

POSTER PRESENTATION SCHEDULE

10th Annual Johns Hopkins Critical Care Rehabilitation Conference

Time	Presenter(s)	Title	Institution
Thursday, November 4, 2021 - AM Session [Facilitator - Sowmya Kumble, PT]			
7:15 AM – 8:10 AM	Jessica LaRosa, MD	Evaluation of a Simulation Curriculum to Improve Frequency and Safety of Nursing-Led Early Physical Rehabilitation of Critically Ill Children	Johns Hopkins Hospital, Baltimore, MD, USA
	Daisy Ching, BSc	Early Mobilization Program in Queen Mary Hospital (QMH) in Hong Kong (HK)	Queen Mary Hospital, Pok Fu Lam, Hong Kong
	Gila Akselrad, DPT	Utilizing Salient Activities to Improve Functional Strength and Mobility in An Adult Patient Who Awoke from Surgery with Paraplegia: A Case Study	New York-Presbyterian Hospital/Columbia University Irving Medical Center, New York, NY, USA
	Barbara Geven, MSc	Early Mobilization in the Pediatric Intensive Care Unity: The Views of Healthcare Professionals	Amsterdam UMC, Amsterdam, Netherlands
	Gila Akselrad, DPT	The Value of Advocacy, Consistency of Care, and Occupational Justice in the Rehabilitation of a COVID-19 Survivor: A Case Study	New York-Presbyterian Hospital/Columbia University Irving Medical Center, New York, NY, USA
	Anjali Garg, MD	Examination of Social Determinants of Health in Pediatric Rehabilitation: A Review	Johns Hopkins Hospital, Baltimore, MD, USA
	Erica McCartney, BSN, RN**	Implementation of ICU Patient Diaries in an Adult Intensive Care Unit	Swedish Edmonds, Edmonds, WA, USA

*: Not confirmed

#: No poster received as of Oct 18, 2021



Evaluation of a Simulation Curriculum to Improve Frequency and Safety of Nursing-Led Early Physical Rehabilitation of Critically Ill Children

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INTRODUCTION

- Early pediatric intensive care unit (PICU) mobilizations are safe and associated with improved clinical outcomes.
- Nurses are the sole PICU staff involved in the majority of mobilizations.
- Nursing-specific mobility training is desired, improves ICU mobilization compliance, and increases confidence in mobilizing higher-risk patients.
- Simulation is superior to traditional instruction methods for teaching clinical skills.
- PICU nurses identify simulation curriculum as a potential facilitator to PICU mobilization.

OBJECTIVE

- The aim of this study is to design and implement nurse-targeted, simulation-based early mobility curriculum to determine if it improves nurse confidence and competency and the frequency of mobilizations at the bedside.

METHODS

Targeted Needs Assessment

- 10 bedside nursing-led mobilizations will be observed to assess specific nursing needs and adherence and utilization of the current PICU Up! materials.

Curriculum Development

- Curriculum will be developed utilizing information gathered from unit wide needs assessment and targeted needs assessment.
- An interprofessional team consisting of nursing, physical therapists, respiratory therapy, child life specialists, and physicians will design the simulations.

METHODS

Table 1: Anticipated Curriculum Objectives

1. Demonstrate appropriate initial assessment of patients' PICU Up! Level
2. Identify appropriate patient developmental activities
3. Discuss importance of mobility with family members
4. Communicate mobilization and emergency plans with other providers
5. Perform mobilization appropriately
6. Recognize and respond to criteria to pause activity, rest, and reassess

Curriculum Development

- Half day sessions will be designed with two group simulations utilizing both standardized patients and mannequins followed by brief didactic sessions.

Curriculum Assessment

- We will determine if the curriculum improves knowledge and comfort with early mobility utilizing a pre-post interventional study of 12 PICU nurses.
- Knowledge and self efficacy will be assessed with a 20-question pre- and post-test.
- Skill obtainment will be assessed with individual pre- and post- Observed Structured Clinical Exams (OSCEs) which will be scored utilizing the PICU Up! Mobility Checklist.
- Based on feedback and evaluations from these sessions, the curriculum will be deployed PICU-wide to determine implications at the bedside.

Figure 2: PICU Up! Mobility Checklist

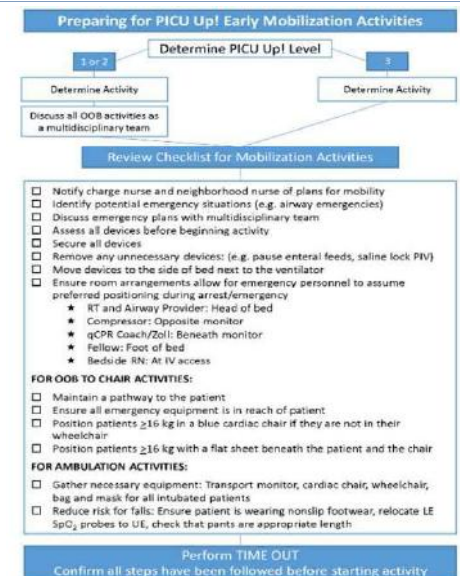
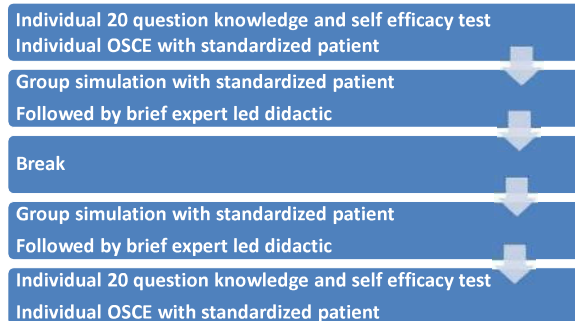


Figure 1: Anticipated Curriculum Structure



PICU-wide Assessment

- A pre-post interventional study of 100 critically ill children ages 1 day to 17 years old who require admission for 3 or more days will be conducted.
- Mobilizations in 100 consecutive patients who meet inclusion criteria and are admitted (1) during the pre-intervention phase (n=50) and (2) during the post-intervention phase (n=50) will be evaluated.
- Demographic data, clinical information, and mobility data will be captured.

CONCLUSIONS

- We hypothesize that we will demonstrate the crucial importance of hands-on nursing education to improve and increase the early mobility of critically ill children.

Early Mobilization Program in Queen Mary Hospital in Hong Kong

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1: Physiotherapy Department, Queen Mary Hospital 2: Adult Intensive Care Unit, Queen Mary Hospital

Background

Critically-ill patients hospitalizing in Adult Intensive Care Unit (AICU) prone to have ICU-acquired weakness, increased risk of pneumonia, delirium, prolonged hospital length of stay, impaired functional status and inability in self-care.

Early Mobilization (EM) is effective in preventing neuromuscular weakness and promote functional recovery of critically-ill patients. Since October 2020, Physiotherapy Department of Queen Mary Hospital (QMH) in Hong Kong has started a 365-day round-the-year AICU EM program to enhance mobility of ICU patients.

Methods

This was a protocol driven program. All AICU patients were triaged by physiotherapists within 24 hours of admission for recruitment into the program. In-bed exercise ranged from passive limbs mobilization to active cycling (Level I, II) and out-of-bed exercises varied from passive standing exercise to ambulation exercise (Level III, IV) were performed according to patients' conscious level, muscle strength and clinical condition. (Table 1)

	Level I	Level II	Level III	Level IV
RASS	-3 to -5	-1 to -2	+1 to -1	0
Muscle strength	N/A	< 3	≥ 3	> 3
Highest mobility	Passive limbs	Active limbs	Standing	Walking

Table 1. Level of Intervention

Number of patients recruited into the program and number of EM sessions performed were recorded. Outcomes including ICU Mobility Scale (ICUMS) and Medical Research Council Sum Score (MRC-SS) were taken at initial and final physiotherapy session in AICU. Data from October 2020 to May 2021 were collected and evaluated.

Initial and final MRC-SS and ICUMS were compared using Wilcoxon signed rank test with SPSS.

Result

Out of 627 patients who received physiotherapy in AICU during the period, 587 (93.6%) were recruited into the program. There were 373 male patients and 214 female patients. Average age was 63.1 years old. Patients were from different specialties. (Chart 1)

There were overall 2408 physiotherapy sessions, of which 2083 (86.5%) were EM sessions. All sessions had no adverse event. 31.7% of these patients achieved out-of-bed exercise and 30.6% of the patients achieved an ICUMS of 4 or above before AICU discharge.

When comparing outcomes of the initial and final physiotherapy sessions in AICU, there was a significant improvement of ICUMS ($Z = -11.056$, $p < 0.001$) and MRC-SS ($Z = -7.791$, $p < 0.001$). (Table 2 & Chart 2)

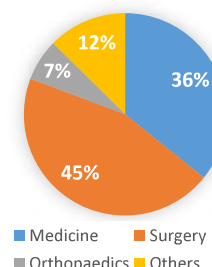


Chart 1. Number of patients and percentage among different specialties.

	Initial	Final	p
ICUMS	1 (1-1)	1 (1-6)	<0.001
MRC-SS	40 (24-48)	48 (36-54)	<0.001

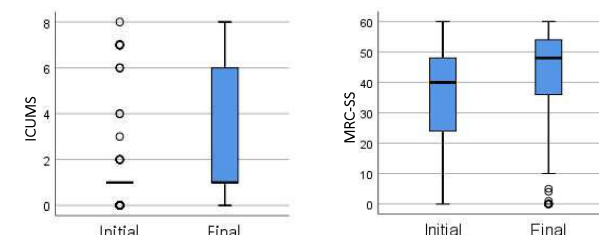


Table 2 & Chart 2. ICUMS and MRC-SS in medians and interquartile range (IQR). Wilcoxon signed rank test, P-value, significance level $p \leq 0.05$.

Conclusion

Early mobility is a core part of a comprehensive set of strategies to improve patient outcomes in the ICU. It can be performed safely and improves functional performance upon ICU discharge.



Utilizing Salient Activities to Improve Functional Strength and Mobility in An Adult Patient Who Awoke from Surgery with Paraplegia: A Case Study

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[†]Department of Rehabilitation and Regenerative Medicine, NewYork-Presbyterian Hospital - University Hospital of Columbia and Cornell, New York, NY

Background

Research highlights the importance of choosing salient activities to improve neuroplasticity. Due to limited resources and treatments occurring at bedside during acute hospitalizations, salience is often overlooked.

Purpose

The purpose of this case study is to highlight individualized care and the use of salient activities in the acute care setting to address functional mobility, strength, ADL, and psychological impairments associated with post surgical deficits for a patient who awoke from surgery with paraplegia.

Case Description

Demographic:

Female in her late 50's;
Independent at baseline;
Former professional dancer;
Pilates instructor

Surgery:

Planned bi-frontoparietal craniotomy to excise a symptomatic parasagittal spindle-cell meningioma

PMH:

No known

Pre-op objective findings:

ROM:
AROM BUE/BL:E WNL
MMT:
BUE/BLE: 5/5
Sensation:
Intact

Post-op objective findings:

ROM:
PROM BUE/BLE: WNL
AROM BUE: WNL BLE: 0°
MMT:
BUE: WNL BLE: 0/5 except
gluteus maximus and hip
abduction 1/5 bilaterally
Bowel/bladder:
Intact control
Sensation:
Decreased RLE> LLE

Protective Factors:

- Strong mind-body connection
- Good family support
- Motivation

Interventions

Common PT Activities



Conclusion

Using these salient activities and psychosocial support techniques along with the positive factor of time since surgery, the patient's motor control and strength returned to her lower extremities. During her 20 day hospitalization, she progressed from an AM-PAC Basic Mobility scaled score of 25.8 to 42.48. The patient was ultimately discharged home with use of a quad cane for community distances.

Early mobilization in the Pediatric Intensive Care Unit: the views of healthcare professionals

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Introduction

Early mobilization in critically ill patients aims to maintain or restore their musculoskeletal strength. Although mobilizing critically ill children has been proven to be safe and feasible, it is not yet routine in the clinical care on PICUs. The aim of this study was to explore the possible benefits, barriers and attitudes of early mobilization among PICU professionals.

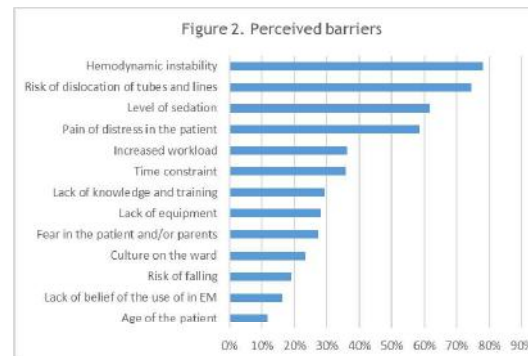
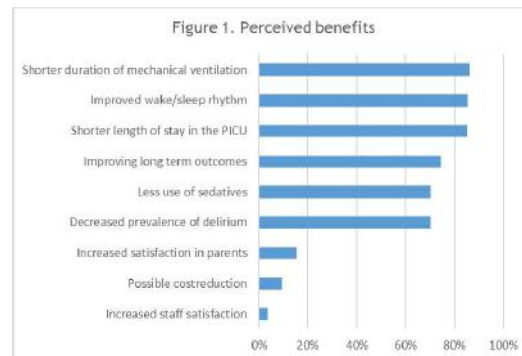
Methods

A self-constructed survey among PICU nurses, physicians and physical therapists of the seven PICUs in the Netherlands. The survey consisted of 17 questions and was electronically administered to the PICU staff.

Results

In total, 215 professionals (response rate 33.5%) completed the survey: 161 nurses (74.8%), 40 physicians (18.6%), and 14 physical therapists (6.6%). The main results are:

- 98% of the respondents believe children without mechanical ventilation can be mobilized, depending on age and development.
- 87.4% of the respondents believe it is safe to mobilize mechanically ventilated children.
- Support of a dedicated physical therapist is considered essential, but only 43.3% of the respondents experience sufficient support on their PICU.
- When mechanically ventilated children are mobilized out of bed, parents or caregivers are given an important role in mobilization.
- Perceived benefits and barriers are presented in figure 1 and 2.



Conclusion

All respondents consider mobilization as being useful and potentially beneficial in shortening the duration of mechanical ventilation, as well as the length of stay on the PICU, and improving wake/sleep rhythm. Perceived barriers for mobilization are hemodynamic instability, the risk of dislocation of lines and tubes, and the sedation level of the patient.

The Value of Advocacy, Consistency of Care, and Occupational Justice in the Rehabilitation of a COVID-19 Survivor: A Case Study

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Columbia University
Irving Medical Center

Background & Purpose

Research indicates that lack of patient advocacy negatively impacts patient care and length of stay. The professional promise of Physical and Occupational Therapists (PT/OT) is to maximize quality of life within a patient's functional limitations while considering occupational justice. In order to best honor these promises, PT/OT often have to approach patient care from a holistic lens, and perform duties that go beyond billable treatment interventions. As a result, PT/OTs take on the roles of educators, advocates, and companions for patients, which was essential during the COVID-19 pandemic when patients had limited contact with their typical support system.

Case Description

Demographics:

67 year-old Hispanic male, independent at baseline, lives in a 4th floor walk up apartment with his family

Admission:

BIBEMS to Emergency Department

Chief complaint:

SOB, fever, generalized weakness

PMH:

Epilepsy, DM, HTN (controlled)

Hospital course:

COVID-19, Acute Respiratory Distress Syndrome (ARDS), Kidney Failure

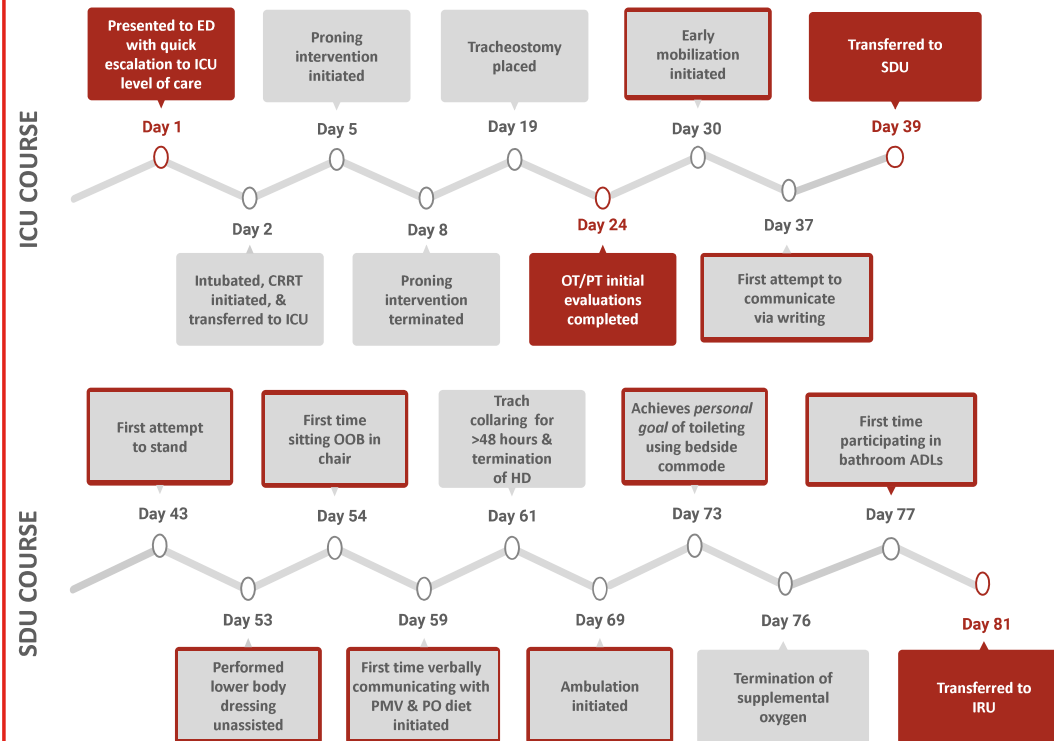
Life sustaining measures:

Mechanical ventilation, Proning, Continuous Renal Replacement Therapy

Length of Stay:

Acute care: 81 days
Inpatient rehab: 9 days

Hospital Course



Patient Perspective

"You guys help me stand, but I want to do it on my own."

"I want to go home to heal."

"I'll try. That's all I can do."

"If it were up to me, I'd sit in the chair all day."

"So happy to see you!"

Functional & Structural Barriers

The patient experienced extensive functional and structural barriers throughout his hospitalization including tenuous medical fragility, cognitive impairments, language barriers, and limited health literacy.

Progress Monitored via AM-PAC



IRF-PAI Scores

	Mobility Items	Self-Care Items
Admission (Day 81)	3-4 *	3-5 *
Discharge (Day 90)	4-6 *	5-6 *

* Ordinal scale; Max score of 6

Conclusion

Through positive patient-therapist rapport, PT/OT promoted the patient's wants and needs in all aspects of his care in order to help overcome his barriers. Through persistent advocacy, consistency in care, and upholding the tenets of occupational justice the patient was discharged to our acute inpatient rehabilitation unit, and ultimately, discharged home at a functional level of supervision/modified independence (IRF-PAI score: 4-6 for all items).

Examination of Social Determinants of Health in Pediatric Rehabilitation: A Review

Anjali Garg MD, Riley Mitchell, Janey Song, Ariel Egbunine, Katie Lobner, Sapna Kudchadkar MD PhD
Johns Hopkins University Department of Anesthesia and Critical Care Medicine

BACKGROUND

- Critically ill children suffer from increased physical, psychological, and social consequences and morbidities post-intensive care stay
- Rehabilitation and early mobilization increase recovery of pediatric patients
- Health care disparities such as race and socioeconomic status have dire effects on health care delivery, access, and outcomes

OBJECTIVE

- To examine the current evidence and literature regarding health care disparities in pediatric rehabilitation

METHODS

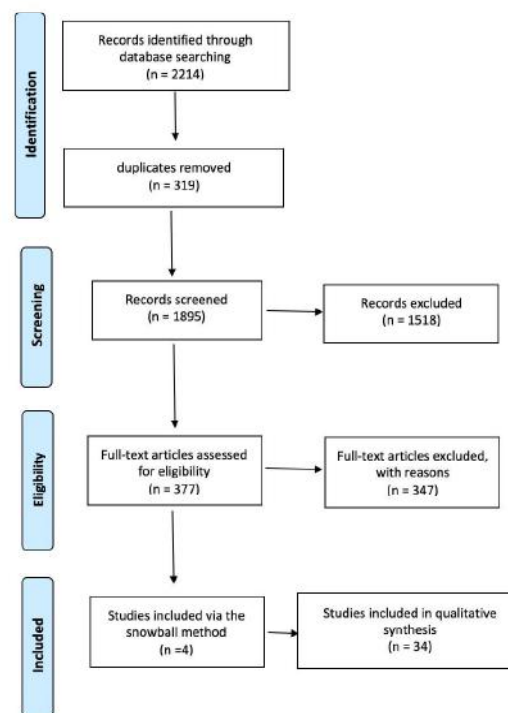
Inclusion Criteria:

- 1) Written in English
- 2) Primarily addressed health disparities
- 3) Focused on rehabilitation
- 4) Limited to the pediatrics

Rehabilitation included: physical therapy, speech therapy, occupational therapy, inpatient rehabilitation, and outpatient rehabilitation

METHODS CONT'D

PRISMA Flow Diagram

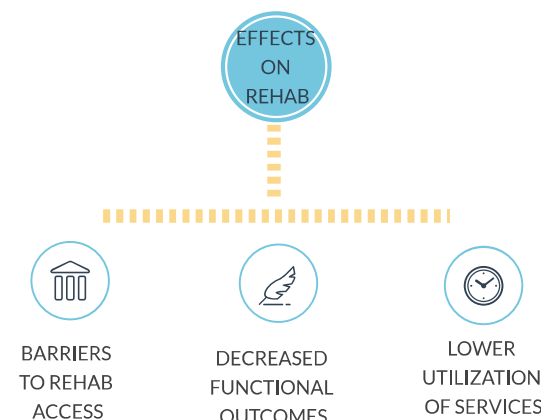


- Interrater reliability was 75%
- Third reviewer was the tie breaker for differences
- 34 articles included for final data extraction
- Results were classified into categories based on salient themes identified in the literature.

LITERATURE SYNTHESIS

Salient health disparities themes included:

- 15 articles discussed race/ethnicity. Black children had lower functional outcomes and decreased access to rehabilitation
- No articles included LGBTQ individuals
- Public insurance, discussed in 8 articles, had lower access to rehabilitation services and increased scarcity of rehabilitation services
- 8 articles focused on low socioeconomic status as a disparity. Severity of illness was exacerbated as well as access to services



References available on request: agarg15@jhmi.edu