Early Mobility in the ICU, How is It Going?

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Why Early ICU Patient Mobility?

Diaphragm muscle thinning and atrophy begins within 18 to 48 hours after intubation


Rectus Femoris protein breakdown begins within 24 hours of ICU admission, cross sectional area declining rapidly during first week


Why Early ICU Patient Mobility?

The duration of bed rest during critical illness was consistently associated with weakness throughout 24-month follow-up.


Based on available evidence, early exercise/PT seems to be the only treatment yet shown to improve long-term physical function of ICU survivors.


Astronauts are on Bed Rest

They exercise for at least 2 hours/day to counter the adverse effects to their bone density and muscles.
An Image of ICU Delirium

Delirium Prevention

• We recommend performing early mobilization of adult ICU patients whenever feasible to reduce the incidence and duration of delirium (+1B)


How Are We Doing?

Point Prevalence Studies:


In this 1-day point-prevalence study conducted across Germany, only 24% of all mechanically ventilated patients and only 8% of patients with an endotracheal tube were mobilized out of bed as part of routine care.
How Are We Doing? Point Prevalence Studies:


45% were mechanically ventilated. Mobilisation activities were classified into five categories that were not mutually exclusive: 140 patients (28%) completed an in-bed exercise regimen, 93 (19%) sat over the side of the bed, 182 (37%) sat out of bed, 124 (25%) stood and 89 (18%) walked. Predefined adverse events occurred on 24 occasions (5%). No patient requiring mechanical ventilation sat out of bed or walked.

How Are We Doing? Point Prevalence Studies:

Terri Hough University of Washington Medical Center, Presenting at The 7th International Physical Medicine and Rehabilitation of Critically Ill Patients Meeting 5/17/2014, Across the US:

64% of ICU patients experienced any activity, 50% of those were bed level activity, 20% of those were transfers to a chair, 10% of those were walking

Profoundly variable practice patterns

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Moving From Information to Practice: How Exercise Can Help You Live Longer

By Gretchen Reynolds, April 2, 2014, New York Times

Having unhealthy cholesterol numbers, elevated blood pressure or an expanding waistline substantially increases your chances of developing heart disease. But an encouraging new study finds that exercise may slash that risk, even if your other risk factors stay high.

Top 10 Excuses for Keeping An ICU Patient Immobile
SAFETY:

Excuse: The Patient is too...

Excuse # 1. SAFETY:
The patient is too sick, or too big

TRUE:
New onset sepsis or respiratory distress (think of hours NOT days)
Unstable bleeding or surgical site
Terminal disease (comfort care measures),
Comatose
Acute unstable cardiovascular event

Solution # 1. SAFETY:
The patient is too sick, or too big

Collaborate with RN, RT, MD
Use Clinical judgment
Every diagnosis in context

Context
Is it a beautiful sunny day after so much rain, or are we in the middle of a drought?
Excuse # 1. **SAFETY:**
The patient is too sick, or too big

FALSE: The patient has a DVT (reference the American College of Chest Physicians 2012 guidelines: people with acute DVT do not need a period of bed rest)

FALSE: The obese patient was admitted able to walk at home (think of how crucial prevention can be)

FALSE: The patient is on ARDS Net Protocol

FALSE: The patient is a new admit to the ICU

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Excuse # 2. **SAFETY:**
The patient is too sleepy
RASS -1 to -4
Hypoactive delirious
Goal targeted sedation?

Solution# 2. **SAFETY:**
The patient is too sleepy

Collaborate with RN, RT, MD
Use Clinical judgment
Every level of delirium in context
Consider the environment
Solution # 2. **SAFETY**: The patient is too sleepy and may respond well to being up

Solution # 3. **SAFETY**: The patient is too agitated

Society of Critical Care Medicine Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium

“We recommend performing early mobilization of adult ICU patients whenever feasible to reduce the incidence and duration of delirium” (+1B)


Excuse # 3. **SAFETY**: The patient is too agitated

Excuse # 4. **SAFETY**: The patient has challenging lines or endotracheal tube
What About All Those Critical Lines?

Patient lines and drains can be accommodated
Including Femoral Lines
Mechanical ventilation and CVVH lines


What About All Those Critical Lines?

Lines, catheters and drains can be accommodated, secured
EVD line stationary bike

Excuse #5 Timing: The patient is leaving

The patient is going for:
A procedure
A CT scan
Transferring to the floor
Will be extubated soon

Solution #5 Timing: Soon to be Extubated

Activity trumps extubation:
A pre- and post activity rest period with assisted ventilator ventilation for 20 min was employed as needed to support early activity.

If the patient was intubated and able to participate in activity, the FIO2 was increased by 0.2 before initiation of activity. We deferred ventilator weaning in support of activity, as necessary.

Excuse #6 **Timing**: The patient needs a nap

The patient
Had a bad night
Feels tired
Didn’t sleep last night
Wants to sleep now to make up for it


Solution #6 **Timing**: The patient needs a nap

Schedule a time
Create a sleep hygiene program in your ICU
Address night staff as well as day
Set circadian rhythms

Excuse #7 **Staffing/Equipment**: No one is available to manage the lines

- No portable ventilator
- No high back chairs
- No minimal lift equipment
- No full time PT


Solution #7 **Staffing/Equipment**: Overcome the Barriers

Establish the program for your local culture
Begin with the easier smaller success stories
Collect data to evaluate and re-evaluate

Excuse #8 **Staffing/Equipment**: My other patient is too sick, I can't help or watch this patient.

Solution #8. Patients Expectations and Patient Centered Goals

Returning to life as they knew it

Not a new life of disability or perpetual patient

What are the Expectations?

Excuse #9 **Staffing/Equipment**: the attending MD doesn't think it's a going to work for this patient.


Solution #9. Learning opportunities


Solution #10. Staffing/Equipment: The physical therapist is not here

Excuse #10. Staffing/Equipment: The physical therapist is not here

The PT has higher priority patients outside the ICU

The PT leaves the difficult to transfer patient in the chair

Build the case for a full time dedicated ICU PT


Plan ahead and coordinate care

In Summary

Critical illness is catabolic and depleting, rapidly and potentially lasting for years

A prolonged ICU stay can cause delirium and cognitive changes for most patients

Mobility combined with minimal or no sedation started at the beginning of an ICU stay is protective and preventative

Approach the task with structured QI project, collaboration, barrier identification
Mobility is Life

Early mobility is profoundly beneficial to your patients
Don’t be afraid, they do better than you expect
It is a MULTIDISCIPLINE task