Organization: Meritus Medical Center
Solution Title: Early Progressive Mobility in the Critical Care Unit

Program/Project Description:

What was the problem to be solved? How was it identified? What baseline data existed? What were the goals—how would you know if you were successful?

Problem: Reduce length of stay in the hospital, focusing on reduced length of stay in the critical care unit. Research demonstrates that early progressive mobility for critical care patients promotes multiple benefits, countering the effects of sedation, immobility, and psychological helplessness (Bailey et al., 2007). In our 24 bed critical care unit, we targeted reducing ventilator days, reducing length of stay in the critical care unit, and reducing length of stay in the hospital overall. Early progressive mobility engages nursing with a daily assessment of activity orders, bed/chair based exercises and positioning, and out of bed activities. Included are physical and occupational therapy therapy consults as needed to ensure safe progression of activity.

Prior to the Early Progressive Mobility program, the only critical care patients consistently engaged in activity beyond bedrest were those receiving physical and occupational therapy. This population was used to establish four months of comparative baseline data. Five months after implementation of the Early Progressive Mobility program data demonstrates a positive impact for patients participating, including reductions in ventilator days, critical care length of stay, and hospital length of stay.

Five adverse events occurred in the 1,575 mobility sessions, all involving line interruption. (0.3% incidence compared to literature reported 1% in similar programs). See attached document for intervention.

Outcomes data:
- CC Length of Stay for mobility patients reduced by 1.2 days (from 5.84 days to 4.6 days);
- Ventilator days for all patients in Critical Care reduced by 0.5 days (from 3.4 days to 2.9 days);
- Overall hospital length of stay for mobility patients reduced by 2.7 days (from 13.8 days to 11.1 days).

See attached graph for comparisons.


Process: What methodology or process was used to develop the Solution?
1) Literature review, best practices, evidence-based article reviews
2) Collaborative team: physician, nurse manager, rehab manager, respiratory therapy director, nursing educator, staff champions from nursing, rehab, respiratory care developed key components from evidence based reviews

Solution: What Solution was developed? How was it implemented?
1) Developed: exclusion criteria screen checklist, process for physician orders for activity as tolerated, PT/OT consults, patient activity daily schedule, mobility progression levels, staffing assignments, staff competencies, and education program
2) Submitted for budgeted positions for nursing and therapy staffing to implement program of six patients in mobility program daily
3) Program outline shared with physician divisions: Critical Care, Pulmonologists, Cardiologists, trauma surgeons, and general surgeons
4) Staff trained/competencies completed
5) Program initiated, reviewed daily by collaborative team representatives; team meeting monthly to review, update, root cause assessment

**Measurable Outcomes:** What are the results of implementing the Solution? Provide qualitative and/or quantitative results to data. (Please include graphs, charts, or tools as attachments.)
Outcomes data: See attached graphs. CC Length of Stay for mobility patients reduced by 1.2 days (from 5.84 days to 4.6 days); Ventilator days for all patients in Critical Care reduced by 0.5 days (from 3.4 days to 2.9 days); Overall hospital length of stay for mobility patients reduced by 2.7 days (from 13.8 days to 11.1 days).

**Sustainability:** What measures are being taken to ensure that results can be sustained and spread?
Program solidly in place with a daily huddle for patient discussion. Three workteams in place monitoring program: Critical Care task force lead by Medical Director; Rehab workteam; and Early Progressive Mobility workteam comprised of nursing, educators, rehab, respiratory therapy, and administration. Results of programs outcomes are measured monthly and reported to Administration.

**Role of Collaboration and Leadership:** What role did teamwork and collaboration play in the Solution? What partners and participants were involved? Was the organization's leadership engaged and did they share the vision for success? How was leadership support demonstrated?
Teamwork and collaboration are critical to the success of the program. Managers engaged staff with evidence-based literature to review and develop components. Staff engaged Critical Care Medical Director to review, provide input, support, and promote to peer physicians. Managers presented to directors, Budget committee, and Senior Administrators, who provided support to pilot program for six months and provided financial resources for staffing to support the program. With reporting of initial outcomes, Senior Administrators have supported program continuation beyond a pilot program and have challenged workteam to engage other nursing units to develop early mobility program.

**Innovation:** What makes this Solution innovative? What are its unique attributes?
Innovation in the simplicity of implementing evidence-based practice through a collaborative team. Two unique attributes to making this program successful is in the daily schedule of patient activity by a scheduling clerk, and creation of a mobility trainer certified nursing assistant position within the nursing and rehab staffing matrix.

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### Early Progressive Mobility Guidelines

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Exclusion Criteria:</th>
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<tbody>
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<td></td>
<td></td>
<td><strong>Cardiovascular Instability</strong></td>
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<td>o Heart rate &lt;40 bpm or &gt;130 bpm</td>
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<td>o Systolic blood pressure &lt;90 mm Hg or &gt;200 mm Hg</td>
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<td>o Newly prescribed vasopressor</td>
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<td>o Newly diagnosed unstable heart rhythm</td>
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<td>o New MI via ECG and enzymes</td>
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<td><strong>Respiratory Instability</strong></td>
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<td>o Respiratory rate &lt;5 or &gt;35 breaths/min</td>
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<td></td>
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<td>o SpO2 &lt; 88%</td>
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<td>o FiO2 &gt; 60%</td>
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<td>o PEEP &gt; 10 cm H2O</td>
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<td></td>
<td></td>
<td>o Neuromuscular blockade medications</td>
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<td>o Pressure control ventilation mode</td>
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<td><strong>Neurological Instability</strong></td>
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<td>o Increased ICP or ICP monitoring</td>
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<td>o Intraventricular drain</td>
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<td><strong>Additional Criteria</strong></td>
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<td></td>
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<td>o Active bleeding</td>
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<td>o Balanced skeletal traction</td>
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<td>o Femoral sheath or arterial line</td>
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<td>o Intra-aortic balloon pump</td>
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<td>o Patient agitation requiring sedation in the last 30 minutes</td>
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<td>o Special physician orders for patients w/ PE or VTE</td>
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<td>o Unstable spinal cord injury or vertebral fracture</td>
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<td>o Already receiving physical and occupational therapy services</td>
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Include patient in Progressive Mobility Program (all criteria checked “No”)

Exclude patient from program (any criteria checked “Yes”)

*If a criteria is checked ‘yes’ but nurse believes patient is stable, consult with physician for possible inclusion.
Adverse Events 5/1/11-10/31/11

- 5 events in 1,575 touches = .03%
- Event Analysis
  - Review **exclusion criteria** daily w/ Rehab scheduler and Resource
    - Pressure Support patients excluded.
    - New MI – get cardiology OK
  - Line management
    - **Secure lines** w/ additional tape as needed (i.e. Chest tubes)
    - Therapy ask Nursing to assist w/ line management as needed
  - Respiratory Considerations
    - RT write on schedule board and/or door schedule if therapy session is to be **held** and at what time
    - RT writing **OETT lip marker** on white board; Therapy documenting OETT marker before, during, after session in notes
    - Resp Therapy conducting **education and competency** for Rehab staff for vents
Adverse Events 5/1/11 – 7/31/11

- 5 events in 1,575 touches = .03% %
- Event Analysis – Updated program
  - Daily **exclusion criteria review**
    - Pressure Support patients excluded.
    - New MI – get cardiology OK first
  - Line management
    - **Secure lines**
    - Therapy ask Nursing to assist w/ line management as needed
  - Respiratory Considerations
    - **RT HOLD** on board/door signs
    - **OETT lip marker** monitored
    - **RT education and competency** for Rehab staff for vents