisting in screening patients for severe sepsis
  - UED electronic sepsis screening tool to identify patients likely to have severe sepsis
  - Incorporation of MET team for Sepsis Screening throughout the hospital
### Early Warning Score = Sum of All Points

<table>
<thead>
<tr>
<th>Points</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP</td>
<td>≤ 90</td>
<td>91-100</td>
<td>101-110</td>
<td>111-219</td>
<td>≥ 220</td>
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<td></td>
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<tr>
<td>Temp (°F)</td>
<td>≤ 95</td>
<td>95.1-96.8</td>
<td>96.9-100.4</td>
<td>100.5-102.2</td>
<td>≥ 102.3</td>
<td></td>
<td></td>
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<tr>
<td>HR</td>
<td>≤ 40</td>
<td>41-50</td>
<td>51-90</td>
<td>91-110</td>
<td>111-130</td>
<td>≥ 131</td>
<td></td>
</tr>
<tr>
<td>RR</td>
<td>≤ 8</td>
<td>9-11</td>
<td>12-20</td>
<td>21-24</td>
<td>≥ 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O₂ Sat</td>
<td>≤ 91 %</td>
<td>92-93 %</td>
<td>94-95 %</td>
<td>≥ 96 %</td>
<td>Room Air</td>
<td>Suppl O₂</td>
<td></td>
</tr>
<tr>
<td>Alertness</td>
<td></td>
<td></td>
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</table>

* Altered = stuporous, lethargic, obtunded, unresponsive, or comatose

Adapted from:


EWS: STANDARD RESPONSE PROCESS

• **EWS score 5-7**
  » New Orders sent to nurse on PAL
  » Notify MD of patient EWS score and current vital signs
  » Increase vital signs to Q2 hours x’s 2
  » If EWS remains the same or decreases after 4 hours then resume previously ordered vital sign frequency

• **EWS score ≥ 8**
  » New Orders sent to nurse on PAL
  » Notify MD of proposed power plan
  » Dial “0” and notify operator of “Code Early Warning” and patient location
  » MET nurse will come to evaluate patient
  » Increase vital sign to Q1 hour x’s 2
  » If EWS stays ≥ 8 after 2 hours with no plan to transfer to higher level of care, **Activate MET**

Statistical Analysis: UAB Internal Data
STATISTICAL ANALYSIS: INTERNAL DATA

Mortality vs. EWS

Percent Died

EWS

0 2 4 6 8 10 12 14 16 18

0 10 20 30 40 50 60 70 80
ICU CARE REDESIGN

• **Goal:** Standardize care throughout 9 independent ICUs

• **Problem Statement:** Critical care at UAB encompasses 9 independent ICU’s caring for patients with a broad spectrum of illnesses.

• While we house and provide care to a variety of patients; at the core we all struggle with providing the same standard of care related to:
  » Ventilation
  » Sedation
  » Mobility
  » Patient Safety
  » Patient Centered Care
ICU CARE REDESIGN PROJECT HIGHLIGHTS

- Mechanical Ventilation
- Pain control and delirium
- Invasive Procedures
- Mobility
- Rounding Checklists

Diagram:
- Medical ICUs
- Surgical ICUs
- Cardiology and Cardiac Surgery
- Neurosciences
## KEY INITIATIVES

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Support Area</th>
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</thead>
<tbody>
<tr>
<td>Standardized Pain, Agitation, and Delirium (PAD) Treatment</td>
<td><strong>Chest Imaging</strong></td>
</tr>
<tr>
<td>Bronchodilators</td>
<td><strong>Nutrition</strong></td>
</tr>
<tr>
<td>Bathe SAFE, WSH, and Oral Care</td>
<td><strong>CVL/Arterial Lines</strong></td>
</tr>
<tr>
<td>Restraints</td>
<td><strong>Foley Care</strong></td>
</tr>
<tr>
<td>Early Mobility</td>
<td><strong>Antibiotic Stewardship</strong></td>
</tr>
<tr>
<td>Ventilator Management</td>
<td><strong>Rounding Checklist</strong></td>
</tr>
<tr>
<td>Care Management Support</td>
<td><strong>Supply Recovery</strong></td>
</tr>
</tbody>
</table>
ICU CARE REDESIGN PROJECT HIGHLIGHTS

- **Outcomes:**
  - Reduced inappropriate bronchodilator utilization (13 – 18K / month)
    - Decreased physical equipment cost
    - Increased RT trach care opportunities
  - Standardized/reduced daily Chest Imaging indications
    - 70% decrease in number of chest x-rays from midnight - 4AM in TBICU
    - 30% decrease in number of chest x-rays during the clinical stay
  - **Reduced Ventilator LOS 1.2 days compared to year prior**
  - Mobility
    - Daily mobility rounds with PT
    - Standardized communication tool for PT goals
    - Revised indications for Bed Rest orders
  - Bathe Safe / Oral Care / WSH
Bathe SAFE
BRINGING A SAFETY STOP TO BATH TIME.
Bathe SAFE: Stable, Assess, Functional, Evaluate

WHAT: All patients in the ICU's should be provided a CHG bath daily. CHG should be used to clean all surface areas except mucous membranes. Mucus membranes should be cleaned with regular soap and water. All Acute Care areas should use regular soap and water for patient bathing.
• Safety Stop: all Bath participants should stop and listen to the safety screen prior to bathing

WHY: To promote patient safety Bathe “SAFE” is being implemented as a process improvement to decrease tube/line dislodgement, decrease bacterial colonization, & decrease infection rates.

HOW: prior to any bed bath perform a Safety Stop with the acronym Bathe “SAFE”. All participants should stop and listen to the safety screen prior to bathing. After bath document in I-View the performance of CHG bath and use of Bathe “SAFE” Safety Stop.

Supplies and Lawson Numbers:
• Critical Care: CHG #58339, Regular Soap #11717, Lotion #108170
• Acute Care: Regular Soap #11717, Lotion #73326
• Use only hospital supplied bathing and skin care products

S – STABLE: Assess your patients acuity, determine assistance requirements and patient tolerance to bathing

A – ASSESS: assess the following items with entire Bath team
• Assess line/tube/drain status and verbalize to all in the room the presence of items and how the team will maintain their security during the Bath
• Assess respiratory support and verbalize the plan for safe ventilator management
• Assess medications and need for pain control prior to bathing
• Assess availability of Bath supplies in room

F – FUNCTIONAL: assess functional status for patient and incorporate mobility into Bath time
• Verbalize the individualized patient mobility plan during the Bath
• If patient is able to stand, stand patient at bedside while washing back and changing sheets
• Allow patient to roll themselves if possible
• Always perform active or passive ROM as indicated

E – EVALUATE: after completion of Bath evaluate the following items with entire group
• All lines/tubes/drains are in place and functional
• Patient is in a comfortable position and all needs have been addressed
• Safety measures in place prior to leaving bedside
• Document use of CHG and Bathe “SAFE” Safety Stop
SUPPLY RECOVERY EXAMPLE
SUMMARY

• **Successes**
  » UAB Care is now the *UAB Way* of improving and providing the best care for our patients
  » Organization-wide commitment to clinical and operational effectiveness: improve care, reduce variation, and reduce cost
  » Scholarship: 5 manuscripts, many national presentations

• **Challenges**
  » Many care redesigns have broader implications
  » Handoff and sustainment

• **Lessons learned**
  » Leadership, accountability, and alignment are key to success
  » Continual process improvement
    • Team Matrixes, stakeholder analysis, communication plans