UCSF ICU Early Mobility Program

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Background

One full time Physical Therapist started in 9 ICU in March 2010 to begin a program of providing early physical Rehabilitation to critically ill patients as soon as they are medically stabilized, close to their admission to the ICU and consistently throughout their ICU stay. A full description of this initial program was published in the Physical Therapy Journal in July 2013.

Due to the successful decreased length of stay and improved outcomes for discharge disposition experienced by the patients receiving early physical activity in the ICU, the program was expanded from 9 ICU to 13 ICU in 2012. We now provide physical therapy to the majority of our patients in both Medical Surgical ICUs within 1 to 2 days of their admission to the ICU and 70% of those patients seen for Physical Therapy in the ICU walk as part of their activity in the ICU. The primary reason for patients receiving PT in the ICU to not participate in walking there is that they were not able to walk prior to their admission. Preliminary statistical analysis of our current PT practice in the ICU shows the greatest barrier we have to providing this treatment responsible for: reducing delirium, reducing pulmonary complications, reducing weakness, reducing need for long physical rehabilitation, and improving overall patient satisfaction, is sedation practice.

At this time, ICU early mobility is a key component of the Critical Care Innovations our collaborative inter-professional group is bringing to our critically ill patients to help them not just survive, but return to the life they knew and led before their acute illness, to improve the quality of care we provide, bring more quality of life to Critical Care. We are part of the Society of Critical Care Medicine ICU Liberation group and are engaged in teaching the practice of ICU early physical rehabilitation to providers of critical care across the country.

Abstract from Physical Therapy Journal July 2013:

**Background.** Long-term weakness and disability are common after an intensive care unit (ICU) stay. Usual care in the ICU prevents most patients from receiving preventative early mobilization.

**Objective.** The study objective was to describe a quality improvement project established by a physical therapist at the University of California San Francisco Medical Center from 2009 to
2011. The goal of the program was to reduce patients’ ICU length of stay by increasing the number of patients in the ICU receiving physical therapy and decreasing the time from ICU admission to physical therapy initiation.

**Design.** This study was a 9-month retrospective analysis of a quality improvement project.

**Methods.** An inter-professional ICU Early Mobilization Group established and promoted guidelines for mobilizing patients in the ICU. A physical therapist was dedicated to a 16-bed medical-surgical ICU to provide physical therapy to selected patients within 48 hours of ICU admission. Patients receiving early physical therapy intervention in the ICU in 2010 were compared with patients receiving physical therapy under usual care practice in the same ICU in 2009.

**Results.** From 2009 to 2010, the number of patients receiving physical therapy in the ICU increased from 179 to 294. The median times (interquartile ranges) from ICU admission to physical therapy evaluation were 3 days (9 days) in 2009 and 1 day (2 days) in 2010. The ICU length of stay decreased by 2 days, on average, and the percentage of ambulatory patients discharged to home increased from 55% to 77%.

**Limitations.** This study relied upon the retrospective analysis of data from 6 collectors, and the intervention lacked physical therapy coverage for 7 days per week.

**Conclusions.** The improvements in outcomes demonstrated the value and feasibility of a physical therapist–led early mobilization program.

**Abstract from Critical Care Medicine September, 2013:**

**Objective:** To compare and contrast the process used to implement an early mobility program in ICUs at three different medical centers and to assess their impact on clinical outcomes in critically ill patients.

**Design:** Three ICU early mobilization quality improvement projects are summarized utilizing the Institute for Healthcare Improvement framework of Plan-Do-Study-Act. Intervention: Each of the three ICU early mobilization programs required an inter-professional team-based approach to plan, educate, and implement the ICU early mobility program. Champion from each profession—nursing, physical therapy, physician, and respiratory care—were identified to facilitate changes in ICU culture and clinical practice and to identify and address barriers to early mobility program implementation at each institution.
**Setting:** The medical ICU at Wake Forest University, the medical ICU at Johns Hopkins Hospital, and the mixed medical-surgical ICU at the University of California San Francisco Medical Center.

**Results:** Establishing an ICU early mobilization quality improvement program resulted in a reduced ICU and hospital length of stay at all three institutions and decreased rates of delirium and the need for sedation for the patients enrolled in the Johns Hopkins ICU early mobility program.

**Conclusion:** Instituting a planned, structured ICU early mobility quality improvement project can result in improved outcomes and reduced costs for ICU patients across healthcare systems. (Crit Care Med 2013; 41:S69–S80)
<table>
<thead>
<tr>
<th>SYMPTOMS</th>
<th>MONITORING/ASSESSMENT</th>
<th>PROVIDING CARE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAIN</strong></td>
<td><strong>PAD GUIDELINES</strong></td>
<td><strong>TOOLS</strong></td>
</tr>
<tr>
<td></td>
<td><strong>BPS- BEHAVIORAL PAIN SCALE</strong></td>
<td>Assess for and treat Pain</td>
</tr>
<tr>
<td></td>
<td><strong>CPOT- CRITICAL CARE PAIN OBSERVATION TOOL</strong></td>
<td>Assess for and Conduct Spontaneous Awakening Trial (SAT)</td>
</tr>
<tr>
<td><strong>AGITATION</strong></td>
<td><strong>RASS-RICHMOND AGITATION SEDATION SCALE</strong></td>
<td>Breathing Trial (Turning off Mechanical Ventilation) (SBT)</td>
</tr>
<tr>
<td></td>
<td><strong>SAS-SEDATION AGITATION SCALE</strong></td>
<td>Coordination of Care through team Collaboration</td>
</tr>
<tr>
<td><strong>DELIRIUM</strong></td>
<td><strong>CAM-ICU-CONFUSION ASSESSMENT METHOD FOR THE ICU</strong></td>
<td>Choice of Sedatives</td>
</tr>
<tr>
<td></td>
<td><strong>ICDSC- INTENSIVE CARE DELIRIUM SCREENING CHECKLIST</strong></td>
<td>Delirium Reduction (Diseases, Drug Removal, Environment e.g., sleep, noise, eye glasses, hearing aids)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Early mobility and Exercise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FAMILY (Communication and Involvement)</td>
</tr>
</tbody>
</table>

References: (see next page or www.icudelirium.org)
Selected References:


Start Here

Does the patient present with any of the exclusion criteria? (See the chart* below)

Yes → Consult with MD/NP and assess ability to tolerate and participate in mobility

No → Bed level assessment
   1. Orient the patient and perform CAM-ICU
   2. Assess baseline vital signs
   3. Bed exercises (passive, active, active assisted, resisted range of motion exercises to all extremities)

Does the patient open eyes to verbal or manual stimulation (+1 > RASS > -2)

Yes → Sedation-related medication

No → Reassess after 24 hours

No → Primary CNS etiology

Does the patient appropriately attend to the tasks?

Yes → Sitting assessment
   4. Dangle the patient at the edge of the bed

Does the patient meet all of the following?
   - Remaining alert and oriented
   - Demonstrating trunk control
   - Vital signs within acceptable parameters

Yes → Standing assessment
   5. Perform sit-to-stand and static standing at the bedside

Does the patient meet all of the following?
   - Remaining alert and oriented
   - Demonstrating trunk control
   - Vital signs within acceptable parameters

Yes → 6. Proceed with standing activities, transferring to chair and gait training

Legend
RASS: Richmond Agitation Sedation Scale
CAM-ICU: The Confusion Assessment Method for the ICU
FiO2: Fraction of inspired Oxygen
PEEP: Positive End-Expiratory Pressure (cmH2O)
MAP: Mean Arterial Pressure (mmHg)
CVA: Cerebrovascular Accident
SAH: Subarachnoid Hemorrhage
ICH: Intracerebral Hemorrhage
CNS: Central Nervous System
Vital sign parameters: case by case bases.

Exclusion Criteria*
- Significant dose of vasopressors for hemodynamic stability (maintain MAP >60)
- Mechanically ventilated with FiO2> .8 and/or PEEP>12, or acutely worsening respiratory failure
- Neuromuscular paralytics
- Currently in an acute neurological event (CVA, SAH, ICH)
- Unstable spine or extremity fractures
- Grave prognosis, transitioning to comfort care
- Open abdomen, at risk for dehiscence
- Active bleeding process
- Bed rest order

Figure 1.
Daily Mobility Assessment and Treatment
UCSF EXCLUSION CRITERIA/GUIDELINES
(think of these as a “yellow” light, not a “red” light)

- Patients with immediate plans to transfer to outside hospital
- Patients who require significant doses of vasopressors for hemodynamic stability (maintain MAP> 60)
- Mechanically ventilated patients who require FiO2 .8 and/or PEEP >12, or have acutely worsening respiratory failure
- Patients maintained on neuromuscular paralytics
- Patients in an acute neurological event (CVA, SAH, ICH) with re-assessment for mobility every 24 hours
- Patients unresponsive to verbal stimuli
- Patients with unstable spine or extremity fractures
- Patients with a grave prognosis - transferring to comfort care
- Patients with a femoral dialysis catheter
- Patients with open abdomen, at risk for dehiscence

We have exclusion guidelines and a mobility practice policy for our ICUs, but the guidelines are considered a "yellow light" rather than a "red light". The patients who demonstrate some of the critical conditions listed in our exclusion guidelines are the patients we need to approach with caution, to stop and think, to discuss with the RN, RT, MD and make clinical decisions based on input from the entire team. It becomes a democratic forum with all opinions weighted equally toward that decision. This is a more dynamic and flexible practice of collaborative care than we have followed in the past in the ICU, but essential for our Rehabilitative process to be effective and meaningful for the patients.
## UCSF ICU MOBILITY SCORE

<table>
<thead>
<tr>
<th>Score</th>
<th>Classification</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Nothing/Passive</td>
<td>Bed rest, no activity, or passive ROM only. Passively rolled or exercised by staff, but not actively moving. Cancelled session (PT/OT only)</td>
</tr>
<tr>
<td>1</td>
<td>Active bed exercise / Edge of bed sitting &lt; 5 minutes</td>
<td>Active bed level exercise including rolling self, lifting hips, cycle ergometry, active ROM. Patient participating in activity. Edge of bed sitting attempted, lasting less than 5 minutes</td>
</tr>
<tr>
<td>2</td>
<td>Tilt table/Neuro chair positioning</td>
<td>Requires some ability for patient to support self or have endurance. Transfer to neuro chair</td>
</tr>
<tr>
<td>3</td>
<td>Edge of bed sitting ≥ 5 minutes</td>
<td>Any level of assistance. Actively sitting on edge of bed with some trunk control ≥ 5 minutes</td>
</tr>
<tr>
<td>4</td>
<td>Passive transfer to chair (total assist) &amp; maintains sitting in chair</td>
<td>Total assist to chair. Patient has trunk control to maintain sitting position in chair. SARA-3000 or ceiling lift transfer to chair.</td>
</tr>
<tr>
<td>5</td>
<td>Active transfer to chair (partial or stand by assist)</td>
<td>Some level of assistance to chair. Assisted stand and pivot step or shuffle to chair.</td>
</tr>
<tr>
<td>6</td>
<td>Standing with assistance &lt; 10 seconds</td>
<td>Standing with weight bearing &lt; 10 seconds, some level of assistance or support device (e.g. STEDY)</td>
</tr>
<tr>
<td>7</td>
<td>Standing with or without assistance ≥ 10 seconds</td>
<td>Standing with weight bearing ≥ 10 seconds. With or without assistance. May include use of assistive device.</td>
</tr>
<tr>
<td>8</td>
<td>Walking 5 to 200 feet</td>
<td>Walking away from bed/chair at least 5 feet. Assistive device may be used.</td>
</tr>
<tr>
<td>9</td>
<td>Walking 200 to 400 feet</td>
<td>Walking/wheel chair mobility in hall 200-400 feet. Any device or level of assist. May need follow up care after discharge.</td>
</tr>
<tr>
<td>10</td>
<td>Walking ≥ 400ft</td>
<td>Walking/wheel chair mobility in hall ≥ 400 feet; with or without device; with or without supervision assist, likely discharge to home.</td>
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After each patient activity either with Nursing or PT, or OT, the activity is given a number and entered in the patient EMR visible to all healthcare providers to assess patient functional capability and progress.