



*Spreading Knowledge – Improving Outcomes*

# Early Mobility in the ICU

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# Progressive Mobility in the ICU

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What are  
the risks of  
bedrest!

Is it safe?

What are  
the  
outcomes?

How do we  
do it?

# Immobility has its Risks

## Loss of lean muscle tissue:

- 18% throughout average ICU stay
- 1.5% to 2% per day<sup>8</sup>

Increased insulin resistance

Thromboembolic disease

Microvascular dysfunction

Systemic Inflammation

Atelectasis

Pressure Ulcers

Joint contractures

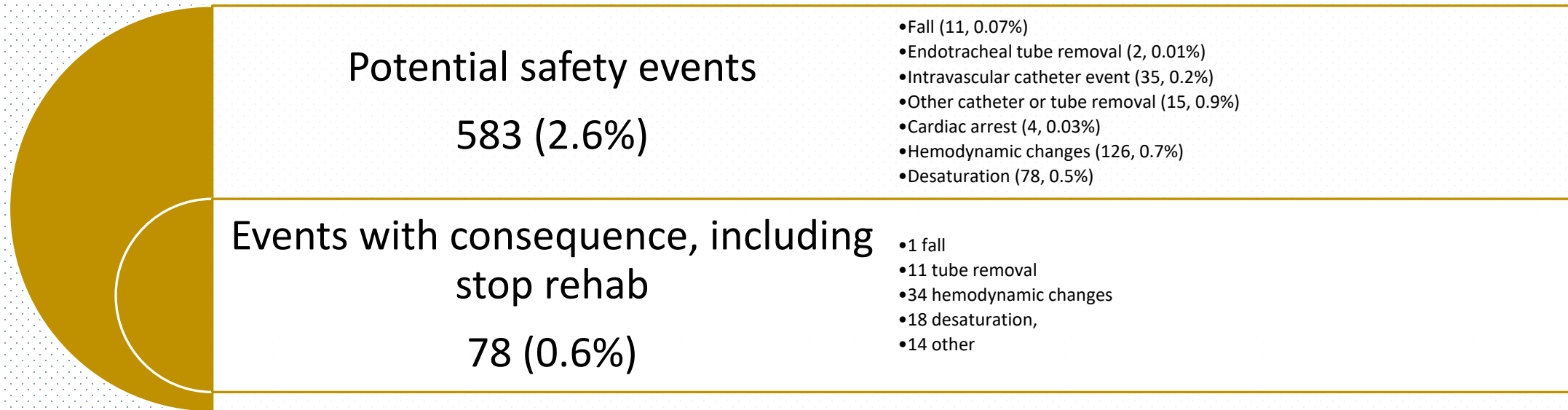
# Mobility in ICU is Safe

## Safety of Patient Mobilization and Rehabilitation in the Intensive Care Unit

### Systematic Review with Meta-Analysis

Ann Am Thorac Soc. 2017 May;14(5):766-777

Peter Nydahl<sup>1\*</sup>, Thiti Sricharoenchai<sup>2\*</sup>, Saurabh Chandra<sup>3</sup>, Firuzan Sari Kundt<sup>4</sup>, Minxuan Huang<sup>5</sup>, Magdalena Fischill<sup>6</sup>, and Dale M. Needham<sup>7</sup>



Included Adult studies of ICU mobility with safety data: 48 publications (n=7,546 pts; 22,351 sessions)  
6 RCT, 2 Non-randomized trial, 5 before-after, 22 prospective cohort, 11 retro cohort, 2 prevalence studies

Single-Center Quality Improvement Report

Critical Care  
Explorations

OPEN

## Early Mobilization in the ICU: A Collaborative, Integrated Approach

Christopher A. Linke, RN, CCRN-K; Leah B. Chapman, RN, CCRN; Linda Tara L. Kelly, PT, DPT; Craig A. Korpela, OT; Michael G. Petty, PhD, RN

Sci. 30: 1193–1201, 2018

The Journal of Physical Therapy Science

Review Article

## Rehabilitation and early mobilization in the critical patient: systematic review

PATRICIA ARIAS-FERNÁNDEZ, RN<sup>1)</sup>, MACARENA ROMERO-MARTIN, RN, MHS<sup>2)</sup>, JUAN GÓMEZ-SALGADO, PhD<sup>3, 4)\*</sup>, DANIEL FERNÁNDEZ-GARCÍA, PhD<sup>5)</sup>

Multicenter Study

> Crit Care. 2021 Jan 6;25(1):16. doi: 10.1186/s13054-020-03446-9.

## Systematic early versus late mobilization or standard early mobilization in mechanically ventilated adult ICU patients: systematic review and meta-analysis

Dominik Menges<sup>1</sup>, Bianca Seiler<sup>2</sup>, Yuki Tomonaga<sup>3</sup>, Matthias Schwenkglenks<sup>3 4</sup>, Milo A Puhan<sup>3</sup>, Henock G Yebo<sup>3</sup>

Review


> PLoS One. 2015 Jul 1;10(7):e0130722. doi: 10.1371/journal.pone.0130722. eCollection 2015.

## Effect of Early Rehabilitation during Intensive Care Unit Stay on Functional Status: Systematic Review and Meta-Analysis

Ana Cristina Castro-Avila<sup>1</sup>, Pamela Serón<sup>2</sup>, Eddy Fan<sup>3</sup>, Mónica Gaete<sup>2</sup>, Sharon Micken<sup>4</sup>

## RESEARCH ARTICLE

# Early mobilization of critically ill patients in the intensive care unit: A systematic review and meta-analysis



Lan Zhang<sup>1</sup> , Weishu Hu<sup>2</sup>, Zhiyou Cai<sup>2</sup>, Jihong Liu<sup>1</sup>, Jianmei Wu<sup>2</sup>, Yangmin Deng<sup>2</sup>, Keping Yu<sup>2</sup>, Xiaohua Chen<sup>2</sup>, Li Zhu<sup>2</sup>, Jingxi Ma<sup>2</sup>, Yan Qin<sup>1</sup> \*

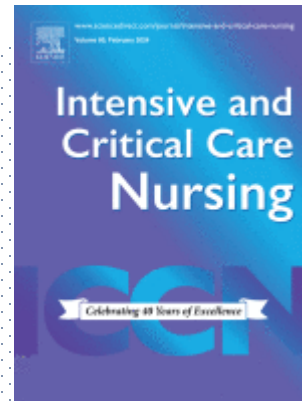
**1** Department of Neurology, The Second Affiliated Hospital of Chongqing Medical University, Chongqing, P. R. China, **2** Department of Neurology, Chongqing General Hospital, Chongqing, P.R. China



Review Article

# Early mobilisation within 72 hours after admission of critically ill patients in the intensive care unit: A systematic review with network meta-analysis

Nils Daum<sup>a</sup>, Nils Drewniok<sup>a</sup>, Annika Bald<sup>a</sup>, Bernhard Ulm<sup>b c</sup>, Alyona Buyukli<sup>a</sup>, Julius J. Grunow<sup>a</sup>, Stefan J. Schaller<sup>a b</sup>  



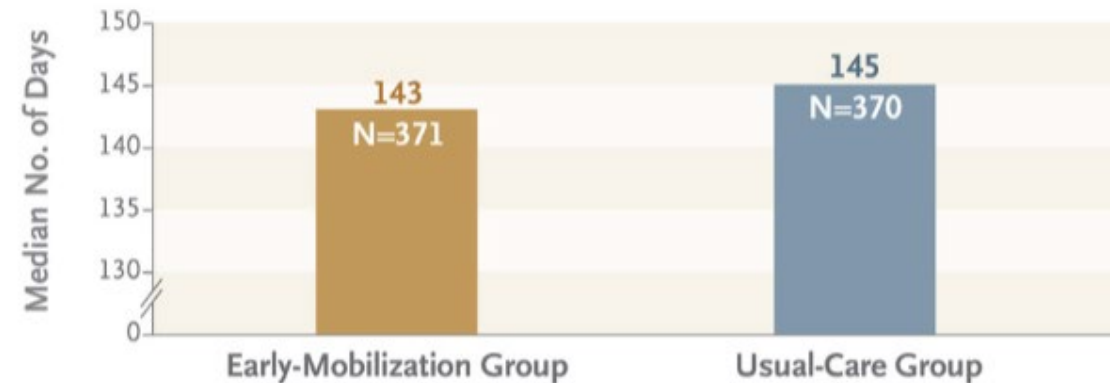
## RESEARCH SUMMARY

# Early Active Mobilization during Mechanical Ventilation in the ICU

The TEAM Study Investigators and the ANZICS Clinical Trials Group DOI: 10.1056/NEJMoa2209083

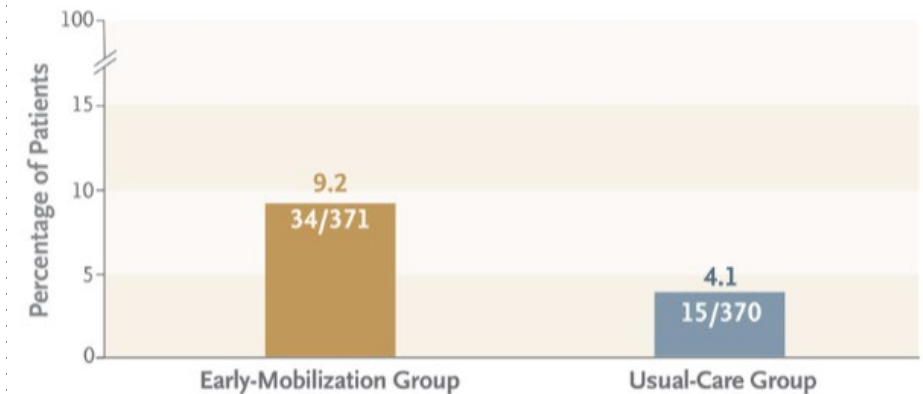
### Days Alive and Out of the Hospital at Day 180

Difference, -2.0 days (95% CI, -10 to 6); P=0.62



### Patients with $\geq 1$ Adverse Event Potentially Due to Mobilization

OR, 2.55 (1.33–4.89); P=0.005

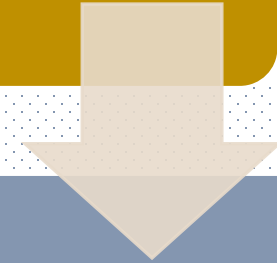




# Progressive Mobility Program

## Standards on all patients

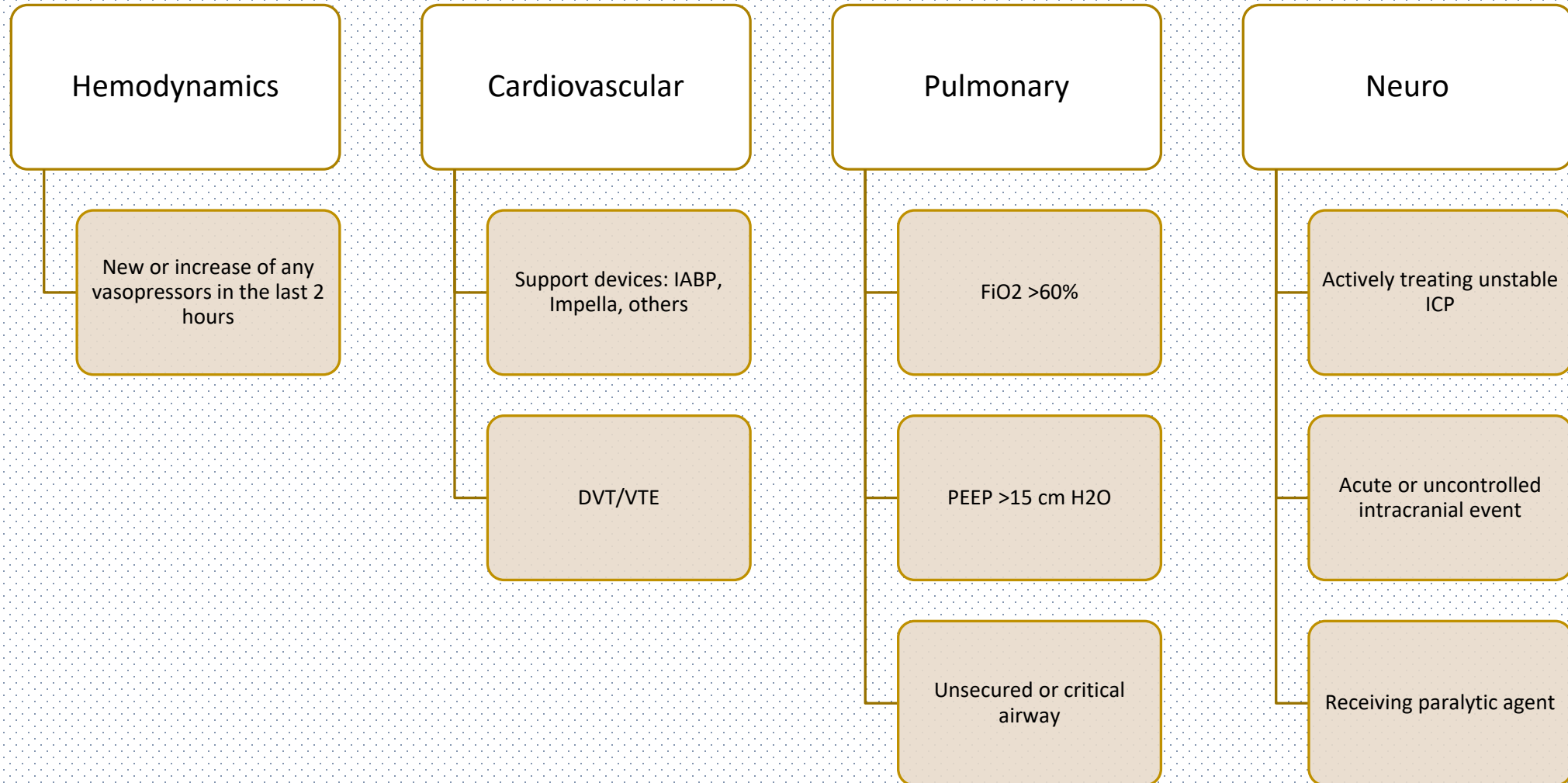
- Turn every 2 hours
- HOB 30 degrees
- Active and passive range of motion
- Minimize back time if able
- Observe weight bearing



## Mobilization

- No exclusion criteria
- Early
- Progressive

# Exclusion Criteria



# Mobility in the ICU

- Order not to mobilize
- Cardiac Considerations
  - IABP
  - Impella
  - Other femoral devices (seek clarification)
- Pulmonary Considerations
  - FiO2 > 85% (>60% discuss with MD)
  - PEEP >15 cm H2O (>10 discuss with MD)
  - Unsecured airway

## EXCLUSION CRITERIA

Screen for Safety

- Hemodynamic Considerations
  - New vasopressor in the last 2 hours
  - Increase of any vasopressors in the last 2 hours
- Neuro Considerations
  - Actively treating an unstable ICP
  - Acute or uncontrolled intracranial event
  - Receiving paralytics
  - Brain death, or actively dying

Evaluate Daily

Reassess with each mobility encounter

- Minimize back time
- Bed in chair position BID
- Order PT/OT
- Once acuity diminishes, advance to Level 2

01.



02.



03.



04.



05.



## ICU Progressive Mobility Program

Standard of Care for All Patients

Turn Q 2 hours  
HOB 30-40°  
AROM/PROM Q 8 hours  
Minimize back time if able



## Bedrest

## Dangle and Passive Transfer to Chair

- Dangle or sit at edge of bed 3X per day
- Apply gait belt
- Assist patient to side of bed, if possible place feet on floor for a minimum of 5 minutes
- Passive transfer to chair
- Once criteria met, advance to Level 3

## Stand and Active Transfer to Chair

- Apply gait belt
- Assist patient to advance to chair "sitting time"
- Active transfer to chair
- Place in chair for all meals or TID
- Once patient tolerates 30 - 60 minutes in chair, advance to Level 4

## Walk with Assistance

- Provide assistive devices if required
- Apply gait belt
- Observe weight bearing orders
- Assist patient with walking
- Once patient demonstrates walking safely with no assistance, advance to Level 5

**Stop here if patient is at risk for fall**

## Walk Independently

- Walks in hallway independently with the goal to walk 200 feet prior to discharge
- Observe and monitor for safety while walking
- Up in chair for all meals



Every Moment  
Matters