ICU Pediatric Early Mobilization

Order received to implement ICU Early Mobilization

Contraindication present?

Yes

No

Evaluate for precautions

Precautions present?

Yes

No

RN/PT/OT to assess mobility level

Patient on invasive mechanical ventilation?

Yes

No

Proceed with mobilization interventions (see Appendix B)

RT to be present if recent tracheostomy within 3 days

Yes

No

Suspend activity and re-evaluate within 6 hours

Re-assess mobility level every 12 hours

Continue with mobilization interventions as indicated by appropriate level

Discontinue signs of intolerance during re-evaluation?

Yes

No

Patient on invasive mechanical ventilation?

Yes

No

Hemodynamic instability despite vasopressors

Uncontrolled seizures

Acute abdomen

RASS score of -3 and lower, or +2 and higher (Appendix A)

Fraction of inspired oxygen ($FiO_2$) $\geq 0.60$

Hemoglobin $< 8$ grams/dL or platelets $< 20$ K/ microliter

Active bleeding

Hemoglobin 8-10 grams/dL

Uncontrolled pain

Unstable fracture

Active bleeding

PROM = passive range of motion
PRAFO = pressure relief ankle foot orthosis
RT = respiratory therapy
RN = registered nurse
PT = physical therapy
OT = occupational therapy

1 Contraindications
- Increased intracranial pressure (ICP) $\geq 15$ mmHg
- Acute or uncontrolled intracranial event
- Positive end expiratory pressure (PEEP) $\geq 10$ cm H$_2$O on invasive mechanical ventilation
- Volumetric diffusive respiration (VDR) or high frequency oscillatory ventilation (HFOV)
- Difficult airway
- Continuous dialysis
- Lumbar drain
- Any major surgery
- Vasopressor medication

2 Precautions
- Venous thromboembolism
- External ventricular drain
- RASS score of $+1$ (Appendix A)
- Mechanical ventilation
- Active bleeding
- Hemoglobin $< 8$ grams/dL or platelets $< 20$ K/ microliter

Department of Clinical Effectiveness V5

Ordered by the Executive Committee of the Medical Staff on 07/21/2020
ICU Pediatric Early Mobilization

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.

APPENDIX A: Richmond Agitation Sedation Scale (RASS)

<table>
<thead>
<tr>
<th>RASS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Combative</td>
</tr>
<tr>
<td>3</td>
<td>Very agitated</td>
</tr>
<tr>
<td>2</td>
<td>Agitated</td>
</tr>
<tr>
<td>1</td>
<td>Restless</td>
</tr>
<tr>
<td>0</td>
<td>Alert and calm</td>
</tr>
<tr>
<td>-1</td>
<td>Drowsy</td>
</tr>
<tr>
<td>-2</td>
<td>Light sedation</td>
</tr>
<tr>
<td>-3</td>
<td>Moderate sedation</td>
</tr>
<tr>
<td>-4</td>
<td>Deep sedation</td>
</tr>
</tbody>
</table>

APPENDIX C: Signs of Intolerance

- Oxygen saturation less than 88%
- Increased work of breathing
- Use of accessory muscles
- Perioral cyanosis
- Breath holding
- Nasal flaring
- Subcostal retractions
- Change in character of cry
- Development of any contraindications
- Vital signs outside of pediatric normative values (see Appendix D)
- Irritability

APPENDIX D: Pediatric Normative Values

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Respiratory Rate per minute</th>
<th>Heart Rate per minute</th>
<th>Systolic Blood Pressure (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn (less than 1 month)</td>
<td>30-50</td>
<td>120-160</td>
<td>50-70</td>
</tr>
<tr>
<td>Infant (1-12 months)</td>
<td>20-30</td>
<td>80-140</td>
<td>70-100</td>
</tr>
<tr>
<td>Toddler (1-3 years)</td>
<td>20-30</td>
<td>80-130</td>
<td>80-110</td>
</tr>
<tr>
<td>Preschooler (4-5 years)</td>
<td>20-30</td>
<td>80-120</td>
<td>80-110</td>
</tr>
<tr>
<td>School age (6-12 years)</td>
<td>20-30</td>
<td>70-110</td>
<td>80-120</td>
</tr>
<tr>
<td>Adolescent (greater than 12 years)</td>
<td>12-20</td>
<td>55-105</td>
<td>110-120</td>
</tr>
</tbody>
</table>

Key

- Total Assist (patient performs 0-24%)
- Maximum Assist (patient performs 25-49%)
- Moderate Assist (patient performs 50-74%)
- Minimum Assist (patient performs 75-99%)
- Supervision (assist patient with set up and/or cuing)

PROM = passive range of motion
ROM = range of motion
OOB = out of bed
ADL = activities of daily living
BID = twice daily

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SUGGESTED READINGS


Brower, R. (2009). Consequences of bed rest. Critical Care Medicine, 37(10 Suppl), S422-S428. https://doi.org/10.1097/CCM.0b013e3181b6e30a


This practice consensus statement is based on majority opinion of the ICU Pediatric Mobilization experts at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

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