

EARLY PROGRESSIVE MOBILIZATION FOR CRITICALLY ILL PATIENTS (EPM)

Target Audience:

The target audience for this Care Guideline is all MultiCare employed Physicians, nurses, CNA/ nurse tech, respiratory therapists, physical and occupational therapists providing care for patients in intensive care units. An additional audience includes providers and staff associated with our Clinically Integrated Network.

Scope/Patient Population:

Adult patients undergoing treatment and or monitoring in medical and surgical intensive care units across MultiCare Health System and meet inclusion/exclusion criteria for Early Progressive Mobilization (EPM). The application of this therapy in neurosurgical and cardiothoracic surgery patients is beyond the scope of this guideline.

Rationale:

Cognitive, psychological and physical impairment is commonly seen in survivors of critical illness including ARDS and hypotensive shock states. Nearly 100% of survivors from Acute Lung Injury suffer from cognitive impairment at discharge and this persists at 1 year in 50% of the cases. [1,2]

Anxiety, depression and post-traumatic stress disorder is encountered in 25-50% of ICU survivors and prolonged disability is common. [1,2]

At least 25% of ICU patients develop muscle weakness and its development correlates with increased time of mechanical ventilation, longer ICU and hospital stay, increased reintubation rates and higher mortality rates. These patients are also less likely to be discharged home and experience longer rehabilitation needs [3,4,5]

A systematic mobility program during critical illness has beneficial effects on the body by reducing muscle atrophy and weakness, improving respiratory function (optimizing V/Q mismatch, increasing lung volumes, improving airway clearance), increasing functional independence and improving cardiovascular fitness. Mobility also has a positive psychological impact, increasing physiological well being and improving level of consciousness [6]

	<p>Early mobility in the intensive care unit is a safe, feasible and effective intervention as shown in prospective cohort and randomized clinical trials. Early mobility improved outcomes (duration of mechanical ventilation, delirium, length of hospital stay and functional independence at discharge), increased the use of early physical therapy and did not increase cost of hospitalization or result in increased adverse events. [7,8,9,10]</p> <p>The current guideline provides an evidence based assessment algorithm and a mobility protocol for critically ill patients on or off mechanical ventilator support.</p>
	<p>Objective</p> <p>Describe current evidence based practice in the application of early progressive mobilization of critically ill patients in medical and surgical intensive care units.</p> <p>The ultimate goal of this intervention is to reduce disability among survivors of critical illness, improve hospital outcomes, and reduce length of stay and hospital utilization.</p>
	<p>Recommendations:</p> <p><i>Disclaimer: The below Care Guideline serves as a reference for health care professionals and patients within the MultiCare Connected Care affiliated network. The guideline provides an evidence-based* framework for evaluating, treating or preventing various health conditions. The guideline is not meant to replace clinical judgment of individual providers and is not meant for all circumstances.</i></p> <p><i>* The process of determining evidence based criteria involves the review of peer-reviewed literature and nationally published guidelines in the open literature where there is evidence supporting these recommendations. When possible, along with the reference, the original literature or links are provided to provide accurate assignment of original authorship.</i></p> <p>With the exceptions outlined in section III, all ICU patients (including mechanically ventilated) will be mobilized using this procedure.</p> <ol style="list-style-type: none"> I. Patient mobility is the responsibility of the RN, with the assistance of RT, nurse tech, CNA, PT, and OT caregivers. <ol style="list-style-type: none"> 1. PT and OT may assist the team with placement in the appropriate mobility level of activity, always prioritizing patient and caregiver safety. 2. For each position/activity change, allow 5-10 minutes for equilibration before determining that the patient is intolerant. 3. Physical therapy specialists will be involved in the therapy of patients at stage II and above of mobility. 4. Occupational therapy specialists will be involved in the therapy of patients at stages III and above.

III. Contraindications for initiation of early progressive mobility:

- A. Musculoskeletal injury: Unstable spinal cord injury, Orthopedic fractures (*weight bearing status must be specified by the orthopedic or trauma MD*), Balanced skeletal traction
- B. Vascular access in femoral location
- C. Traumatic Brain Injury (*approval for progressive mobility must be cleared with trauma MD*)
- D. Hypoxia: desaturations below 88%
- E. Hypotension: MAP <65mmHg
- F. New or increasing vasopressor use
- G. Active cardiac ischemia
- H. Arrhythmias requiring new pharmacological agent
- I. Increasing PEEP

IV. Procedure:

A. Mobility screening:

1. Within 8 hours of ICU admission, assess the patient according to the following criteria framework:
 - a. PaO₂ / FiO₂ ≥ 250
 - b. PEEP ≤ 10
 - c. O₂ sat ≥ 90%
 - d. RR 10 – 30/min
 - e. No new onset cardiac arrhythmias or ischemia
 - f. HR 60 - 120
 - g. MAP 55 – 140
 - h. SBP 90 – 180
 - i. No new or increasing vasopressor infusions
 - j. ~~MAAS-RASS > -2~~
2. If the patient meets **all** of the above criteria, s/he is considered to be 'clinically stable' for mobilization. Patient mobility should start at level 2 and progress as able.
3. If the patient **does not** meet **all** of the above criteria, s/he is considered 'clinically unstable.' Patient mobility should start at level 1 and progress as able.

B. Advancing patient along mobility continuum:

1. Reassess patient at least every 24 hours (recommended at shift change)
 - a. Consider contraindications listed in 'special instructions'
 - b. Rescreen using criteria in A1

- c. If the patient is 'clinically stable' *and* goals of current mobility level are met, advance to next level.
- d. If the patient is intolerant (as defined by criteria in A1) of mobility activity:
 - 1) rescreen as soon as possible using criteria in A1 above
 - 2) place in appropriate mobility level

C. Mobility Levels:

1. Level 1:

- a. Goal: clinical stability, passive ROM
- b. Activity:
 - 1) Q2h turning
 - 2) HOB $\geq 30^\circ$
 - 3) Passive ROM 2x/day, performed by PT or RN

2. Level 2:

- a. Goal: upright sitting, increase strength and activity tolerance (*i.e.: can move arm against gravity*)
- b. Activity:
 - 1) Passive/Active ROM 2x/day
 - 2) Progressive bed sitting to full chair mode x 20 min, 3x/day:
 - a) HOB 45°
 - b) HOB 45° , legs dependent
 - c) HOB 65° , legs dependent
 - d) Full chair mode
- c. PT/OT Order per nurse driven protocol, MD co-sign needed.
- d. *Move to Level 3 when patient able to lift arms against gravity*

3. Level 3:

- a. Goal: trunk strength, readiness to weight bear (*i.e.: can move leg against gravity*)
- b. Activity:
 - 1) Sitting on edge of bed with assistance of PT, RN, RT
 - 2) Progressive bed sitting x 20+ min, 3x/day
 - 3) *Or*, passive pivot to chair 2x/day
- c. Advance to Level 4 when patient able to raise legs against gravity.

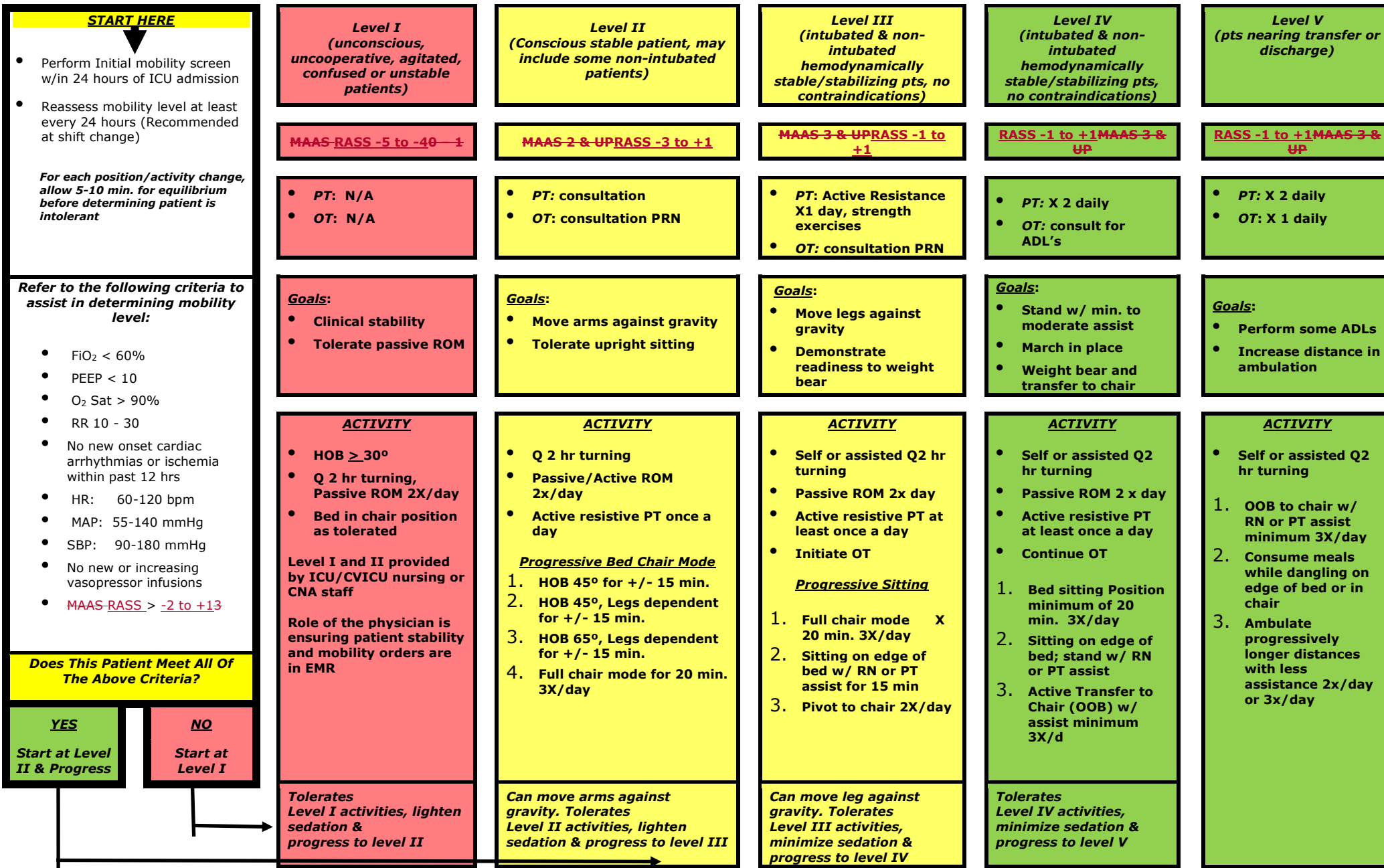
4. Level 4:

- a. Goal: weight bear, active transfer to chair, march/stepping in place (*i.e.: can stand with minimum to moderate assist and shift weight*)
- b. Activity:

	<ol style="list-style-type: none"> 1) Progressive bed sitting, 20+ min, 3x/day 2) Sitting on edge of bed, then standing with assistance of PT, RN, RT 3) Active transfer to chair with assistance of PT, RN, RT minimum of 2x/day <p>5. Level 5:</p> <ol style="list-style-type: none"> a. Goal: increase ambulation distance and ability to perform some ADLs b. Activity: <ol style="list-style-type: none"> 1) Chair (OOB) with assistance of PT, RN, RT 3x/day 2) Meals consumed while in chair or while dangling legs over edge of bed <p>D. Mobility equipment: Equipment to promote and facilitate patient and staff safety includes but is not limited to bed with cardiac chair mode, transfer belts, ceiling lifts with accompanying transfer and ambulation slings, walkers, and stretcher/chairs</p>
	<p>Algorithm: <u>Protocol is illustrated at the end of this document.</u></p>
	<p>Evidence:</p> <ol style="list-style-type: none"> 1. Hopkins RO, Weaver LK, Pope D, et al. Neuropsychological sequelae and impaired health status in survivors of severe acute respiratory distress syndrome. Am J Resp Crit Care Med 1999; 160(1):50-6 2. Herridge MS, Cheung AM, Tansey CM et al. One year outcomes in survivors of the acute respiratory distress syndrome. N Eng J Med 2003; 348(8):683-93 3. DeJonghe B, Sharshar T. et al. Paresis acquired in the intensive care unit. JAMA 2002;288(22):2859-67 4. Leijten FS. The role of polyneuropathy in motor convalescence after prolonged mechanical ventilation. JAMA 1995;274(15):1221-5 5. Levine S, Nguyen T, Taylor N et al. Rapid disuse atrophy of diaphragm fibers in mechanically ventilated humans. N Engl J Med 2008; 358(13)1327-35 6. Stiller K. Safety issues that should be considered when mobilizing critically ill patients. Crit Care Clin 2007;23(1)35-53 7. Bailey P, Thomsen GE. Early activity is feasible and safe in respiratory failure patients. Crit Care Med 2007;35(1):139-45

	<p>8. Morris PE, Goad A, Thompson C et al. Early intensive care unit mobility therapy in the treatment of acute respiratory failure. Crit Care Med; 2008; 36(8):2238-43</p> <p>9. Schweickert WD; Pohlman MC et al. Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomized controlled trial. Lancet 2009; 373(9678):1874-82</p> <p>10. Needham DM. Mobilizing patients in the intensive care unit: improving neuromuscular weakness and physical function. JAMA 2008;300(14)1685-90</p>
	<p>List of Implementation Items and Patient Education:</p> <p><i>I. Update ICU physicians, nurses, respiratory therapists, physical and occupational therapists as they come on board</i></p> <p><i>II. Disseminate guideline to all stakeholders who provide Early Progressive Mobility in the ICU</i></p> <p><i>III. Educate and inform patients and their families on the importance of daily safe mobility</i></p>
	<p>Metrics Plan: <i>Bi-annual review of data to include: percent use of early mobility, selected outcome metrics, safety of protocol and adverse mobility related events.</i></p>
	<p>PDCA Plan: <i>This Care Guideline will be reviewed and update every 3 years by the Medical Director of Critical Care (GSH) Critical-Care Collaborative.</i></p>
	<p>Point of Contact: <i>Medical Leader – Critical Care Collaborative</i></p>
<p>Approval By: Collaborative (Critical Care) MHS/Other Committee MCC/Collaborative Leadership Tacoma Ops Collaborative</p>	<p>Date of Approval: 04/2016 N/A 05/2016 X/XX</p>
<p>Original Date: Revision Dates: Reviewed with no Changes Dates:</p>	<p>02/2016 06/2016; 03/2019 04/2018</p>

Distribution: MultiCare Connected Care + MultiCare Health System



EARLY PROGRESSIVE MOBILIZATION FOR CRITICALLY ILL PATIENTS (EPM)