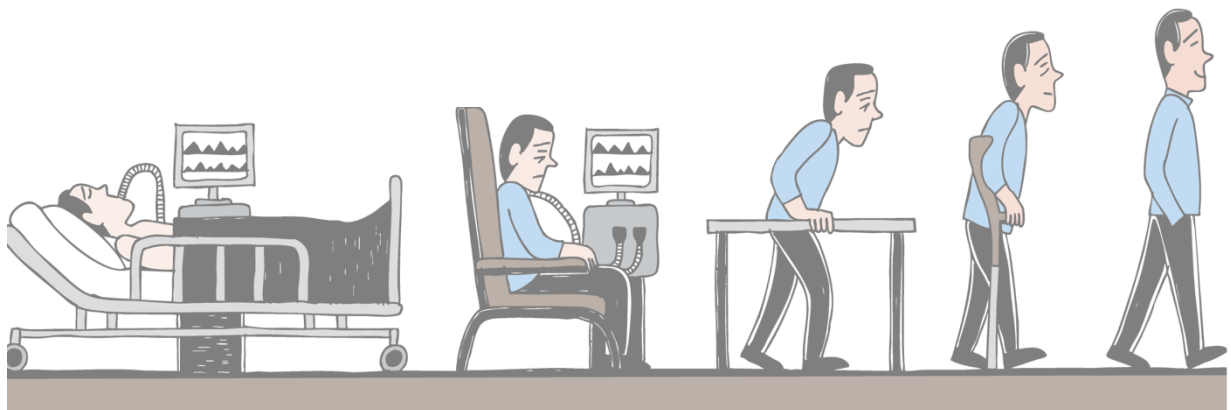


from 26 to 27 September 2026 in Paris

10th European Congress on Weaning and Rehabilitation in Critically-ill Patients

BOOK *of* ABSTRACTS



Scientific Committee:

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Sabrina Eggmann
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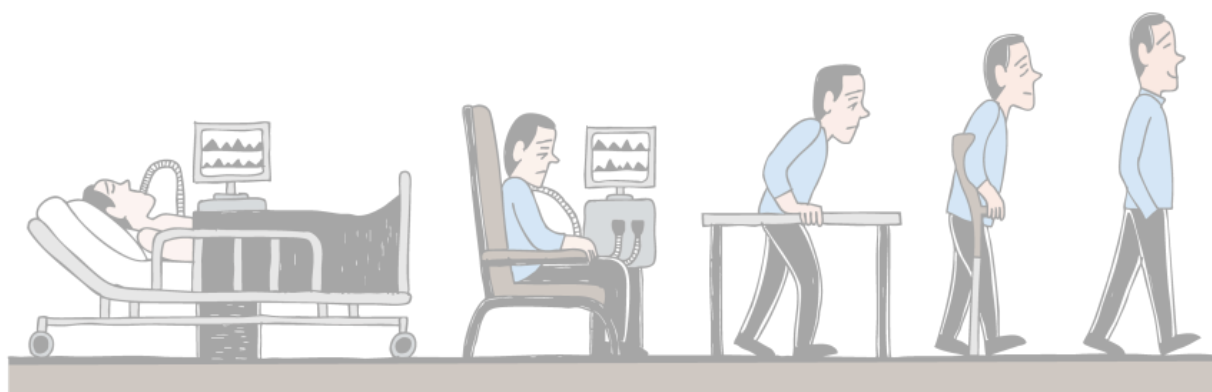
Sunday September 27th

"Best abstracts awards" 15:30-16:00

Moderator: Cheryl Hickmann

Com 1	Family-Led Sensory Stimulation in ICU Patients with Disorders of Consciousness: A Systematic Review and Meta-Analysis
Com 2	What is the effect of measurable respiratory muscle training on respiratory muscle strength in mechanically ventilated adults in intensive care units? A systematic review and meta-analysis
Com 3	Dynamic Diaphragmatic Thickening During Spontaneous Breathing Trials and Risk of Reintubation: A Bayesian Prospective study

About figures and tables: We deeply apologize for the omission of figures and tables from the Book of Abstracts, which was due to formatting constraints and the need to ensure consistency and fairness in terms of space allocation across all abstracts. A note has been included at the end of each affected abstract to indicate this omission.



10th European Conference on Weaning and Rehabilitation in Critically-ill Patients

Family-Led Sensory Stimulation in ICU Patients with Disorders of Consciousness: A Systematic Review and Meta-Analysis

Musterd, L.

Amsterdam UMC, Department of Rehabilitation Medicine, Amsterdam, the Netherlands.

Introduction: After acute severe brain injury, patients frequently develop a disorder of consciousness (DoC). Sensory stimulation is a common early intervention involving auditory, visual, tactile, or olfactory input to promote recovery of consciousness. While previous studies have mainly focused on the subacute and chronic phases of recovery, the effects of sensory stimulation delivered by family members during the acute phase of critical illness remain unclear. Understanding the potential role of family-led sensory stimulation may inform rehabilitation strategies and support patient-centred ICU care, this study therefore evaluates its effect on consciousness levels in ICU patients with DoC relative to usual care or nurse-led stimulation.

Methods: A systematic review with meta-analysis was conducted between February and May 2025. PubMed, Embase, and CINAHL were searched for intervention studies evaluating family-led sensory stimulation in adult ICU patients with DoC, compared with usual care or nurse-led stimulation. Predefined inclusion and exclusion criteria were applied. When appropriate, meta-analyses were performed; studies not eligible for pooling were analysed descriptively.

Results: Seven studies, including a total of 480 patients, met the inclusion criteria. Intervention protocols varied in frequency, duration, and sensory modalities. Meta-analyses demonstrated that family-led sensory stimulation significantly improved levels of consciousness compared with usual care. Significant improvements were observed on day 3 (MD 0.64, $p = 0.02$), with increasing effects on day 7 (MD 2.14, $p < 0.001$) and day 14 (MD 3.02, $p = 0.007$). In direct comparisons, family-led stimulation was more effective than nurse-led stimulation (MD 1.95, $p < 0.001$). Best evidence synthesis suggested that twice-daily, multimodal 30-minute sessions delivered by trained family members provided the most consistent benefits.

Discussion: Although family-led sensory stimulation appears promising, the current evidence base is limited by the small number of available studies, with some meta-analyses relying on only two trials. Moreover, substantial variability exists in intervention content, intensity, and delivery, as well as in cultural norms surrounding family participation in ICU care. These limitations highlight the need for standardized, culturally informed protocols and well-designed studies focusing on the acute phase of DoC.

Conclusion: Family-led sensory stimulation appears to be a safe and effective intervention, allowing appropriately guided family members to contribute meaningfully to recovery of consciousness in ICU patients with DoC. Future research should focus on protocol refinement, long-term outcomes, and cross-cultural applicability.

Com 2

What is the effect of measurable respiratory muscle training on respiratory muscle strength in mechanically ventilated adults in intensive care units? A systematic review and meta-analysis

Eimear McCormack¹, Suzanne McDonough², Yvelynne P Kelly³, Maria Baily-Scanlan⁴, Nina Holden⁴, Laura Hammond⁴, Orla Brady⁴, Bernie Bissett⁵, Orlagh O'Shea²

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Background: Respiratory muscle weakness, associated with mechanical ventilation during critical illness, is well established. Respiratory muscle strength training (RMST) including inspiratory muscle training (IMT) and expiratory muscle strength training (EMST) aims to address this weakness. The aim of this systematic review and meta-analysis was to assess the effectiveness of RMST, delivered using measurable load devices, to increase respiratory muscle strength in mechanically ventilated adults in the intensive care unit.

Methods: Conducted per Preferred Reporting Items for Systematic reviews and Meta-Analyses guidelines, the review included randomised controlled trials of intensive care unit patients aged ≥ 16 years, ventilated ≥ 24 h, receiving RMST (IMT or EMST) via measurable load devices before extubation, published from January 2000 to January 2024. Preoperative/postoperative training and cohorts with other causes of respiratory weakness were excluded. Searches covered electronic databases, clinical registers, reference lists, and SCOPUS. Meta-analyses and sensitivity and subgroup analyses were performed using Cochrane Review Manager (RevMan). Risk of bias (RoB2) and Grading of Recommendations, Assessment, Development, and Evaluation tools were applied to assess respiratory muscle strength.

Results: Fourteen studies ($n = 844$) met inclusion criteria (seven with low and seven with a high risk of bias). No trial employed EMST. Thirteen randomised controlled trials ($n = 747$) reported maximal inspiratory pressure (MIP) in response to IMT. Findings showed low-certainty evidence that IMT increases MIP by 6.9 cmH₂O ([95% confidence interval {CI}: 4.9 to 9], $i^2 = 83\%$), improving to high-certainty evidence after sensitivity analysis (6.3 cmH₂O [95% CI: 3.8 to 8.8], $i^2 = 34\%$, $n = 397$). IMT was also associated with reduced weaning time (-1.9 days [95% CI: -3 to -0.8], $i^2 = 76\%$, $n = 482$) and shorter ventilation duration (-1.7 days [95% CI: -3.8 to 0.3], $i^2 = 32\%$). Reductions in rapid shallow breathing index (-6.4 breaths/min/L [95% CI: -16 to 3.2], $i^2 = 78\%$) were also observed.

Conclusion: This systematic review supports the use of IMT delivered using measurable load devices, initiated during mechanical ventilation, in critical care patients, to increase MIP measures. Other potentially positive effects found in this review such as reduced weaning and mechanical ventilation durations in response to IMT need further confirmation.

PMID: 40972257 DOI: 10.1016/j.aucc.2025.101418

Com 3

Dynamic Diaphragmatic Thickening During Spontaneous Breathing Trials and Risk of Reintubation: A Bayesian Prospective study

Paulina Vivanco Aravena¹; Aurio Fajardo-Campoverdi²; Jerónimo Graf³; Macarena Leiva¹.

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²Intensive care physician, Critical Care Unit, Viña del Mar, Chile.

³Intensive care physician, Critical Care Unit, Clínica Alemana, Santiago, Chile.

Introduction: Liberation from invasive mechanical ventilation is a pivotal step in critical care, yet extubation failure remains frequent (15–30%) and is associated with increased morbidity and mortality. Conventional predictors such as the rapid shallow breathing index (RSBI) provide limited accuracy and fail to reflect diaphragmatic function — a key determinant of weaning success. Diaphragmatic thickening fraction (DTF), assessed by ultrasound, reflects inspiratory muscle contractility, but its dynamic behavior during spontaneous breathing trials (SBT) and its relationship with reintubation risk remain unclear. This study evaluated whether dynamic changes in DTF during SBT improve prediction of extubation outcomes compared with RSBI.

Methods: We conducted a prospective observational cohort study in a medical-surgical ICU in Santiago, Chile. Adults ventilated >48 hours undergoing SBT were included. RSBI, DTF, P0.1, and pressure muscle index (PMI) were measured at 1 and 60 minutes; primary predictors were dynamic change scores ($\Delta = 60 \text{ min} - 1 \text{ min}$). Outcomes included SBT success and reintubation within 72 hours. Bayesian logistic regression with weakly informative priors assessed predictive performance via PSIS-LOO and WAIC, with posterior probabilities estimating individualized reintubation risk across continuous DTF values

Results: Twenty-seven patients were included (median age 67 years; 63% male). Eighteen (66.7%) were extubated, of whom 2 (11.1%) required reintubation; 9 (33.3%) failed the SBT. Patients who failed showed progressive increases in inspiratory effort, with higher P0.1 and PMI by 60 minutes. P0.1 was the strongest predictor of SBT failure (OR 1.53, 95% HDI 1.04–3.87), the only index whose interval excluded values below 1.0. For extubation, RSBI showed slightly better predictive performance than DTF (non-inferiority probability 0.67). For reintubation, DTF ranked highest with comparable performance to RSBI (non-inferiority probability 0.80; superiority 0.52). Posterior modeling showed progressively increasing reintubation risk with higher Δ DTF; a value near 50% corresponded to approximately 10% predicted risk.

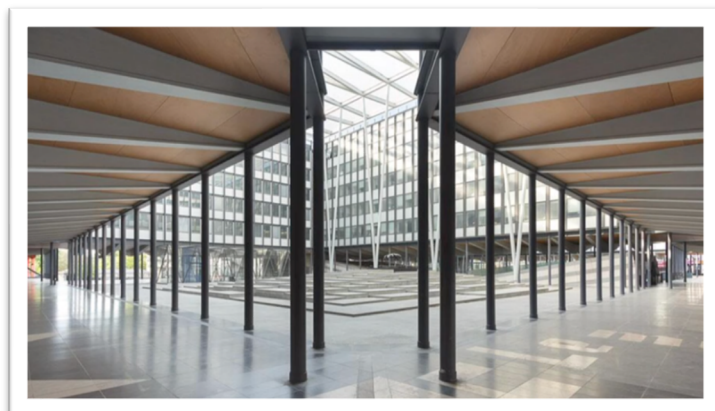
Discussion: These findings support respiratory load–capacity imbalance as the central mechanism of weaning failure. RSBI and DTF capture complementary physiological domains: breathing pattern reflects immediate SBT tolerance, while diaphragmatic contractility better reflects post-extubation reserve, explaining its superior performance for delayed respiratory failure.

Conclusion: Dynamic changes in DTF during SBT demonstrate predictive performance comparable to RSBI and may better identify patients at risk of reintubation. A Δ DTF of approximately 50% emerged as a clinically relevant reference point corresponding to 10% predicted reintubation risk, pending external validation. Integrating diaphragmatic assessment into weaning evaluation may enhance individualized risk stratification beyond conventional indices.

Poster presentations

DAY 1

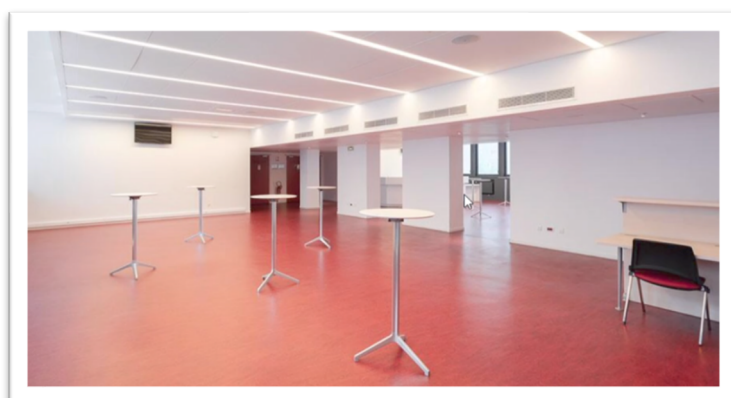
Saturday September 26th
from 12:30 to 13:15



Patio

Exterior Posters

Group 1 - Sat (from E01 - Sat to E07 - Sat) Moderators: Clément Medrinal, Alexandre Demoule
Group 2 - Sat (E08 - Sat to E14 - Sat) Moderators: Peter Spronk, Rik Gosselink
Group 3 - Sat (E15 - Sat to E20 - Sat) Moderators: Juultje Sommers, Paulo Azevedo
Group 4 - Sat (E21 - Sat to E26 - Sat) Moderators: Eleftherios Karatzanos, Åse Valsø
Group 5 - Sat (E27 - Sat to E31 - Sat) Moderators: Irini Patsaki, Florence Dabas



Hall 102

Interior Posters “The scientific committee selection”

Group 6 - Sat (IN01 - Sat to IN06 - Sat) Moderators: Yann Combret, Peter Nydahl
Group 7 - Sat (IN07 - Sat to IN12 - Sat) Moderators: Greet Hermans, Guillaume Fossat

Complete list of Posters and Topics at the end of the document (page 97 to 100)

E01 - Sat

Persistent inspiratory muscle weakness among extubated patients after prolonged intubation is frequent and can be predicted early by maximal inspiratory pressure measured 12 days after its initial diagnosis: a prospective observational study.

Valentin Oestreicher^{1,2,3#}, Marius Hennemann^{3,4,5,#}, Roger Hilfiker⁶, Thibault Faivre², Greg Zoni⁴, Marianne Demont^{4,5,7}, Mélanie Teixeira⁸, Roberto Uchino⁹, Didier Tassaux², Lise Piquilloud^{5,10,#}, Olivier Contal^{3,#}

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Background

Prolonged mechanical ventilation (MV) frequently results in inspiratory and peripheral muscle weakness, impairing recovery. These conditions can be identified at the bedside using respectively Maximal Inspiratory Pressure (MIP) measurement and Medical Research Council (MRC) score. This study investigated the evolution over the acute-care hospital stay of MIP and MRC score in patients with documented post-extubation inspiratory muscle weakness (IMW), defined as MIP $\leq$ 30 cmH₂O, and looked for the factors associated with persistent IMW at the end of the acute care hospital stay.

Method

This exploratory prospective observational study was conducted across five Swiss hospitals. Patients in the Intensive Care Unit (ICU) who were extubated after $\geq$ 7 days of MV, with IMW diagnosed within 48 hours post planned extubation, were included. Patients' characteristics and ICU-related factors were recorded throughout the acute care stay as were MIP and MRC score. ICU-acquired weakness (ICU-AW) recorded in the medical file, ICU readmission, reintubation, and hospital mortality were also documented. Descriptive statistics and linear interpolation for missing MIP data were applied, and associations with persistent IMW (MIP $\leq$ 30 cmH₂O) at study completion were explored using univariable logistic regression. The optimal timepoint for predicting persistent IMW using MIP was identified using a random forest model.

Results

Sixty-nine patients (48 men, 21 women) completed the study. At study completion, persistent IMW was observed in 30 patients (43%), with a median MIP of 22 [13–24] cmH₂O. MIP was of 44 [36–64] in patients without persistent IMW. Persistent IMW was positively associated in univariable logistic regression with female sex, duration of catecholamine use until inclusion, MIP at day 12, MRC score at day 12 and changes in MIP from inclusion to day 12. The presence of respiratory comorbidities was negatively associated with persistent IMW.

Conclusion

Persistent IMW following prolonged MV is frequent throughout the acute care stay and until acute care hospital discharge. The MIP measured at day 12 after inclusion, as well as its change from inclusion to day 12, were strongly associated with persistent IMW.

E02 - Sat

Is a combined respiratory muscle training intervention, incorporating inspiratory and expiratory muscle training, feasible in adult critical care patients? A single-arm feasibility trial.

Eimear McCormack

Clinical Specialist PT, Tallaght University Hospital, Dublin, Ireland

Background: Respiratory muscle weakness is a well-recognised consequence of critical illness, particularly in patients requiring mechanical ventilation. This weakness affects both inspiratory and expiratory muscles and often results in impaired cough and secretion clearance. Evidence supports the use of inspiratory muscle training (IMT) to improve inspiratory muscle strength in critically ill patients. However, despite evidence supporting expiratory muscle strength training (EMST) in other patient populations, its use in critical care has not yet been evaluated. A combined respiratory muscle strength training (RMST) intervention incorporating both IMT and EMST may offer additional benefits for this population.

Objectives: To evaluate the feasibility of a trial protocol for a combined RMST intervention in adult critical care patients who are either mechanically ventilated or recently liberated (≤ 48 hours) from mechanical ventilation. Secondary objectives were to assess staff perceptions of the intervention's usability in clinical practice and to collect preliminary clinical outcome data to inform future randomised controlled trials.

Methods: This single-arm feasibility trial used convenience sampling and was conducted in an Irish intensive care unit (ICU). The study protocol was registered on ClinicalTrials.gov (NCT07055789). Eligible participants were adults aged ≥ 18 years who had been mechanically ventilated for ≥ 24 hours and were either on acceptable ventilator settings or had been extubated within the previous 48-hours. Participants were required to be alert and able to follow commands. Exclusion criteria included patients deemed medically unsuitable by the ICU physician, pregnancy/ breastfeeding, pre-existing respiratory muscle dysfunction unrelated to the current critical illness, recent surgical intervention, or palliative management. Recruitment occurred over an 11-month period. Participants received a daily combined RMST intervention in addition to usual care for a maximum duration of three-weeks.

Feasibility outcomes included recruitment, adherence, retention, safety, other outcomes included staff usability, and variability in selected clinical outcomes.

Results: Twenty-four patients met the inclusion criteria, of whom 22 were recruited; two declined participation. Twenty participants completed the intervention. Feasibility outcomes were favourable, with a recruitment rate of 92%, mean adherence of 86.7%, and a retention rate of 91%. The intervention was safe, with no adverse events recorded. Preliminary clinical outcomes demonstrated increases in mean (SD) maximal inspiratory pressure (MIP) of 33.2(25.3)cmH₂O, maximal expiratory pressure (MEP) of 32.4(25.2)cmH₂O, and peak cough flow of 138.9(84)L/min. Staff usability survey results are pending.

Conclusion: A combined RMST intervention appears feasible and safe in mechanically ventilated or recently extubated adult ICU patients. Improvements in respiratory muscle strength measures suggest potential clinical benefit. These findings support progression to a multicentre randomised controlled trial to evaluate intervention effectiveness.

Registration: clinicaltrials.gov NCT0705578

E03 - Sat

Therapy of Tracheal Stenosis in Patients with Post Tracheostomy Tracheal Stenosis (PTTS)

Bandorski D.^{1*}, Schlitter T.¹, Allendörfer J.¹, Hetzel J.², Klingenberg P.¹, Ley L.³

¹ Neurological Clinic Bad Salzhausen, Nidda, Germany,

² Department of Pneumology, University Hospital Basel, Basel, Switzerland

³ Campus Kerckhoff, Justus-Liebig-University Giessen, Bad Nauheim, Germany

Introduction:

Several (interventional) techniques are available for the treatment of PTTS. We present our registry data of the patients treated so far and demonstrating four illustrative cases, taking into account different treatment modalities and success rates.

Methods:

Retrospective and ongoing prospective data of neurological care patients in weaning after long-term ventilation who had undergone tracheostomy are presented (cohort study). Tracheoscopies were performed, and the appropriate therapy was administered. Descriptive statistics were performed. A positive ethics vote from the Ethics Committee of the Medical Association of Hesse and an international registration (NCT05924087) are available.

Results:

Data from 132 patients (m/f, n=55/67, age 67±13 years) were analyzed. PTTS due to a mucosal swelling (n=30) regressed under prednisolone and neck lymph drainage. In 82 patients, cryoablation was performed due to granulation tissue. Additional therapies were argon plasma coagulation (APC, n=2), or sling extractions (SE, n=12) [see Figure 1]. The number of interventions per patient ranged from 1-5 (mean: 1.5 ± 0.9). No peri-interventional complications occurred. External therapy in the referring hospitals was performed in 4 patients. Long-term outcomes: Decannulation in 102 patients, permanent tracheal cannula care in 23 patients, surgery in one patient, discharge with temporary tracheal cannula (n=1), 6 patients died during the course. Figure 2 shows data of one patient with three interventions (Cryoablation, SE) suffering from clinical symptoms after tracheostomy. The tracheal tubes could ultimately be removed and the patient's quality of life improved significantly.

Discussion:

Our data demonstrate that treatment of PTTS is feasible and safe (procedure-associated complication rate: 0%) and effective (decannulation rate: 77.3%). The study is the largest (n = 132) demonstrating safety and effectiveness of (interventional) treatment of PTTS.

In a previous publication (63 patients) therapy of PTTS was predominantly performed using cryoablation (initial treatment in n=31), but other methods such as argon plasma coagulation (APC) and high-frequency surgery (HFC) using various slings were also used [1].

Conclusion:

PTTS a clinically relevant problem. Edematous stenoses can be treated with prednisolone and lymphatic drainage. Repeated interventions are occasionally necessary. Cryoablation is a safe and promising treatment option. Additional treatment options (APC, SE) should be available for specific indications.

Literature: [1] Cryoablation for the Treatment of Post-Tracheostomy Tracheal Stenosis in Neurological Patients. Ley L., Klingenberg P., Hetzel J., Schlitter T., Ghofrani HA, Allendörfer J, Bandorski D. *Respiration*. 2024 Dec 23;1-11. doi: 10.1159/000543103.

Figures will be displayed in the Poster

E04 - Sat

Evaluation of standardized weaning schedules on physical functioning in patients with weaning failure; the WEANFIT study

Authors: A.C.M. Verbiest Msc¹, R. van der Stoep¹, Dr. J. Sommers¹, Dr. H. Endeman^{2,3}

¹Department of Orthopaedics, Physiotherapy Unit, Erasmus MC University Medical Center, Rotterdam, The Netherlands.

²Department of Intensive Care, Erasmus MC, University Medical Center Rotterdam, The Netherlands.

³Intensive Care, OLVG, Amsterdam, The Netherlands

Introduction:

Weaning failure is associated with high morbidity, delayed rehabilitation, and high healthcare costs. While daily screening and structured weaning protocols reduce ventilation duration and intensive care unit (ICU) stay, their effect on physical functioning remains unclear.

The WEANFIT study evaluated whether standardized weaning schedules, embedded in a protocol, improve physical functioning in patients with weaning failure compared to non-standardized weaning schedules.

Methods:

This retrospective study compared two cohorts: before and after implementation of standardized weaning schedules. Eligible patients were ≥ 18 years, ventilated > 7 days, without neurological diagnoses. Data were extracted from the electronic patient dossier. The primary outcome was physical functioning at ICU discharge, assessed with the ICU Mobility Scale (IMS). Secondary outcomes were ICU – and hospital length of stay, re-intubation, re-admission and discharge destination.

Results:

The data of 46 non-standardized weaned patients and 81 standardized weaned patients were analyzed. The IMS was not significant with a median of 4. However, the interquartile range increased from 2.8–5.0 in the non-standardized patients to 3.0–6.5 in the standardized patients. Re-intubation rates significantly decreased (63% vs. 33.3%, $p = .001$), while ICU re-admissions and discharge destination showed favorable but non-significant trends.

Conclusion:

Implementation of standardized weaning schedules may be associated with improved physical functioning and fewer re-intubations. These results suggest that integrating standardized protocols into daily ICU practice may optimize recovery and enhance patient outcome.

E05 - Sat

Rehabilitation Whilst Intubated – Is it Worth the Risk?

N. Holden, L. Murray and A. Mohammed

Department of Critical Care, Tallaght University Hospital, Dublin, Ireland

Introduction:

Early rehabilitation is standard practice in critical care and supported by international guidance. However, when patients remain intubated, clinicians must balance the benefits of mobilisation against potential risks. Intubation-related laryngeal injuries are common but typically mild. Mobilisation with an endotracheal tube in situ may increase laryngeal trauma due to tube movement between the vocal cords, though this risk is poorly documented. This study aimed to determine the incidence of laryngeal injury and adverse events in patients undergoing physiotherapy-led rehabilitation while intubated, and to assess the level of mobility achieved.

Methods:

Prospective data were collected over six months in a general critical care unit. Patients who participated in rehabilitation while intubated were included. Primary outcomes were incidence of laryngeal injury and occurrence of adverse events during rehabilitation sessions. Patients were monitored throughout for safety concerns. Functional mobility was measured using the Manchester Mobility Scale (MMS). After extubation, all patients underwent speech and language therapy (SLT) assessment, including instrumental evaluation where indicated, to identify laryngeal injury potentially related to intubation or mobilisation.

Results:

Twenty-one patients completed 36 rehabilitation sessions while intubated. Three patients died and two required tracheostomy, leaving 16 patients for follow-up analysis. Four were female and mean age was 60 years. Reasons for delayed extubation included ventilation requirements (n=9), myopathy (n=3), secretion burden (n=2), airway swelling (n=1), and return to theatre (n=1).

The maximum duration of rehabilitation while intubated was five days (mean one day). The highest MMS achieved was 5 (step transfers with assistance), with a median of 3 (hoisted to chair), indicating that most patients achieved at least a transfer out of bed. No adverse events occurred during any rehabilitation session.

Post-extubation SLT assessment identified laryngeal injuries in three patients. All were mild and referred for ENT follow-up. Two required no further SLT input after discharge, while one required community follow-up for ongoing dysphagia rehabilitation. No patients had persistent voice impairment.

Conclusion:

In this cohort, rehabilitation while intubated was not associated with adverse events and enabled meaningful functional progression. Laryngeal injury incidence was low and injuries were mild. Although causation cannot be determined, findings support the safe initiation of physiotherapy-led rehabilitation in intubated patients, with timely SLT assessment to ensure early identification and management of laryngeal injury.

E06 - Sat

Prehabilitation in Multi Limb Loss on ICU

Laura Mylott - Guy's and St Thomas' NHS Foundation Trust, Royal Brompton Hospital

Matthew Fuller - Guy's and St Thomas' NHS Foundation Trust

Introduction

Severe sepsis requiring inotropic support and extracorporeal membrane oxygenation (ECMO) can result in multi-limb loss (MLL). Early rehabilitation is routinely delivered in intensive care units (ICU) to minimise effects of prolonged bed rest and critical illness. However, when severe limb ischaemia develops and amputation is anticipated, rehabilitation progression may be limited while clinicians await definitive surgical planning. Delayed amputation may maximise preservation of viable limb length and improve future function, but tissue demarcation can take months. Literature describing rehabilitation during this period is limited and clinicians may avoid weight bearing on necrotic limbs. This case study describes ICU rehabilitation during prolonged tissue demarcation before definitive amputation.

Methods

A 38-year-old female was admitted to ICU with septic shock, cardiomyopathy, ARDS and influenza A. Within 24 hours, she required peripheral femoral Veno-Arterial ECMO (VA-ECMO) and Impella support. Despite insertion of a distal perfusion cannula within 48 hours, bilateral lower-limb ischaemia developed. Definitive surgical decisions were delayed to maximise preservation of viable limb length.

Ankle resting splints were introduced on day 7, although application was inconsistent because of skin integrity concerns. As tissue demarcation progressed, both ankles became fixed in plantarflexion. Active rehabilitation commenced on day 30, including bed exercises and edge of bed sitting, progressing to supported weight-bearing using tilt-table therapy from day 48. Active sit-to-stand was achieved on day 98 using adapted footwear to accommodate plantarflexion contractures and facilitate functional weight-bearing. Standing progressed to assisted ambulation with a rollator frame.

Results

The patient progressed from absent sitting balance and head control, with bilateral shoulder subluxations, to assisted standing and ambulation. From initiation of active rehabilitation (day 30) to transfer to High Dependency Unit (day 148), improvements were demonstrated using the Medical Research Council Sum Score (MRC-SS) [Fig 1] and Chelsea Critical Care Physical Assessment Tool (CPAx) [Fig 2]. No adverse events were associated with rehabilitation or weight-bearing activities. Clinicians observed improved mood and engagement following standing. The patient subsequently underwent a right through-knee amputation and left below-knee amputation eight months after admission.

Conclusion

Progressive rehabilitation was feasible and safe during prolonged tissue demarcation before definitive amputation in a patient with ECMO-associated multi-limb ischaemia. Meaningful improvements in strength, function and engagement were achieved despite critical illness. These findings suggest rehabilitation need not be deferred while awaiting definitive surgical management. Fixed plantarflexion contractures limited progression of weight-bearing and gait activities, highlighting the importance of early positioning and contracture prevention to optimise outcomes.

Figures will be displayed in the Poster

E07 - Sat

Effects of Early Neuromuscular Electrical Stimulation on Muscle Strength in Mechanically Ventilated COVID-19 Patients: A Randomized Controlled Trial

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Marieke G.M. Kloosterman (PT, PhD), Medisch Spectrum Twente, Enschede (Netherlands)

Alexander D. Cornet (MD PhD), Intensive Care Center, Medisch Spectrum Twente, Enschede (Netherlands)

Job van der Palen (Prof PhD), Department of Epidemiology, Medisch Spectrum Twente; Section Cognition, Data and Education, University of Twente, Enschede (Netherlands)

Albertus Beishuizen (MD PhD), Intensive Care Center, Medisch Spectrum Twente, Enschede (Netherlands)

Introduction:

Mechanically ventilated COVID-19 patients often experience rapid muscle weakness, particularly ICU-acquired weakness (ICU-AW), which can impair functional recovery. Neuromuscular electrical stimulation (NMES) is proposed as an adjunctive therapy to preserve muscle strength when active rehabilitation is limited due to sedation or low exercise tolerance. Evidence for NMES effectiveness in this specific ICU population remains limited, particularly regarding early intervention.

Methods:

Sixty-five patients were randomized, with 43 analyzed (NMES n=24; control n=19) after deaths (n=18) and incomplete data (n=4). Both groups received early physical therapy; the NMES group additionally received 55 minutes of NMES on weekdays, starting 3–7 days post-admission. Muscle strength was assessed using the Medical Research Council (MRC) scale at first ICU awakening (T1) and ICU discharge (T2). Baseline characteristics were comparable, except for a higher proportion of males in the NMES group (91.7% vs 63.2%, $p=0.030$).

Results:

At T1, NMES patients had significantly higher quadriceps strength: right leg median 3 (IQR 1.5–3) vs 2 (1–2), $p=0.024$; left leg median 2.5 (2–3) vs 2 (1–2), $p=0.013$. Total MRC scores showed a positive trend favoring NMES (median 28 [17.5–35] vs 22 [12–28], $p=0.057$). At T2, differences were no longer significant. NMES was feasible in isolation ICU settings, well tolerated even in sedated patients, and caused no adverse events.

Discussion:

Early NMES preserved quadriceps strength at first awakening, consistent with previous NMES studies. Our intervention used high-intensity stimulation (mean 65 mA) with a greater number of sessions (5–25 per patient), likely contributing to its effectiveness.

NMES may benefit patients unable to perform active training, potentially reducing ICU-acquired weakness and aiding later rehabilitation. Limitations include lack of blinding and early cessation of NMES at $MRC \geq 3$, which may have limited effects at ICU discharge. Despite no impact on ICU length of stay, early NMES may lower post-ICU functional deficits and reduce healthcare burden.

Conclusions:

Early NMES is effective and feasible for preserving quadriceps strength in mechanically ventilated COVID-19 patients, particularly when patients cannot engage in active rehabilitation. Integration into ICU care may prevent muscle deconditioning, support functional recovery, and enhance patient outcomes.

E08 - Sat

Aligning physiotherapist CPAx domain profiles with nurse-led mobilisation in the intensive care unit: a prospective observational cohort study

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Introduction

Effective early ICU rehabilitation depends on coordination between physiotherapist-led functional assessment and nurse-led daily mobilisation. Nurses deliver much of early mobilisation, yet its type and quantity are poorly characterised, and whether nurse-led practice aligns with the domain-specific deficits identified by physiotherapists is unknown.

The Chelsea Critical Care Physical Assessment Tool (CPAx) validly measures physical function, and its domain profiles could direct nurse-led rehabilitation. We aimed to investigate nurse-led mobilisation and physiotherapist-performed CPAx domain profiles, and to assess whether these profiles could individualise nurse-led rehabilitation.

Methods

Prospective, observational, single-centre cohort study. Forty-one adults admitted to a nine-bed mixed ICU (September–December 2025) were enrolled at physiotherapy initiation. During day and evening shifts, nurses recorded the type and duration (minutes) of mobilisation in real time (sitting on the bed edge, sitting out of bed, standing, walking, in-bed cycling).

Physiotherapists assessed physical function using the Danish CPAx (CPAx-D; total 0–50; ten domains scored 0–5). Data are median (IQR); associations used Spearman's rank correlation.

Results

Baseline total CPAx-D was 27 (IQR 14–39; range 6–49). Domain profiles showed pronounced impairment in standing, sit-to-stand, transfers, and gait, with relatively preserved respiratory function, cough, and grip strength. Patients were mobilised 240 (120–360) minutes per ICU day. Sitting out of bed was most frequent (95%), followed by sitting on the bed edge (66%), standing (54%), walking (29%), and in-bed cycling (24%; passive in 78%). Mobilisation was nurse-assisted in 91% and predominantly relied on mechanical lifting. Total mobilisation duration was independent of baseline CPAx-D (ρ 0.05, $p=0.77$), whereas higher baseline function correlated with more time sitting on the bed edge (ρ 0.48, $p=0.001$), standing (ρ 0.50, $p<0.001$), and walking (ρ 0.36, $p=0.02$), and inversely with in-bed cycling (ρ -0.42 , $p=0.007$).

Conclusion

Nurse-led mobilisation was prevalent but relatively uniform and largely passive, dominated by assisted transfer to sitting out of bed. Total duration was not tailored to baseline physical function, although the type of mobilisation was. CPAx domain profiling localised impairment to mobility and postural control—precisely the targets amenable to nurse-led intervention.

Mapping nurse-led rehabilitation onto physiotherapist-derived CPAx domain profiles could enable more active, individualised rehabilitation and strengthen continuity between physiotherapist assessment and daily nurse-led delivery. Prospective studies should evaluate feasibility and clinical impact.

Enhancing ICU Rehabilitation with S-PRESS

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Introduction

Early and effective rehabilitation is a cornerstone of recovery for critically ill patients, yet lower limb weakness and fatigue often limit participation. Traditional strengthening approaches, including progressive resistance exercise, are not routinely implemented in ICU due to equipment, staffing, and patient tolerance constraints. The S-PRESS device is a compact, adjustable tool designed to enable graded lower limb strengthening in bed or seated positions. This project aimed to evaluate the feasibility and acceptability of integrating S-PRESS into ICU rehabilitation.

Methods

A small-scale, single-centre service evaluation was conducted in a general and neurosurgical ICU between 1st February and 31st May 2026. Adult patients (≥ 18 years) with muscle strength $\geq 2/5$ on the Medical Research Council scale were included. The S-PRESS device was trialled with 10 patients, delivering a total of 27 sessions. Six physiotherapy staff received targeted training. Feasibility and acceptability were assessed using structured patient and staff feedback, alongside data on session completion and barriers to implementation.

Results

S-PRESS was found to be safe, feasible, and well tolerated. All staff reported confidence in using the device and perceived improvements in rehabilitation delivery. Patients reported highly positive experiences, with 100% indicating willingness to use the device again and describing increased motivation and engagement. The intervention was brief (10–20 minutes) and suitable as an adjunct to in-bed rehabilitation. However, implementation was limited by organisational factors including workload, competing clinical priorities, and patient fatigue. Session non-completion was commonly related to fatigue, time constraints, or prioritisation of functional rehabilitation.

Conclusion

In this small-scale, single-centre project, S-PRESS was a feasible and acceptable adjunct to ICU rehabilitation, with potential to enhance patient engagement and experience. Implementation challenges appear to be organisational rather than intervention related. Further research is required to evaluate its effectiveness on muscle strength and functional outcomes using larger samples and objective measures, to support wider adoption in critical care practice.

E10 - Sat

Co-creation of a Visual Recovery Tool for ICU Patients: The ICARE Project

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Introduction

Prolonged admission to the intensive care unit (ICU) has a significant impact on patients and their families. During recovery, patients often experience a loss of autonomy, motivation, and overview, which may contribute to long-term impairments known as post-intensive care syndrome (PICS). While interventions such as ICU diaries can support understanding and coping, there remains a clear need for tools that provide structure, insight, and person-centered support throughout the rehabilitation process.

Methods:

The ICARE project aimed to develop a visual recovery tool—the IC Recovery Card—through co-creation with former ICU patients, family members, and healthcare professionals. The project followed the PDCA (Plan-Do-Check-Act) cycle. A national survey among physiotherapists from ten hospitals was conducted to inventory existing tools and experiences. In-depth interviews were held with former ICU patients, family members, and ICU nurses. Insights from these stakeholders were used to design and refine prototypes of the IC Recovery Card, which includes sections for personal information, motivation, weekly goals, milestones, photo moments, and QR codes linking to relevant information and exercises.

Results:

The IC Recovery Card was positively received by patients, families, and healthcare professionals. Key elements include visualization of personal goals, celebration of small achievements, and provision of structure and motivation. The tool facilitates communication and shared decision-making, supports patients in regaining autonomy. Practical considerations include the need for personalization, clear responsibility for use, and attention to privacy when using photos and personal data.

Discussion:

The co-creation process highlighted the importance of involving all stakeholders to ensure the tool's relevance and usability. The IC Recovery Card aligns with the need for person-centered care and shows promise as a supportive tool throughout and beyond ICU rehabilitation. However, as implementation is ongoing, further evaluation is required to assess feasibility, optimize implementation, and determine its impact on patient experience and outcomes, including aspects related to PICS. These next steps are essential to establish its added value in clinical practice.

Conclusion:

The ICARE project resulted in the development of a visual recovery tool that makes the ICU rehabilitation process more transparent, motivating, and personal. The IC Recovery Card supports motivation, insight, and autonomy during ICU rehabilitation. It offers patients, families, and the care team a practical means to share and celebrate weekly goals, milestones, and personal information. Further research is needed to systematically evaluate its impact on recovery outcomes and patient motivation.

E11 - Sat

Criterion Validity of Handheld Spirometers for Monitoring Lung Function During Airway Clearance: A Critical Appraisal

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Introduction

Objective assessment of lung function is important for evaluating airway clearance interventions in patients with impaired mucus clearance. Conventional spirometry is the reference standard but requires specialized equipment and trained personnel, limiting its use in bedside physiotherapy, intensive care, and community settings. Handheld spirometers may provide an accessible alternative; however, their criterion validity remains uncertain. This critical appraisal aimed to evaluate the criterion validity of handheld spirometers compared with conventional spirometry.

Methods

A Critical Appraisal of a Topic (CAT), based on a systematic literature search, was conducted. PubMed was searched using predefined terms related to handheld spirometry, conventional spirometry, and validity. Studies were included if they compared handheld spirometers with conventional spirometry in adults and reported criterion validity outcomes. Studies involving paediatric populations, non-comparative designs, conference abstracts, or non-English publications were excluded. Methodological quality was assessed using the COSMIN Risk of Bias checklist, and certainty of evidence was evaluated using a modified GRADE approach.

Results

Fifty-two records were identified, of which four cross-sectional validation studies (n = 501 participants) met the inclusion criteria. Three studies demonstrated excellent agreement between handheld and conventional spirometry for Forced Vital Capacity (FVC), with correlation coefficients ranging from $r = 0.92$ to 0.97 . Reported limits of agreement ranged from 0.24 L to 0.06 ± 0.56 L, while one study demonstrated a coefficient of variation of 3.3%, indicating acceptable measurement agreement. Methodological quality ranged from very good to inadequate, with limitations including small sample sizes, selection bias, incomplete statistical reporting, and device-specific validation. Overall certainty of evidence was rated as moderate.

Conclusion

Moderate-quality evidence suggests that handheld spirometers demonstrate good criterion validity for measuring FVC compared with conventional spirometry. These devices may support objective monitoring of lung function during respiratory physiotherapy when conventional spirometry is unavailable, particularly in bedside, rehabilitation, and community settings. Although FVC is not a direct measure of inspiratory volume preceding an effective cough, it may serve as a clinically useful surrogate during airway clearance assessment. Further high-quality validation studies evaluating inspiratory parameters in patients requiring airway clearance are needed before handheld spirometers can be recommended as a substitute for conventional spirometry.

Scientific Contribution

This review synthesizes current evidence regarding the validity of handheld spirometers for respiratory physiotherapy practice. It confirms that portable spirometers demonstrate promising agreement with conventional spirometry while identifying important methodological limitations in the available evidence. These findings support future research and may inform clinical decision-making regarding accessible lung function monitoring during airway clearance interventions across hospital and community settings.

E12 - Sat

Virtual Reality in the Early Rehabilitation of Critically Ill Patients: feasibility and safety - a case study

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Introduction:

The purpose of this case study was to assess the feasibility and safety of a novel fully immersive VR intervention in critically ill patients. The innovation of this approach lies in combining intensive VR interventions with custom-designed software providing cognitive and motor dual-task training tailored to ICU patients.

Methods:

A 53-year-old patient admitted to the ICU following polytrauma and hemorrhagic shock, without comorbidities, participated in this intervention. Disease severity on admission was high (APACHEII score:25), with an ICU stay of 93 days, including 22 days of endotracheal intubation and 55 days with a tracheostomy. The intervention consisted of 15-minute VR sessions on 10 consecutive days using *REACT*, a custom-developed software designed for critically ill patients. The patient performed cognitive and motor dual-task activities involving identification, reaching, and transfer of virtual objects. To evaluate safety, heart rate (HR), oxygen saturation (SpO₂), systolic blood pressure (SBP), and diastolic blood pressure (DBP) were recorded before, during, and after each session. Feasibility was assessed using the Suitability Evaluation Questionnaire (SEQ).

Results:

Physiological parameters remained stable throughout the intervention. Mean HR was 85 bpm before VR (range 68–107), 86 bpm during VR (67–105), and 85 bpm after VR (66–105). Mean SBP was 131 mmHg (103–168) before VR, 133 mmHg (108–165) during VR, and 134 mmHg (112–168) after VR. Mean DBP remained unchanged during the intervention (62 mmHg before and during VR, 61 mmHg after VR), while SpO₂ remained stable at 100% throughout all sessions. No clinically significant hemodynamic fluctuations were observed, with variations in HR, SBP and DBP remaining below 14% from baseline. SEQ indicated high feasibility of the intervention.

Conclusions:

This case study supports that an intensive, fully immersive VR intervention designed for critically ill patients is feasible and safe, even in the presence of complex ICU equipment and prolonged critical illness. These findings support the potential use of VR in ICU settings. Larger studies are needed to confirm feasibility and safety and to evaluate its effects on functional and cognitive rehabilitation in critically ill patients.

E13 – Sat

The association between functional disabilities and health-related quality of life in ICU survivors: A prospective cohort study

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Introduction: Improving health-related quality of life (HRQoL) has become a key goal in intensive care medicine, as it reflects the broad impact of intensive care unit (ICU) survivors' well-being. HRQoL in ICU survivors often remain low for an extended period after ICU discharge. Reduced functional status early in the recovery trajectory is associated with poorer long-term outcomes and persistent disabilities. Although post-ICU functional disabilities are frequently reported by ICU survivors, evidence regarding its association with HRQoL during the first year after ICU admission remains limited.

Methods: ICU survivors from six ICUs at two Norwegian hospitals completed the EuroQoL 5-Dimension 5-Levels questionnaires at pre-ICU, and at three, six, and twelve months after ICU admission. Functional disabilities were measured using Katz Index of Activities of Daily Living (P-ADL) and Lawton Instrumental Activities of Daily Living (I-ADL). Generalised linear mixed models were used to examine the associations between functional disabilities and the outcome variables.

Results: Among 423 ICU survivors, 319 (75%) answered questionnaires about HRQoL and self-rated health status. The median age was 61 years, 63% were male, and 71% required mechanical ventilation. Functional disabilities at 3 months were present in 20% of patients for P-ADL and 47% for I-ADL. After adjusting for confounders, functional disabilities in both P-ADL (B=-0.07; 95%CI [-0.11 – -0.03]) and I-ADL at 3 months (B, -0.03; 95%CI, -0.05 – -0.01) were associated with lower HRQoL during the first year after ICU admission. Additionally, functional disabilities in I-ADL at 3 months (B, -2.80; 95%CI, -5.23 – -0.36) were also associated with poorer long-term self-rated health status.

Conclusion: Functional disabilities in ICU survivors were significantly associated with lower long-term HRQoL and self-rated health. These findings underscore the need for early screening for functional disabilities among ICU survivors and the importance of ICU follow-up clinics to identify ICU survivors who may benefit from person-centred interventions to improve both recovery and long-term HRQoL.

E14 – Sat (*not attending*)

What are ICU survivors' experiences of a UK -based, national virtual recovery support program?

Kate Samways, affiliated with University of Winchester & ICUSteps

Introduction:

Virtual support groups have the potential to assist recovery following discharge from the intensive care unit, yet they remain an emerging form of support, and little is known about participants' experiences of engaging with support virtually.

Methods:

Semi-structured interviews were conducted with five intensive care unit survivors who had participated in a multi-component virtual group support program. Data was analysed using thematic analysis to describe and identify patient perspectives and priorities.

Results:

Four themes were generated: *Professional and peer support – I am not struggling through this alone; Adapting to an altered life – accepting and re-evaluating for an unexpected future; Virtual groups reduce physical and psychological barriers to attendance; and Social connection is more difficult in a virtual, nationwide group.*

Conclusion:

The findings suggest that virtual, ICU-staff-led group programs incorporating peer support may facilitate recovery. They could help to bridge the gap between hospital discharge and long-term recovery in the community after critical illness. Participants in this study valued continued contact with professionals experienced in post-ICU rehabilitation, as it provided reassurance, a sense of continuity with the healthcare system, and reduced feelings of abandonment after discharge.

Peer support emerged as another significant benefit. Sharing experiences with others who had undergone similar challenges offered comfort, reduced feelings of isolation and helped participants feel understood. Education about Post-Intensive Care Syndrome, alongside peer support, was particularly valuable, as it normalised prolonged recovery and helped survivors accept and adapt to an unexpected future.

Virtual support groups helped to reduce barriers to participation, particularly for survivors with severe symptoms. However, preferences for virtual or in-person formats vary depending on individual circumstances. Online groups can offer a sense of anonymity, reducing stigma, encouraging more open discussion, and helping participants build confidence. Despite these benefits, some survivors felt that virtual settings made it harder to form strong connections and that face-to-face interaction is more beneficial for well-being. Overall, while face-to-face services could offer additional benefits, virtual delivery can be effective, reducing barriers to participation and enabling survivors with diverse challenges to engage with professionals and peers to promote recovery.

E15 – Sat

Cognitive rehabilitation during ICU stay: an integrative review of interventions, providers, and patient important outcomes

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Introduction: Critical illness, sedation, and intensive care treatment commonly disrupt attention, memory, and executive function. Early cognitive rehabilitation during the ICU stay may help preserve or restore these capacities, with the potential to reduce delirium burden and support engagement and recovery. While physiotherapy is a standard component of ICU care, structured cognitive rehabilitation appears less consistently integrated. This integrative review aimed to identify and describe cognitive rehabilitation delivered during ICU stay and the healthcare professionals (HCPs) providing it. Subsequently, we summarized patient-important outcomes associated with these interventions and appraised study quality.

Methods: We conducted a systematic integrative review with searches in MEDLINE, EMBASE, CINAHL, and CENTRAL. Eligible studies included adult ICU patients receiving, or HCPs delivering, early cognitive rehabilitation initiated during ICU stay. The review was reported in accordance with the PRISMA principles. Risk of bias was assessed using the Cochrane Risk of Bias 2 tool and ROBINS-I, with findings summarized narratively.

Results: Twenty-seven studies were included: ten randomized clinical trials, six cross-sectional studies, five cohort studies, three qualitative studies, three non-randomized trials, and one mixed-methods study. Four intervention categories were identified: (1) orientation and multisensory stimulation, (2) activities of daily living (ADL)-focused functional occupational therapy, (3) early mobilisation and physical rehabilitation, and (4) technology-based sensory and affective stimulation, including music and virtual reality. Interventions were delivered by nurses, physiotherapists, occupational therapists, research staff, or family members. Of the 21 studies involving direct patient interventions, 15 were multi-component programmes combining cognitive and physical elements, which indicated possible benefit for selected cognitive measures. Effects estimates on delirium and ADL were inconsistent and, in several studies, were based on secondary or exploratory outcome analyses. Outcomes related to ventilator-free days, health-related quality of life, and survival were also inconsistent, with substantial heterogeneity in outcome definitions, measurement tools, and assessment time points. Only a few study outcomes were judged to have low risk of bias.

Discussion: The evidence suggests that cognitive rehabilitation is clinically applicable during ICU stay, particularly when embedded within multi-component interdisciplinary care. However, heterogeneity in intervention content, outcome measures, and study quality hampers comparability, synthesis, and interpretation.

Conclusions: Multi-component cognitive rehabilitation during ICU stay appeared clinically applicable, with most direct patient intervention studies using programmes that combined cognitive and physical elements. However, their effects on patient-important outcomes remain uncertain. High-quality research is needed to determine whether interventions targeting improved cognitive function benefit ICU patients.

E16 – Sat

“A little brainpower goes a long way”. Patient and family experience of early cognitive rehabilitation in critical illness: a qualitative interview study

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Introduction

As survival after critical illness improves, increasing attention has turned to cognitive recovery. Cognitive impairment affects a substantial proportion of ICU survivors and may persist long after discharge. Although early rehabilitation interventions are increasingly implemented, little is known about how patients and families experience early cognitive rehabilitation during and after ICU care. The study aimed to describe the patient and family experience of early cognitive rehabilitation in and after ICU, their perceived understanding of the impact on recovery, and to describe perceived facilitators and barriers to early cognitive rehabilitation.

Methods

This qualitative interview study was conducted in a tertiary university hospital ICU in Denmark. Seventeen ICU patients and five family caregivers participated in semi-structured interviews, conducted individually, in dyads, or in focus groups. Interviews explored experiences of early cognitive rehabilitation in and after ICU, including perceived impact on recovery, as well as facilitators and barriers. Data were analysed using the Framework method. Patient and public involvement contributed to study design and interpretation.

Results

Two overarching themes were identified: (1) Cognitive stimulation and (2) Rehabilitation organization. Participants described how small, everyday actions, such as conversation, music, personal care, and sensory cues, helped support orientation, cognition, and recovery. Cognitive rehabilitation was not primarily experienced as a distinct intervention, but rather as something embedded in routine care and relational interactions. Patients and families described rehabilitation as a gradual reawakening of bodily and cognitive capacities, in which meaningful contact, reassurance, and repeated orientation played an important role. At the same time, organization of rehabilitation efforts were often experienced as fragmented, inconsistent, or invisible, particularly during transitions between ICU, ward care, and home recovery.

Discussion

The findings suggest that cognitive rehabilitation is experienced less as a formal programme and more as a process integrated into everyday care, communication, and social interaction. This highlights the importance of continuity, visibility, and person-centred rehabilitation practices across settings.

Conclusion

Patients and families experienced cognitive rehabilitation as embedded in everyday interactions that supported orientation, memory, and meaning-making. These findings underline the need for integrated, person-centred approaches to cognitive rehabilitation that extend from ICU admission through the broader recovery trajectory.

E17 - Sat

Functional outcomes and access to rehabilitation after hospital discharge in patients with impaired physical function at ICU discharge: preliminary analysis of a prospective cohort

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Introduction: Critically ill patients frequently develop persistent functional impairment after hospital discharge, highlighting the importance of identifying these alterations to guide rehabilitation strategies.

Methods: Preliminary analysis of a prospective cohort approved by the ethics committee (No. 6,690,810), conducted in a high-complexity public hospital between September 2025 and January 2026. Medical record data were collected, and patients were evaluated at ICU discharge, hospital discharge, and by telephone 30 days after hospital discharge. Individuals ≥ 18 years, previously independent (Barthel=100), admitted to the ICU for >48 hours, and discharged from the ICU with muscle strength <48 on the Medical Research Council scale (MRC) and/or ICU Mobility Scale (IMS) ≤ 8 were included. Deaths and losses to follow-up were excluded. Functionality and physical performance were assessed using MRC, IMS, handgrip strength, Barthel Index, and the SARC-F sarcopenia questionnaire. The need for rehabilitation was defined as worsening in the Barthel domains “bathing,” “dressing,” “mobility,” and “transfer,” SARC-F ≥ 4 , or modified Medical Research Council dyspnea scale (mMRC) ≥ 2 at hospital discharge. Descriptive analysis was performed.

Results: Of 120 patients screened, 45 were eligible. After 23 exclusions, 22 were analyzed, including 13 (59.1%) men, age = 53.7 ± 18.9 years, Simplified Acute Physiology Score (SAPS) III = 52.1 ± 16.4 , and ICU length of stay = 8.95 ± 5.12 days. Invasive mechanical ventilation was used in 72.7% of patients for a duration of 3 (2–4.25) days; 71.4% received sedation and 77.3% received vasoactive drugs. Functional status and physical performance at ICU discharge were: MRC = 44 (42–48), IMS = 7 (5–8), handgrip strength = 21.9 ± 8.28 kgf, Barthel = 52.5 ± 20.0 , and SARC-F = 6 (6–7.25). At hospital discharge: MRC = 43.3 ± 9.9 , handgrip strength = 26.5 ± 8.42 kgf, Barthel = 80 (51.3–90), and SARC-F = 4.1 ± 2.64 . Thirty days after hospital discharge: Barthel = 85 (72.5–100) and SARC-F = 3 (2–4). At hospital discharge, 16 (72.7%) patients met criteria for rehabilitation. Of these, 8 (50%) were referred and 6 (75%) effectively accessed rehabilitation.

Conclusion: Thirty days after hospital discharge, patients still presented functional decline. In addition, not all eligible patients received referral for rehabilitation, and access to rehabilitation services in the post-discharge period did not occur for all referred patients.

E18 - Sat

Cognitive impairment in intensive care unit patients: a qualitative exploration through observations and interviews

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Introduction:

Cognitive impairments are common in critically ill patients and may significantly affect recovery and rehabilitation. However, limited knowledge exists on how these impairments are experienced by patients and their relatives during intensive care unit (ICU) admission. Understanding these experiences is essential to optimise patient-centred care and rehabilitation.

Methods:

A multi-centre qualitative study was conducted in four ICUs at two hospitals in Denmark. Data were collected through participant observation and semi-structured individual and dyadic interviews with 20 ICU patients and 15 relatives. Patients were purposively sampled to ensure variation in demographic and clinical characteristics. Data were analysed using a phenomenological-hermeneutic approach inspired by Ricoeur, involving naïve reading, structural analysis, and critical interpretation.

Results:

Four themes emerged. *Having a hazy memory and a foggy brain* described patients' experiences of memory loss, confusion, and fluctuating awareness. *Frustrations due to difficulties in speaking* reflected impaired communication, word-finding difficulties, and exhaustion affecting interaction with relatives and healthcare professionals. *An altered sense of self* captured feelings of disorientation, loss of identity, and difficulty maintaining connection to reality. *A feeling of disconnect between body and mind* illustrated challenges in coordinating physical and cognitive functions, leading to frustration and dependency.

Across themes, patients experienced vulnerability, loss of dignity, and reduced autonomy. Relatives played a crucial role in supporting orientation, communication, and emotional stability.

Conclusion:

Cognitive impairments in ICU patients are multifaceted and profoundly affect patients' sense of self, communication, and ability to engage in care and early rehabilitation. These impairments increase vulnerability and dependency during critical illness. Greater clinical attention to cognitive function, including systematic assessment, tailored communication, and active family involvement, is needed to support recovery and rehabilitation.

Addressing cognitive impairments should be an integral component of ICU care to improve patient outcomes and facilitate return to everyday life.

Psychological support during weaning in Germany

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Introduction: After long periods of intensive care, some patients need to be weaned off mechanical ventilation in order to regain a high quality of life and independence. In Germany, there are approximately 60 weaning units that meet high-quality standards certified by a committee of medical experts. As in other German intensive care units, and despite enormous challenges like communication barriers for patients and families (e.g., an average hospital stay of 42 days), psychological counseling is not provided everywhere, even though it is officially required. The aim of this study was to determine how current standard procedures are implemented and to identify best practice models.

Methods: As part of an online survey conducted in 2023 to determine the extent to which psychological care is already implemented and which main diagnostic criteria and work schedules are common, this self-administered tool was clearly modeled on previous studies examining psychological routines in adult intensive care units (Deffner et al. 2020, Hierundar et al. 2026) addressing senior doctors; we were able to reach approximately 50% of these certified weaning centers by different leader- and ownership and learned about their experiences and current standard of care, including their human resources and the availability of psychological staff. Data storage were provided by MS Forms and analyzed using descriptive statistical methods only.

Results: Two-thirds of the departments in our study had 6–20 beds; it was found that approximately 50% of these departments had staff dedicated to providing psychological patient support, but the need was assessed as not being adequately met. Diagnostic approaches, indications, and the range of interventions varied greatly. The primary intervention was a validating and resource-activating psychological conversation with patients.

Discussion: Although psychological care is clearly provided for in the certification criteria, our results showed that it is not offered across the board and has so far been offered mainly by denominational pastoral care. As similar studies have found, our data show a significant lack, especially during weekends and night times.

Conclusion: Best practice examples and further scientific surveys should form the basis for establishing guidelines that can facilitate the systematic implementation of psychological care schedules, diagnostics, and treatment.

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Kompetenz im Team: Innovation trifft Erfahrung (Zugriff 12.6.2026)

Exposure to nature-based environments for patients admitted to critical care and their family/loved ones: a scoping review

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Background:

The intensive care population has been studied widely in the last 20 years, however little evidence is available for the impact of access to nature-based exposure. Access to nature is widely known to have health physical and psychological benefits for many populations. A scoping review was performed to review and map the evidence in relation to the utilisation of nature-based environments for intensive care patients and loved ones.

Methods:

The JBI methodology for scoping reviews was utilised. 12 electronic databases were searched and grey literature sources including reference list of relevant systematic reviews until December 2025. Studies of critically ill patients and their relatives/loved ones, cared for in any critical care environments, with reports of access to any fresh-air, or nature-based space were included. We included any type of source with a varied methodological approach.

Results:

Nineteen sources were reviewed. Primary and secondary research, audit and service evaluation, case reviews, clinical guidelines, editorials, letters to journals and a post occupancy evaluation published between 2004 and 2025. One paper explored loved one experience.

Four themes emerged: Safety and risk assessment, psychological benefit of access to nature, infrastructural challenges including cost and stakeholder engagement as a core part of design processes.

Conclusions:

The evidence in this area is largely anecdotal, but published audit data from 3 ICUs has explicitly examined safety and found it to be a safe intervention when appropriately risk assessed. More research is required to establish what role nature-based environments can have in supporting recovery after critical illness.

E21 – Sat

Family Participation in ICU Care; The UMC Utrecht Participation Poster

Germijn Heijnen, PA; Anne de Rooij, Occupational Therapist, Marike Janssen ICU Nurse, J. Stolwijk-Swüste, MD PhD

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Introduction

There is growing evidence that family participation and shared rehabilitation goals in the ICU improve the care experience for both patients and families, they can reduce psychological burden among relatives, and may contribute to better functional rehabilitation, if participation is well supported.^{1,2}

An activity poster could be a practical tool to support this process: it facilitates communication, encourages family involvement, and helps create a patient- and family-centered care environment.

Methods

The poster was designed to help the family how they can be involved in the patient's care and to explain the rehabilitation goals for the team en patient during the ICU stay. To support this various disciplines were involved in designing the poster: the *What Can I Do* poster, which provides insight into the patient's current abilities and his rehabilitation steps.

We created the first version of the *What Can I Do* poster which was evaluated by the ICU team. Feedback was collected to refine the content, layout, and practical applicability. After these team review rounds, the design was tested with users: two patients and families were interviewed to assess whether the posters met their needs and whether they would be willing to use it during an ICU admission. Their feedback provided valuable insights into clarity, usability, and the anticipated added value for engagement in the recovery process.

Results and conclusion

Introducing an activity poster in ICU care offers an accessible way to inform, activate, and engage both patients and their families in the recovery and wellbeing process. A visual and easy-to-use overview of daily activities, relaxation options, and supportive resources helps both the care team and family members stay informed about ways they can contribute to the patient's comfort and recovery during the ICU stay.

We are pleased to present the first version of the UMC Utrecht participation poster "*Moving Forward Together: This is How You Can Help Me.*" We would welcome the opportunity to present this poster at your conference and inspire other centers for this tool in their own ICU environments.

1 Engaging Families in Rehabilitation of People Who Are Critically Ill: An Underutilized

Resource Purchased [Kimberley J Haines](https://doi.org/10.1093/ptj/pzy066) *Physical Therapy*, Volume 98, Issue 9, September 2018, Pages 737–744, <https://doi.org/10.1093/ptj/pzy066>

2 Interventions to promote family member involvement in adult critical care settings: a systematic review <http://orcid.org/0000-0002-2359-4337> Andreas Xyrichis¹,

E22 - Sat

A National Transplant Prehabilitation and Rehabilitation Care Pathway

C. Redant¹, S. Van Der Sypt¹, K. Batens¹, M. Van Neste¹, E.V. Nagler²

¹ Physical Medicine and Rehabilitation, Ghent University Hospital, ² Nephrology, Ghent University Hospital, Belgium

Background: Solid organ transplant recipients are at high risk of frailty, functional decline, and critical illness weakness (CIW) due to advanced organ failure, surgical stress, and prolonged ICU stays. Liver transplant recipients are particularly vulnerable. Prior to 2024, rehabilitation activities were delivered but were not consistently standardized or integrated across the transplant trajectory, limiting systematic assessment and continuity of care.

Intervention: In 2024, a standardized, multidisciplinary prehabilitation and rehabilitation care pathway was embedded into routine transplant care, spanning from waiting-list registration to two years post-transplant. The pathway aligns with Belgian National Institute for Health and Disability Insurance guidelines and involves a coordinated team of rehabilitation physicians, physiotherapists, occupational therapists, dietitians, psychologists, and social workers.

Prehabilitation includes individualized exercise, nutritional optimization, and psychosocial support. Post-transplant rehabilitation focuses on early mobilization, prevention and management of CIW, and targeted interventions for functional impairments. Patients with ICU stay > 7 days undergo systematic clinical and electromyographic assessment for neuromuscular complications.

Evaluation Methods: Implementation is evaluated prospectively using prospective program data collected through a combination of a mandatory standardized rehabilitation dataset and routinely collected clinical data obtained as part of standard transplant care. Evaluations occur at predefined time points: annually during prehabilitation, in the acute post-transplant phase, and at one- and two-year follow-up.

The following functional assessments are carried out: Clinical Frailty Scale, 6-minute walk test, Short Physical Performance Battery, muscle strength, Duke Activity Status Index, nutritional status, and psychosocial screening (RAND-36). An individualized treatment plan is made after each evaluation. A predefined subgroup analysis (2024-2025) was conducted in liver transplant recipients, given their high risk of CIW. Measures include pathway uptake, completion of multidisciplinary assessments, identification of rehabilitation needs, and detection of ICU-related neuromuscular complications.

Results: Between 2024 and 2025, program uptake increased, reaching near-complete enrollment among abdominal organ and kidney transplant recipients. Among 90 liver transplant recipients, 34% required ICU stays > 7 days, and 20% developed Critical illness weakness. Systematic screening enabled early detection of neuromuscular complications and timely initiation of targeted interventions. Patients with prolonged ICU stays showed lower functional performance at hospital discharge, highlighting the need for intensified rehabilitation.

Conclusions: This national quality improvement initiative demonstrates that integrating prehabilitation and rehabilitation into a continuous transplant care pathway is feasible, scalable, and associated with high pathway uptake and early detection of ICU-related complications. The model supports timely, targeted interventions in high-risk patients and provides a structured framework for improving functional recovery. Future work will focus on linking implementation outcomes to long-term functional recovery, quality of life, and healthcare utilization. This approach may serve as a model for ICU recovery-oriented care pathways in other complex populations.

E23 – Sat

An exploration of multidisciplinary experiences and perceptions of prolonged mechanical ventilation weaning in the adult intensive care unit

Hannah Mitchell, Harriet Shannon and Leyla Osman

Guy's and St Thomas' NHS Foundation Trust (GSTT) University College London (UCL)

Introduction:

Weaning from mechanical ventilation is a complex process requiring clinical expertise and multidisciplinary collaboration. Insufficient or prolonged weaning periods may increase risk of reintubation or mortality, respectively. Physiotherapists play a key role in delivering collaborative, coordinated weaning. Despite this, studies exploring multidisciplinary team perspectives of weaning roles seldom include physiotherapists. The aim of this study was to explore the multidisciplinary team's perception of their role, including barriers and facilitators to ventilator weaning post tracheostomy for adults in the intensive care unit.

Methods:

A service evaluation was conducted exploring local weaning practices in a UK tertiary centre, including roles and responsibilities, teamwork and processes. Participants were eligible for inclusion in the study if they had more than six month's experience working in ICU. Semi-structured interviews and focus groups with the multidisciplinary team were conducted between April and June 2023. Interviews and focus groups were transcribed, and data analysed using thematic analysis with an inductive approach. Qualitative data analysis software, NVivo, was used for aid coding and organisation of themes, with review from an external second coder.

Results:

Twenty-two staff participated in the study including, a nursing focus group (n=12), physiotherapy focus group (n=6) and doctors completed interviews (n=4). The main themes identified were (1) differences in and perception of multidisciplinary team roles in weaning; (2) hierarchy of decision making and leadership; (3) collaboration and ownership of the weaning process and (4) importance of knowledge, experience and training for effective weaning. Figure 1. demonstrates the inter-connectivity between the identified themes and contributing sub-themes. A centralising theme of differences in perceived roles amongst professions is influenced by differing professional pressures, responsibilities and patient facing time which informs profession specific weaning practice perspectives. Subthemes within weaning practice can contribute to more than one theme.

Conclusions:

Weaning from mechanical ventilation requires cohesive multidisciplinary team working. Study findings suggest that to achieve this there must be weaning consensus and collaborative decision making, with adequate staff training to ensure multidisciplinary team engagement and utilisation of experience and skills, alongside staffing consistency and effective communication. These suggestions, if considered and practically applied, may aid collaboration within the multidisciplinary team to enhance weaning success.

Figure will be displayed in the Poster

E24 – Sat (not attending)

Physiotherapy-Led Mobilisation and Functional Recovery in Orthopaedic ICU Patients

Maria Baily-Scanlan, Physiotherapy Department, Tallaght University Hospital, Dublin, Ireland

Lisa Morris, Physiotherapy Department, Tallaght University Hospital, Dublin, Ireland

Clodagh McDonnell, Physiotherapy Department, Tallaght University Hospital, Dublin, Ireland

Introduction

Critically ill orthopaedic patients are at risk of functional decline due to prolonged immobilisation, mechanical ventilation, and critical illness. Early physiotherapy in the intensive care unit (ICU) may prevent ICU-acquired weakness and support functional recovery. However, the rehabilitation pathway and mobility progression of orthopaedic patients during and after ICU admission are not well described.

Methods

A retrospective cohort study was conducted in a tertiary ICU on all orthopaedic patients (n=35) admitted to ICU between September and October 2025. Patients included those admitted with traumatic injuries (n=25) with and elective spinal surgery (n=10). Data collected included Chelsea Critical Care Physical Assessment Tool (CPAx) and Modified Mobility Scale (MMS) scores at ICU, ward, and hospital discharge, physiotherapy input, hospital length of stay (LOS) and discharge destination. Descriptive statistics summarised patient characteristics, physiotherapy delivery, mobility progression, and hospital outcomes.

Results

Seventeen patients had major trauma injuries with an injury severity score (ISS) > 15, 8 had minor-moderate injuries with an ISS < 15 and 10 patients were admitted electively for spinal surgery. All patients (100%) received physiotherapy within 24 hours of ICU admission. Patients received a median of 4 physiotherapy sessions in ICU (IQR 3–6) and 6 sessions on the ward (IQR 4–9). Common physiotherapy interventions included mobility training (96%), exercise therapy (74%) and respiratory physiotherapy (59%). Median ICU LOS was 4 days (mean 5.4), and median hospital LOS was 15 days (mean 16.5). Median CPAX scores improved from 18 (IQR 14–22) at ICU admission to 30 (25–34) at ICU discharge and 41 (37–45) at ward discharge. Median MMS improved from 1 (IQR 0–2) in ICU to 6 (IQR 4–6) at ICU discharge to 7 at hospital discharge. Higher ICU discharge CPAX and MMS were significantly associated with shorter hospital LOS (CPAX: $r_s = -0.5$, $p < 0.001$; MMS: $r_s = -0.52$, $p = 0.004$). At hospital discharge, 10 patients returned home, 18 were transferred to rehabilitation centres, 5 to other hospitals, and 2 had died. Patients with major trauma were less likely to be discharged home (n=3), with most requiring ongoing inpatient rehabilitation (n=12).

Conclusions

Early physiotherapy was feasible and associated with significant functional recovery in orthopaedic ICU patients. Higher functional status at ICU discharge was associated with shorter hospital LOS. These findings support early rehabilitation as a key component of care and highlight the ongoing rehabilitation needs of patients with severe trauma.

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E25 – Sat

Diaphragm ultrasonography to guide physiotherapeutic respiratory interventions in a patient with prolonged weaning. A case report

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Background: Diaphragm weakness (DW) is a possible cause for prolonged weaning from mechanical ventilation in ICU patients when other more common causes have been excluded. In patients with DW, inspiratory muscle training (IMT) is an usual care intervention aimed at improving diaphragm strength to enhance weaning. Mostly, IMT is indicated by the presence of DW, diagnosed using the maximum inspiratory pressure (MIP). However, MIP is dependent on and influenced by the level of voluntary effort, which might be hampered in suboptimal cooperative patients in the early IC phase. Therefore, diaphragm ultrasonography is a relatively new method introduced in the Intensive Care Unit (ICU) to assess diaphragm function (excursion and strength) independent of volitional effort or maximal maneuver, providing more realistic information about presence of DW. Consequently, in not-fully cooperative patients, both ultrasound and MIP assessments may be inconclusive. This case report describes the combination of both assessments in guiding the right intervention.

Case description: A 67 year old female patient with a complicated bilateral lung transplantation who stayed in the ICU for 35 days, partially due to prolonged weaning.

Outcomes: Due to prolonged weaning, after thirteen days at the ICU the patient received a tracheostomy to enhance weaning. MIP was low (four cmH₂O) and IMT was started. After seven days IMT, MIP remained severely low (sixteen cmH₂O), without any progress in weaning, largely explained by anxiety and discomfort. Contrarily, ultrasonography at that time did not show any sign of DW (thickening fraction 53%). Consequently, IMT was ceased and focus was successfully shifted to breathing exercises. After 34 days, the patient was decannulated and after 35 days transferred to the general ward with only some additional oxygen support (2Lmin) using a nasal cannula.

Discussion: To effectively indicate and aim physiotherapeutic respiratory interventions in patients with prolonged weaning, it is essential to have reliable information about presence of true DW. In this case, diaphragm ultrasonography additive to MIP assessment provided us with this reliable information and helped us guiding the right intervention. In not-fully cooperative ICU patients with prolonged weaning, we advise to introduce diaphragm ultrasonography as an additive on MIP assessment to effectively aim physiotherapeutic interventions around prolonged weaning.

E26 – Sat

Early Interdisciplinary Rehabilitation in the ICU for Patients with Disorders of Consciousness: Development, Implementation and Evaluation of a Structured Care Pathway

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Amsterdam UMC, Department of Rehabilitation Medicine, Amsterdam, the Netherlands.

Introduction: Disorders of consciousness (DoC) after acquired brain injury are associated with poor outcomes and considerable uncertainty for families. Although early, structured rehabilitation is essential, it is often delayed or insufficiently integrated in ICU care. This project aimed to develop and implement a standardized interdisciplinary care pathway, with a central role for family participation.

Methods: This quality improvement project focused on the development, implementation, and evaluation of a structured interdisciplinary care pathway for patients with DoC. A multidisciplinary team developed the pathway in 2025 based on a targeted literature review, clinical expertise, and stakeholder input. The pathway was implemented from ICU admission through ward transfer and subsequent hospital departments. Core components included structured sensory stimulation using the DoC stimulation toolbox, interdisciplinary collaboration, active family involvement, and a standardized daily program to optimize activity tolerance and normalize the sleep–wake cycle. Evaluation included qualitative interviews with family members and healthcare professionals to explore experiences and barriers, alongside quantitative process indicators such as implementation of the Post-Acute Level of Consciousness Scale–Revised (PALOC-sr), family involvement, and care standardization.

Results: Implementation resulted in routine use of the PALOC-sr across disciplines and a clear increase in standardization of care. Structured sensory stimulation and coordinated interdisciplinary rehabilitation were consistently applied. Care transitions to subsequent rehabilitation and hospital settings became more structured and transparent, reducing variation in care delivery across departments and professionals. Evaluation showed that structured communication, consistent regulation of sensory input, and clear guidance for family involvement were successfully embedded in clinical practice. Families were more consistently informed and, where feasible, actively involved in care. Healthcare professionals reported feeling better equipped and more confident in caring for patients with DoC, supported by clearer guidance and interdisciplinary collaboration.

Conclusion: This project demonstrates that early interdisciplinary rehabilitation for patients with DoC can be systematically implemented in the ICU through a structured care pathway. The pathway was feasible and associated with improvements in care organization, standardization, interdisciplinary collaboration, and family involvement. These findings provide a practical and potentially transferable model for similar settings. Further evaluation of patient and family outcomes is warranted. Future studies could apply implementation frameworks to evaluate implementation processes, sustainability, and scalability across healthcare settings.

A Evaluation of An Advanced Tracheostomy Competency Framework for Non- Medical Healthcare Professionals.

Orla Brady (Clinical Specialist Physiotherapist), Nina Holden (Clinical Specialist Physiotherapist), Amr Mohammed (Critical Care Consultant) - Tallaght University Hospital and the Country is (Dublin) Ireland.

Introduction:

Locally, critical care medical staff and outreach nurses were historically responsible for performing tracheostomy tube changes and decannulations in patients with non- complex airways. Sometimes there are delays from the time of a decision being made that a patient is suitable for a tube change or decannulation, to the actual procedure happening due to the availability of skilled professionals. In 2021 the Irish Society of Chartered Physiotherapists published a report supporting Advanced Physiotherapy Practice. Two physiotherapists, with the support of the Tracheostomy MDT and key stakeholders developed An Advanced Tracheostomy Care Competency Framework for Non-Medical Healthcare Professionals (HCP). This was implemented in 2024.

Objective: To evaluate the implementation of an Advanced Tracheostomy Competency Framework for Non-Medical HCPs.

Methods:

- A retrospective review of training logs was completed by the author to ascertain the following: How many staff achieved competencies: Tracheostomy tube changes; Tracheostomy decannulations; Duration of Training; Barriers / challenges
- A feedback questionnaire was circulated to supervisors.
- A review of decannulation procedures completed in 2025.

Results: Three of four non-medical HCPs identified by the Tracheostomy MDT as being suitable to undertake advanced competency training, achieved competence in performing decannulations. The duration of training from initial observation to final supervised procedure varied (10weeks, 11 weeks, 65weeks).

No non-medical HCPs had completed competencies in tracheostomy tube changes on completion of this review (59weeks from the initial implementation of the framework).

Barriers / Challenges:

Missed opportunities: Rostering of staff (Part time / Shift work)

Limited Exposure: Fewer patients weaning from tracheostomies; More straight decannulations of initial tracheostomy tubes.

Supervisors acknowledged trainees being proactive in seeking out learning opportunities, identifying patients suitable for procedures earlier and initiating more timely discussions with MDT members. Improvements in delivering standardised training and standardised care were also recognised. Non-medical HCPs are now completing 57% of all decannulation procedures.

Conclusion: An Advanced Tracheostomy Competency Framework for Non-medical HCPs can be successfully implemented. The support of supervisors who value the contributions of non-medical HCPs in the management of patients with a tracheostomy is essential for its success. Competencies in decannulations can be achieved within 3months, however achieving competencies in tube changes is proving more challenging. Non- Medical HCPs are now performing over half of all decannulations.

E28 - Sat

Establishment of an Early Rehabilitation Network – bridging the gap between professions, locations, and levels of care in Norway

Siri Tveitan, Senior Adviser / Medical Social Worker, MSc, Regional Rehabilitation Knowledge Centre, Oslo, Norway

Anne Kristine Brekka, Physiotherapist, MSc, Sørlandet Hospital, Arendal, Norway

Brita Fosser Olsen, Critical care nurse, PhD, Østfold Hospital Trust, Sarpsborg, Norway

Ingrid Lyngved Ødegård, Consultant Intensivist, Innlandet Hospital, Lillehammer, Norway

Tanja Karic, Consultant in Rehabilitation Medicine, PhD, Oslo University Hospital, Oslo, Norway

Terje Herman Wilter, Medical Social Worker, Oslo University Hospital, Oslo, Norway

Introduction

Early rehabilitation is increasingly recognized as a key component of high-quality intensive care helping reduce complications, support functional recovery, and improve transitions throughout the patient pathway. To address substantial variation in practice and a growing demand for early rehabilitation, the Regional Rehabilitation Knowledge Center initiated the “Early Rehabilitation Network”, a multidisciplinary network spanning all hospitals with intensive care units in the region.

Methods

The establishment process in 2021 followed a multistep mapping and engagement strategy that included:

- Systematic contact with ICU leaders.
- Identification and engagement with stakeholder clinicians with rehabilitation related roles.
- A regionwide survey (n≈100) to the above-mentioned groups, assessing access to relevant professions, interdisciplinary practice, use of standardized assessment tools, education needs, and perceived gaps in early rehabilitation.

Results

Clinicians expressed strong interest in a regional professional forum, and leader supported the need for systematic, coordinated development. The survey revealed:

- Large variation in access to rehabilitation-relevant professions
- Gaps in interdisciplinary collaboration
- Inconsistent use of standardized assessment tools
- Limited access to early rehabilitation training

Clinicians particularly highlighted unmet needs related to mental health services, occupational therapy, social work, and communication and swallowing — areas identified as early priorities for quality improvement.

The network was officially established June 2021, with 35 participants representing all hospitals and key professions involved in early rehabilitation. Participants were selected based on professional role and domain expertise. Sustainability has been supported through strong leadership anchoring across health trusts, clearly defined member responsibilities, and an expectation that members act as knowledge brokers within their local ICUs. Network leadership is held by an elected group of members.

Conclusion: Using a data-driven, co-creative approach, a sustainable regional Early Rehabilitation Network was successfully established, bridging ICU and ward based care. The model offers a blueprint for strengthening intensive care recovery, continuity, and interdisciplinary collaboration across regions.

E29 – Sat (*not attending*)

ICUSteps Active: Who Are We Rehabilitating? Evaluation of our national, online ICU rehabilitation programme.

Rachel Blake, Rachel Devlin, Megan Lewis, Gemma Rix, Kate Samways and Zoe Van Willigen
University Hospital Southampton, UK

Introduction

Post intensive care syndrome (PICS) occurs in individuals who survive critical illness (1). Approximately 50- 80% of ICU survivors experience some degree of PICS that can significantly impact daily function and quality of life (2). The programme provides national, online rehabilitation initiative aimed at helping individuals who have experienced critical illness. The programme was developed in response to the needs of ICU survivors, recognizing both the long-term physical and emotional impacts of critical care, and the lack of recovery services available after hospital discharge. Here we present the demographic and outcome data that has been collected since the programme began in 2023.

Methods

Participants are referred via a clinician referral form on the programme's website. A 1:1 online assessment is completed to establish suitability for the programme. IPAT, HADS and 30 second sit to stand scores are recorded. Participants then complete six, weekly 2-hour classes, focusing on education, exercise, peer support and goal setting. Finally, another 1:1 session is completed for reassessment of outcome measures and to enable signposting for the participants. Feedback is collected from each participant so that we can continue to refine and improve the programme.

Results

Demographic data has been collected since the course began in 2023 and is presented in Table 1. Geographical location of participants is presented in Table 2. Admission to ICU diagnosis for the participants are displayed in Table 3. Average scores for the outcome measures for all participants are displayed in Table 4, but do not sufficiently describe the individual progress achieved. We have found that patients much prefer to monitor their progress with goal setting, identifying and achieving weekly goals that are meaningful to them. Examples of these goals are displayed in Table 5.

Additionally, feedback collected from participants who have completed the course has been universally positive: "This course has been very helpful. I had a lot of issues after ICU, and I thought there was something wrong with me. But we are all in the same boat, despite having different experiences."

Conclusion

The programme is a low cost, simple intervention that provides tangible benefits for survivors of critical illness. We believe we have been able to prove the concept using charitable funds, but this is not a long-term solution. We encourage commissioners of ICU recovery services to consider funding similar models for their own localities.

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Tables will (finally not) be displayed in the Poster

E30 – Sat

“The Unspoken Challenge” Psychology and SLT-Led Simulation training to Enhance Resident Doctors Communication Interactions with Patients and Families on Critical Care.

Laura Pathak

Robyn Cary, Anna Creagh Chapman, Polly Fitch, Andrew Clarke, Deepthy Pillai,

Anna- Liisa Sutt

The Royal London Hospital, Barts health NHS Trust. London, UK

Introduction: Effective communication is fundamental to delivering safe and compassionate critical care, yet resident doctors often receive limited training in managing complex conversations with patients and families. These challenges are intensified when patients cannot verbalise due to neurological impairment, intubation, or tracheostomy. To address this gap, we designed a multidisciplinary simulation programme integrating Psychology and Speech and Language Therapy (SLT) expertise to enhance residents’ knowledge, confidence, and practical skills in communicating with distressed relatives and non-verbal patients.

Methods: The programme comprised two simulation-based training sessions. The first focused on communicating with relatives during difficult conversations, facilitated by the critical care Psychologist. The second centred on communicating with a patient able to respond only through eye movements, designed and led by SLT. Scenarios were developed from real cases using patient and family feedback and clinician reflections to ensure authenticity. Junior doctors undertook the scenarios, followed by structured debriefs encouraging reflection on emotional, relational, and practical challenges. The SLT component included demonstrations of establishing reliable yes/no systems and introducing augmentative communication tools suitable for critical care.

Results: Pre-training evaluation for the SLT session showed that none of the participants had prior training in communicating with non-verbal patients, and 75% reported feeling somewhat or very unconfident in this area. Post-training feedback indicated substantial improvements in perceived confidence and practical readiness. Participants reported immediate clinical application, including using eye movements for clarification with tracheostomised patients. Feedback described the training as “excellent,” “very relevant,” and highlighted its practical value:

“The programme highlighted the range of communication tools available at the bedside and their practical application.”

“The session addressed a clear gap in training, particularly when communicating with non-verbal patients... an important area often under-taught in critical care education.”

Conclusion: Critical care survivors consistently identify communication difficulties as a cause of distress, and miscommunication around difficult news remains a common source of complaints and professional stress. Patient-centred communication improves satisfaction and shared decision- making, underscoring the need for enhanced training. This pilot simulation programme facilitated experiential and reflective learning, promoting deeper understanding of patient and family perspectives and equipping resident doctors with immediately transferable skills. The positive reception from junior doctors, Psychology, and SLT demonstrates the value of multidisciplinary education in complex communication. Building on this success, we plan to expand the programme with regular sessions and a broader range of scenarios, guided by participant feedback and evolving clinical needs.

E31 – Sat

An Occupational Therapy Rounding Protocol for the Intensive Care Unit

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¹School of Rehabilitation Therapy, Queen's University, ²Kingston Health Sciences Centre, Canada

Introduction: Drawing on purposeful rounding research, an occupational therapy (OT) team developed an innovative protocol for direct rounding with bedside staff in the intensive care unit (ICU). The protocol was designed to support timely referrals to OT and to facilitate inter-professional communication over patient care needs. This poster will share recommendations on how to develop, implement, and evaluate a rounding protocol for hospital units with low OT ratios and high patient care needs.

Methods: A literature review (n=22) identified best practices, theory, models, and implementation and evaluation tools to guide protocol design. The protocol included a fact sheet for bedside staff, rounding form, and weekly tracking logs for evaluating outcomes. Thirty (30) interdisciplinary bedside staff reviewed the protocol and completed an eight-item survey to provide stakeholder perspectives on protocol content, design, and timing. Semi-structured interviews with clinical leaders (3), nursing educators (2), and a regulatory practice consultant occurred to plan out implementation. A six - month trial of weekly rounding is underway with tracking logs recording quantitative outcomes (rounding rates, timing, and OT referrals). Weekly PDSAs are occurring to capture qualitative feedback on rounding processes and procedures.

Results: Interview and survey respondents shared perspectives on advantages, challenges, procedural considerations, and evaluation measures for the protocol. Staff surveys reported 100 percent support for OT rounding. Responses were categorized along positive perceptions for clinical value, patient care and safety, rehabilitation and recovery, equipment provision, timing, and interdisciplinary collaboration. Preliminary results after four weeks demonstrated (on average) 100 percent rounding rate, rounding time of 25.5 minutes, and 3.5 new or updated OT referrals per round. PDSAs identified 28 recommendations to improve the rounding form (10) and rounding processes (18).

Discussion: The protocol drew on purposeful rounding principles (i.e. The 4Ps of Patient Care) for frequent rounding with a systematic and structured approach that anticipates holistic care needs. Roger's Diffusion of Innovation Theory (Perez, 2021) was referenced to integrate the protocol into ICU routines and processes. This protocol aligns with rounding theory, research, and models that call for timeliness, minimal interruptions to bedside care, and effective team engagement. Rounding processes (duration, timing, and therapist confidence) improved with each week. PDSAs generated 28 recommendations for protocol design (10), rounding preparation (4) and execution (6), and interdisciplinary collaboration (8). Overall, rounding has improved OT utilization in the ICU.

Conclusion: Rounding protocol is practical and supports early access to OT in the ICU.

IN01 - Sat

Association between fluid balance, muscle strength, and muscle quality in critically ill patients:

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Introduction

Positive fluid balance is common during early critical illness and has been associated with adverse outcomes. However, its impact on peripheral muscle quality and clinically relevant muscle strength at awakening remains unclear. We hypothesized that cumulative fluid balance would be associated with ultrasound-derived muscle alterations and reduced global muscle strength in mechanically ventilated ICU patients.

Methods

We performed a retrospective cohort study including adult patients requiring invasive mechanical ventilation ≥ 24 hours. Routine quadriceps ultrasound assessment (rectus femoris and vastus intermedius) was performed within 24 hours of ICU admission and at clinical awakening. Muscle quality was assessed using the Heckmatt scale, and subcutaneous and muscle tissue thickness was measured. Global muscle strength was evaluated at awakening using the Medical Research Council Sum Score (MRC-SS). Cumulative fluid balance was calculated from admission to awakening. Associations were analyzed using Spearman correlation and multivariable linear regression adjusted for age, APACHE II score, and duration of mechanical ventilation.

Results

Eighty patients were included (mean age 51 ± 14 years; APACHE II (18 ± 5)). Mean cumulative fluid balance at awakening was 2400 ± 800 mL. Between admission and awakening, quadriceps thickness decreased, muscle echogenicity worsened, and subcutaneous tissue thickness increased. Cumulative fluid balance demonstrated a strong inverse correlation with muscle strength at awakening ($\rho = -0.70$, $p < 0.001$). Higher fluid balance was also associated with increased subcutaneous tissue thickness ($\rho = 0.47$, $p < 0.001$) and poorer muscle quality ($\rho = -0.43$ with MRC-SS, $p < 0.001$). In multivariable analysis, cumulative fluid balance remained independently associated with lower muscle strength ($\beta = -0.35$ per liter, $p = 0.01$).

Conclusion

Higher cumulative fluid balance was strongly associated with impaired muscle strength and altered ultrasound-derived muscle quality at awakening. These findings suggest that fluid accumulation may significantly influence neuromuscular recovery and the interpretation of muscle ultrasound in critically ill patients. Accounting for fluid status may therefore be essential when evaluating ICU-acquired weakness and guiding rehabilitation strategies.

IN02 - Sat

Predictors for the length of stay of inpatient medical rehabilitation in patients with Post-Intensive Care Syndrome (PICS): The role of patient characteristics and the domains of the Utrecht Scale for Evaluation of Rehabilitation (USER)

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Introduction

Post-Intensive Care Syndrome (PICS) is a condition characterized by physical, cognitive, and/or psychological impairments following admission to the Intensive Care Unit (ICU). Limited literature is available regarding this patient population admitted for inpatient medical rehabilitation. The aim of this study was to gain insight into the characteristics of patients with PICS admitted for inpatient medical rehabilitation and to identify variables predictive of the length of inpatient rehabilitation stay.

Research Question: Which patient characteristics and domains of the Utrecht Scale for Evaluation of Rehabilitation (USER) are associated with the length of inpatient stay in patients with PICS admitted for inpatient medical rehabilitation?

Methods

This study is a quantitative, observational, retrospective cohort study. All patients with PICS who met the inclusion criteria and were admitted to Heliomare Rehabilitation Center in the Netherlands between January 2018 and July 2023 were included. Patient characteristics and USER scores at admission were collected through clinical record review. Univariate and multivariate linear regression analyses were performed to identify variables predictive of inpatient medical rehabilitation length of stay.

Results

A total of 70 patients were included. The mean age was 59 years (SD 11.3); the majority were male and had received invasive mechanical ventilation. The median ICU length of stay was 30 days (IQR 18.5–44.3), and the median length of stay in the rehabilitation center was 58 days (IQR 43.3–78.3).

Multivariate linear regression analysis identified the following variables as independently associated with inpatient rehabilitation length of stay:

- ICU length of stay ($B = 0.208$; 95% CI -0.07 to 0.42 ; $p = 0.058$)
- USER domain “physical independence” at admission ($B = -0.452$; 95% CI -0.77 to -0.14 ; $p = 0.005$)
- USER domain “mood” at admission ($B = 0.074$; 95% CI 0.02 to 0.13 ; $p = 0.010$)

Conclusion

This study suggests that ICU length of stay and USER scores at admission on the domains “physical independence” and “mood” are predictive of inpatient rehabilitation length of stay in patients with PICS. These variables may, in addition to clinical judgment, contribute to a more accurate estimation of expected rehabilitation duration.

IN03 - Sat

Staff perceptions of interprofessional collaboration during weaning and extubation: a mixed methods service evaluation

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Introduction: Weaning and extubation are important recovery steps from mechanical ventilation for patients in intensive care units (ICUs). The process requires skilled interprofessional teams to collaborate to maximise successful outcomes ¹. Weaning too early can result in re-intubation and a disrupted patient recovery, whereas delayed weaning increases the risk of prolonged ventilation and post intensive care syndrome ². Variations in practice between staff members and lack of role recognition within one London hospital created a challenging environment for maintaining consistent approaches to weaning. The aim of this service evaluation was to explore ICU staff perceptions of interprofessional collaboration during mechanical ventilation weaning and extubation.

Methods: Approvals were granted through the local Trust transformation team. A service evaluation using an explanatory sequential mixed methods design was undertaken. An online survey was developed and distributed to staff working in ICU, to describe current weaning practices, factors impacting on weaning delays and perceived confidence. A purposive sample of clinicians participated in semi-structured interviews exploring perceptions of interprofessional collaboration during weaning and extubation. Data were analysed using descriptive statistics and framework analysis.

Results and Discussion: Of 258 eligible ICU staff, 45% (n = 115) completed the survey, 80% (n = 92) of whom had >2 years of intensive care experience. Patient, staff and organisational factors affected weaning delays, according to staff. There was a strong positive correlation between confidence with weaning and years of experience ($r=0.6$, $p<0.001$). Suggested improvements to weaning processes by ICU staff included increased clarity in weaning documentation, timely assessment and pre-planning of extubation readiness, further education and promotion of collaborative practices.

Eight clinicians completed interviews, (doctors n=2, nurses n=2, advanced critical care practitioners (ACCPs) n=2, physiotherapists n=2). Fourteen themes were developed across four frameworks: (1) successes and challenges affecting weaning and extubation; (2) perceptions of interprofessional collaboration during weaning; (3) role perception of interprofessional team involved in weaning; (4) training and education needs of the interprofessional team.

Conclusion: This service evaluation highlighted both positive and negative perceptions of interprofessional collaboration within one hospital trust. It provides a starting point for future training and education within the trust to highlight differences between roles and opportunities for further collaboration to support successful weaning.

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IN04 - Sat

Physiotherapy and Optimised Enteral Nutrition In the post-acute phase of critical illness (PHOENIX): a randomised controlled feasibility trial

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Introduction: Survivors of critical illness commonly experience prolonged physical and functional impairment related to muscle wasting, catabolism, and malnutrition. Rehabilitation and nutritional support beyond the intensive care unit (ICU) are frequently inconsistent, and deficits persist following ICU discharge. Although combined rehabilitation and nutritional interventions may support recovery, their feasibility in the post-ICU hospital setting is uncertain.

Methods: PHOENIX was a mixed-methods, parallel group, open-label randomised controlled feasibility trial conducted in two UK university hospitals. Adult ICU survivors who had received four or more days of advanced respiratory support and with ongoing physiotherapy and dietetic rehabilitation needs at ICU discharge were recruited. Participants were randomly allocated (1:1) to receive either enhanced, individualised physiotherapy combined with optimised nutrition for up to 14d days, or usual care. Primary feasibility outcomes were recruitment rate, retention at 30 days, and intervention fidelity. Secondary outcomes, collected to inform a future definitive trial, included days alive and out of hospital at 30 days (DAOH30), physical function, nutritional status, and quality of life. The trial was prospectively registered (ClinicalTrials.gov NCT06159868) and approved by the Wales Research and Ethics Committee 2 (24/WA/0050).

Results: Between May 2024 and January 2025, 172 patients were screened, of whom 60 met eligibility criteria and all consented to participate. Recruitment targets were achieved within eight months, and retention at 30 days was 100%. Enhanced physiotherapy was delivered on 81% of available days, exceeding the predefined feasibility threshold of 70%. Delivery of prescribed nutritional targets was feasible, with intake fidelity exceeding progression criteria for both calories (75.2%) and protein (83.7%).

Secondary exploratory outcomes favoured the intervention group, with higher median DAOH30 (16 vs 13 days), improved physical function (30-second sit-to-stand: 3.1 vs 1.7 repetitions), and greater independence (median Barthel Index: 50 vs 35). A greater proportion of intervention patients were able to walk at least 30 metres at hospital discharge compared with usual care (71.4% vs 37.9%, $p=0.009$). From a nutritional perspective, malnutrition rates at hospital discharge were also lower in the intervention group in comparison to usual care (GLIM criteria 4% vs 31%)

Conclusion: A combined enhanced physiotherapy and optimised nutrition intervention following ICU discharge is feasible, with high recruitment, retention, and intervention fidelity. A definitive multicentre randomised controlled trial is now warranted to evaluate clinical and cost-effectiveness.

IN05 – Sat

Early mobilisation in patients admitted to the intensive care unit with acute traumatic brain injury: a three-year service evaluation

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Introduction: Traumatic brain injuries (TBIs) are a leading cause of death and disability worldwide, with approximately half of all adults who present to hospital with acute TBI requiring intensive care unit (ICU) admission (1). Early mobilisation is defined as the application of assisted movement to hospitalised patients, including progressive exercise and ambulation programmes (2). Whilst early ICU mobilisation is safe and effective in general-ICU cohorts, there is currently limited evidence specific to adults admitted to ICU with acute TBI (3). The aim of this service evaluation was to identify current mobilisation activity in patients admitted to the ICU at our institution following acute TBI.

Methods: A single-centre retrospective service evaluation was performed for all patients admitted to the ICU at our institution (Level 1 major trauma centre) with an acute TBI between January 2022 and November 2024 (CARMS-22399). Patient demographics, ICU admission details and TBI severity (based on the Glasgow Coma Scale [GCS]) were extracted from electronic health records. Mobilisation outcomes included the Manchester Mobility Scale (MMS) and the timing of mobilisation commencement (i.e. $\geq$ MMS2, sitting on the edge of the bed or more) (4).

Results: The service evaluation included 353 patients, of whom 56.0% had severe TBI (GCS: 3-7), 31.8% had a moderate TBI (GCS: 8-13) and 12.2% had a mild TBI (GCS 14-15). Mobilisation was achieved in ICU for 53.0% of patients, with a further 18.1% first mobilised on a hospital ward post-ICU discharge. First mobilisation occurred at a median of 11 days (IQR: 6-18) after ICU admission. In patients surviving to ICU discharge (n=265), 28.9% had an MMS of 1 (bed-based exercises) at this time and 24.7% had an MMS of 2 (sitting on the edge of the bed). Only 9.1% of patients achieved an MMS of 7 at ICU discharge (mobilising $\geq$ 30 metres), with this increasing to 54.6% at the point of hospital discharge. Analysis by TBI severity found a significant decline in in-hospital mobilisation rates with increasing TBI severity (90.7% vs. 58.4% for mild vs. severe TBI; $p < 0.001$), with a corresponding increase in the time to first mobilisation (median: 6 vs. 13 days for mild vs. severe TBI; $p < 0.001$).

Conclusion: Acute TBI patients admitted to the ICU at our institution had low rates of mobilisation and achieved low levels of mobility at ICU discharge. This service evaluation highlights an urgent need for prospective studies into early mobilisation practices in the neurotrauma ICU.

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Figures will be displayed in the Poster

IN06 - Sat

Mobility level at ICU Discharge and Its Association with Functional Independence and Medium-Term Mortality: A Retrospective Study

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Introduction: Mobility level at intensive care unit (ICU) discharge, assessed using the ICU Mobility Scale (IMS), may represent an integrative marker of functional recovery following critical illness. We aimed to evaluate the association between ICU clinical variables and mobility level at discharge, and to determine its relationship with functional independence and short- and medium-term mortality.

Methods: We conducted a retrospective observational study in a medical ICU between January and June 2024. Adult patients with ICU length of stay >48 hours, without previous motor or cognitive dysfunction and discharged alive were included. Mobility at ICU discharge was assessed using the IMS (range 0–10). Ordinal logistic regression was used to identify factors associated with IMS, and binary logistic regression was performed to assess mortality outcomes. Functional independence was defined as a post-ICU Barthel Index >70 at hospital discharge. The study was approved by the institutional ethics committee.

Results: Among 320 admitted patients, 70 met inclusion criteria. Median age was 64 (IQR 54;76) years, and 40% were female. Respiratory conditions accounted for 45% of admissions. Invasive mechanical ventilation was required in 84% of patients for a median of 3 (IQR 1– 7) days. Median ICU length of stay was 5 (IQR 3–10) days, and median APACHE II score at admission was 14 (IQR 9–17).

Median IMS at ICU discharge was 4 (IQR 4–8), with 75.7% of patients achieving IMS >4. IMS was not associated with age, APACHE II, duration of mechanical ventilation, or ICU length of stay. A moderate positive correlation was observed between IMS and post-ICU Barthel Index ($\rho=0.46$; $p<0.01$). An IMS >6 yielded 51.4% sensitivity and 95.2% specificity (LR+ 10.8) for predicting functional independence.

In adjusted analyses, higher IMS was not significantly associated with hospital mortality (OR 0.58; 95% CI 0.32–1.06; $p=0.07$) or 30-day mortality (OR 0.68; 95% CI 0.45–1.03; $p=0.07$).

However, higher IMS was independently associated with lower 3-month mortality (OR 0.52; 95% CI 0.28–0.98; $p=0.04$). Adjusted predicted mortality probability declined progressively with increasing IMS values (Figure 1).

Conclusions: Mobility level at ICU discharge appears to reflect functional recovery rather than initial illness severity or exposure to life-support therapies. Higher IMS scores were independently associated with improved functional independence and reduced 3-month mortality. These findings support the potential role of discharge mobility assessment as a simple, clinically meaningful prognostic marker in critically ill patients.

IN07 – Sat

Variations in ICU physiotherapy provision and clinical practice across Denmark, Norway, Sweden, Finland and Iceland: A Nordic substudy of the PEAiCE survey.

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And for the PEAiCE steering committee: Dr Sabrina Eggman, Dr David McWilliams, Dr Peter Nydahl and Dr Agnieszka Lewko.

Introduction: Physiotherapists provide essential respiratory care and mobilisation in intensive care, yet patterns of practice vary, sometimes considerably, across countries. The Physiotherapy provision and practice: a EuropeAn Intensive CarE Unit Survey (PEAiCE) was completed in 2024 across 33 European countries.

Aim: To examine variations in the education, accessibility and clinical practice of physiotherapists in Danish, Norwegian, Swedish, Finnish and Icelandic ICUs.

Methods: This descriptive analysis used data from the five Nordic respondents of the PEAiCE survey. The original European survey captured information on ICU structures, physiotherapy provision, and respiratory and mobilisation practices for mechanically ventilated patients.

Responses from Denmark (22/41, 54% ICUs), Norway (18/28, 64%), Sweden (41/82, 50%), Finland (17/25, 68%) and Iceland (3/3, 100%) were extracted and analysed. With some countries having low response rates and some countries having few ICU's, results should be interpreted with some caution.

Results: Finnish (16/17, 93%), Norwegian (17/18, 94%), and Swedish (31/41, 76%) physiotherapists commonly treat ICU patients for both respiratory and mobilisation needs. This is less common in Iceland (2/3, 66%) and Denmark (14/22, 60%) where the focus lies more often solely on mobilisation.

Physiotherapy referral requirements also vary. In Norway (17/18, 94%) and Finland (12/15, 71%), a referral is required before physiotherapy treatment can begin. In most ICUs in the other Nordic countries, no referral is needed.

Norway reported the lowest proportion of ICU-dedicated physiotherapists, with only 1 out of 18 replying hospitals stating they have a physiotherapist specifically assigned to the ICU.

Differences also appear in more advanced respiratory physiotherapy techniques. In Denmark, Finland, and Iceland, physiotherapists are rarely involved in non-invasive ventilation, suctioning, or cough-assist treatments as these are procedures carried out by other members of the team. In contrast, in Norway and Sweden these tasks are more commonly considered part of the ICU physiotherapist's role.

Conclusion: Physiotherapy management of ICU patients was relatively consistent across the Nordic countries. However, there were notable differences in how physiotherapy services were organised and in what was considered physiotherapy practice versus nursing practice. Physiotherapy provision and scope of practice varied substantially across Nordic ICUs. These variations highlight the importance of considering differences in referral pathways, professional autonomy, and treatment responsibilities when planning collaborative rehabilitation initiatives and designing future Nordic research efforts to improve practice beyond borders.

IN08 - Sat

Retrospective review of the incidence of silent aspiration and dysphagia post 5 days or more of intubation on the intensive care unit

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Introduction: Post extubation dysphagia (PED) is common in patients in the ICU and associated with prolonged intubation (Brodsky, 2019). PED can occur in up to 41% of extubated patients (McIntyre, 2021) and can impact on long term mortality, increased length of hospital stay and reduced quality of life. Early identification and management is essential for this population (Zuercher, 2022). Dysphagia is often found to be present up until and post hospital discharge, therefore earlier intervention is recommended (Schefold et al, 2017). Laryngeal injury post extubation can contribute to dysphagia and changes to voice (Brodsky, 2019). Aspiration in the ICU population is often silent and can be identified in up to 69.3% of patients; if left untreated this can pose significant risk to patients. Silent aspiration will not be identified on bedside assessment and use of Fiberoptic Endoscopic Evaluation of Swallow (FEES) is recommended to reduce risk of under identifying PED (Hafner et al, 2008).

Methods: Retrospective review of patients from 01/10/25-31/01/26 intubated for 5 or more days and underwent FEES. All reports included: (i) secretion severity rating, (ii) pharyngeal residue severity rating, (iii) penetration aspiration scale, (iv) dysphagia severity rating and recommendations for fluids and diet using IDDSI Framework. Additionally, a crude laryngeal assessment was completed with review by ENT.

Results: 40 FEES were completed at an average of 9.68 days post extubation. 17 females and 23 males aged between 21-91 with an average intubation of 9.43 days. Most prevalent diagnoses were cardiac 37.5%, respiratory 22.5% and stroke 12.5%. 20% were on room air, 32.5% were on nasal cannula, 12.5% were on HFNC and 35% were tracheostomised. At the time of FEES, 95% were Nil Per Oral (NPO). Post FEES, 97.5% presented with dysphagia, 55% presented with either deep penetration to the vocal cords or aspiration and 25% aspirated silently. 25% of patients remained NPO post FEES. 55% of patients were identified with new laryngeal pathology (e.g. granuloma)

Conclusion: This review of dysphagia post prolonged intubation demonstrates that risk of silent aspiration and dysphagia is high. If left unidentified, it poses high risks and long-term impact on recovery post discharge from ICU. It can prolong ICU stay and delay discharge with impact on quality of life e.g. changes to voice, need of diet modification or long term non oral feeding. Early identification and proactive management using FEES is essential to facilitate positive outcomes for this group.

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IN09 - Sat

The Interconnectedness of Post-Intensive Care Syndrome Domains: A Qualitative Study

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Introduction

Post-intensive care syndrome (PICS) encompasses physical, cognitive, psychological, and social impairments affecting many survivors of critical illness. While these domains are well described individually, less is known about how they interact and shape recovery. This study aimed to explore how individuals with a previous intensive care unit (ICU) admission and their relatives experience the interconnectedness of physical, cognitive, psychological, and social domains of PICS during recovery.

Methods

A secondary qualitative content analysis was conducted using data from a phenomenological-hermeneutic study. Semi-structured individual and dyadic interviews were performed with 18 ICU survivors and 14 relatives at 3 and 6 months post-discharge in two Danish hospitals. Data were analysed using a combined deductive-inductive approach based on the PICS framework and Elo and Kyngäs' content analysis method.

Results

Participants described persistent and overlapping impairments across all PICS domains, rarely experienced in isolation. Physical limitations (e.g., weakness, dyspnoea) increased cognitive load during everyday activities, while cognitive impairments (e.g., memory loss, reduced attention) hindered rehabilitation, decision-making, and social participation. Psychological challenges, including anxiety, vulnerability, and difficulty processing the ICU experience, both influenced and were exacerbated by physical and cognitive limitations. Social reintegration was constrained by impairments across domains, affecting relationships, return to work, and participation in daily life. Relatives played a key supportive role, often acting as cognitive and practical resources, while also being affected themselves. Fatigue emerged as a central, cross-cutting factor influencing all domains. Participants described constant energy management as essential to navigate daily life, with even minor tasks requiring significant planning and recovery. The dynamic interplay between domains shaped individual recovery trajectories and required continuous adaptation.

Conclusion

Recovery after critical illness is shaped by the dynamic interplay between physical, cognitive, psychological, and social challenges. Fatigue represents a key cross-domain barrier. Rehabilitation should be designed as integrated, multidimensional pathways that reflect the interconnected nature of PICS and actively include both patients and their relatives.

IN10 - Sat

Physiotherapy Staffing in Polish Intensive Care Units: A Nationwide Cross-Sectional Analysis of Workforce Allocation and Bed Capacity

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Introduction: Early rehabilitation and respiratory physiotherapy are considered essential components of modern intensive care. International recommendations emphasise the role of physiotherapists in preventing and treating conditions such as intensive care unit (ICU)-acquired weakness and delirium, facilitating weaning from mechanical ventilation, and improving functional outcomes. However, the actual provision of physiotherapy services in Polish Intensive Care Units (ICUs) remains unclear. International recommendations suggest 5–12 ICU beds per physiotherapist, whereas Polish regulations specify 0.5 physiotherapy full-time equivalent without reference to bed numbers. Therefore, this study aimed to assess physiotherapy staffing and its relationship with ICU bed capacity in Poland.

Methods: A nationwide cross-sectional survey was conducted between May and November 2022. Public hospital ICUs in Poland were identified using publicly available national databases. Data were collected via structured telephone interviews using a study-specific survey with predefined questions, administered to members of the multidisciplinary ICU team. The survey included questions about the number of ICU beds, the number of physiotherapists directly assigned to the ICU, and the number of physiotherapists providing consultative or reach-in services, working permanently at other hospital wards.

Results: Data from 93 ICUs were analysed. The median (IQR) number of ICU beds was 8 (. The median number of physiotherapists was identical in both groups (0.5, IQR = 1). Physiotherapists permanently assigned to the ICU were present in 41.9% of units (n = 39), whereas consultative physiotherapy services were more commonly available, reported in 58.1% of ICUs (n = 54). The median physiotherapist-to-bed ratio was 0.025 (IQR = 0.125; min = 0; max = 0.25) for physiotherapists assigned to the ICU and 0.031 (IQR = 0.149; min = 0; max = 0.33) for consultative physiotherapists, corresponding approximately to one physiotherapist per 40 and 32 ICU beds, respectively. A moderate positive correlation was observed between ICU bed number and permanently assigned physiotherapists ($\tau = 0.41$; $p < 0.00001$). In contrast, a weak negative correlation was found between ICU bed number and consultative physiotherapists ($\tau = -0.28$; $p = 0.0015$).

Conclusion: Physiotherapy staffing in Polish ICUs appears heterogeneous and often insufficient relative to bed capacity, considering the international recommendations. Larger units show better integration, while smaller hospitals rely on consultative models. These findings indicate variability in workforce provision and support the need for (inter)national standards defining physiotherapy staffing ratios in intensive care. Establishing structured requirements may improve access to early rehabilitation and respiratory physiotherapy and optimise outcomes in critically ill patients.

IN11 - Sat

The Influence of Baseline Risk on the Effects of Perioperative Rehabilitation in Cardiac Surgery: A Post Hoc Analysis of the PORT Randomized Trial

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Introduction

Postoperative pulmonary complications (PPCs) remain a major cause of morbidity and prolonged recovery after cardiac surgery. Perioperative rehabilitation (PORT) improves outcomes, yet its efficacy across varying baseline operative risks, as stratified by EuroSCORE II, is unclear. This post hoc analysis of the PORT randomized trial investigated whether baseline risk modifies the effect of PORT on PPCs and long-term outcomes.

Methods

In this post hoc analysis, 781 patients undergoing cardiac valvular surgery were stratified into low- (EuroSCORE II <0.9), medium- (0.9–1.5), and high-risk (>1.5) groups. Participants were randomized to PORT (supervised exercise, respiratory muscle training, and education) or usual care. The primary outcome was incidence of PPCs within 7 days. Secondary outcomes included in-hospital mortality, hospital length of stay, and 3-month survival. Cox proportional hazards models with interaction terms assessed treatment effects across risk strata. Analyses were adjusted for key covariates.

Results

Of 781 patients, 348 (44.6%) were low-risk, 247 (31.6%) medium-risk, and 186 (23.8%) high-risk. PORT significantly reduced PPCs in the medium-risk group (adjusted HR 0.539, 95% CI 0.316–0.909, $P=0.02$), with consistent but non-significant trends in low-risk (HR 0.893, 95% CI 0.569–1.397) and high-risk groups (HR 0.770, 95% CI 0.420–1.403). No significant treatment-by-risk interaction was observed (all P for interaction >0.05). Secondary outcomes, including pulmonary atelectasis and pneumonia, showed similar patterns favoring PORT across groups, without increased adverse events in high-risk patients. Sensitivity analyses confirmed robustness. Kaplan-Meier curves demonstrated lower cumulative PPC incidence with PORT ($P=0.0035$).

Discussion

This analysis reveals that PORT provides consistent benefits in reducing PPCs irrespective of baseline EuroSCORE II risk, with no evidence of heterogeneity. The intervention proved safe even in high-risk patients, who are often underrepresented in rehabilitation trials.

Conclusion

Perioperative rehabilitation is effective and safe for reducing postoperative pulmonary complications and improving short-term outcomes in cardiac surgery patients across all baseline risk levels. These findings support broader implementation of PORT, including in high-risk populations, and advocate for its integration into routine perioperative care.

IN12 - Sat

Learning from survivors: How former intensive care unit patients' experiences influence nursing practice

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Introduction: Survival after critical illness has improved, yet many intensive care unit (ICU) survivors experience persistent physical, cognitive, and psychological impairments. Although follow-up services are often implemented and led by ICU nurses, participation is typically limited to a subset of nurses. Integrating patient narratives into clinical practice may provide valuable insights, yet their influence on nursing care remains underexplored. This study aimed to explore how former ICU patients' narratives of life after critical illness inform and influence ICU nurses' clinical practice.

Methods: A qualitative study using a phenomenological-hermeneutic approach inspired by Ricoeur. Data were generated through 12 semi-structured interviews with ICU nurses involved in follow-up services (individual, group, or combined formats). Data were analysed through naïve reading, structural analysis, and critical interpretation.

Results: Three themes emerged: (1) patient narratives as a source of knowledge for future care, (2) long-term patient experiences as catalysts for professional reflection, and (3) follow-up as a source of renewed professional meaning. Patient narratives provided insight into the enduring consequences of critical illness, challenged assumptions about recovery, and highlighted the importance of communication, environmental awareness, and patient vulnerability. This knowledge informed preventive, communicative, and rehabilitative strategies in clinical practice.

Conclusion: Former ICU patients' narratives constitute a valuable source of experiential knowledge that enhances nurses' understanding of recovery trajectories and supports reflective, person-centred care. Follow-up should be considered not only as patient support but also as a mechanism for professional learning and quality improvement.

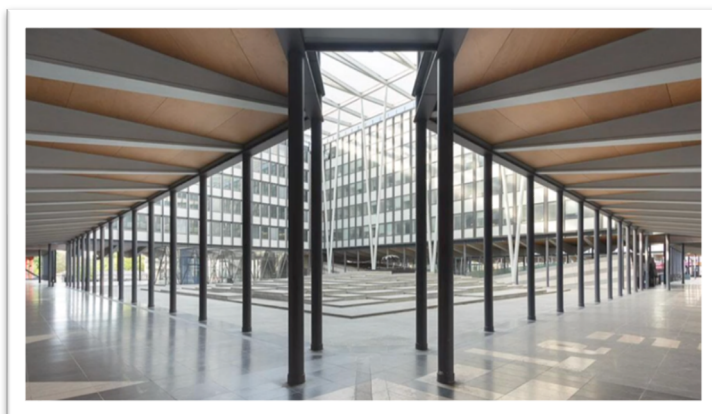
Relevance to clinical practice: Integrating patient narratives into clinical practice enables ICU nurses to refine clinical judgement, adapt care to individual needs, and strengthen communication practices, thereby promoting more responsive and person-centred care.

Poster presentations

DAY 2

Sunday September 27th

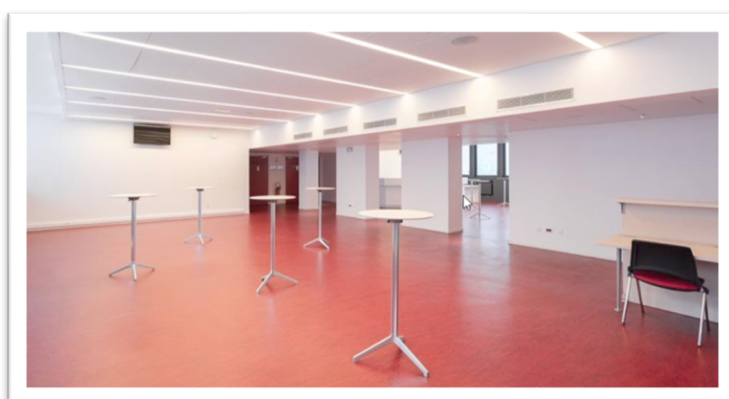
from 13:00 to 13:45



Patio

Exterior Posters

Group 1 - Sun (from E01 - Sun to E07 - Sun) Moderators: Guillaume Fossat, Martin Dres
Group 2 - Sun (E08 - Sun to E14 - Sun) Moderators: Cheryl Hickmann, Anne Kristine Brekka
Group 3 - Sun (E15 - Sun to E20 - Sun) Moderators: Juultje Sommers, Peter Nydahl
Group 4 - Sun (E21 - Sun to E26 - Sun) Moderators: Rik Gosselink, Yann Combret
Group 5 - Sun (E27 - Sun to E31 - Sun) Moderators: Marike van der Schaaf, Clément Medrinal



Hall 102

Interior Posters “The scientific committee selection”

Group 6 - Sun (IN01 - Sun to IN06 - Sun) Moderators: Caroline Bouteau, Greet Hermans
Group 7 - Sun (IN07 - Sun to IN12 - Sun) Moderators: Eleftherios Karatzanos, Peter Spronk

Complete list of Posters and Topics at the end of the document (page 97 to 100)

E01 – Sun

Early chest clearance following VV-ECMO: A Case Report

D Lavelle, K Dowling, E Cox, L Mylott

Guy's and St Thomas' NHS Foundation Trust, Royal Brompton Hospital

Aim: To describe the role of early chest physiotherapy in a critically unwell patient on veno-venous extracorporeal membrane oxygenation (VV-ECMO).

Background:

A 56-year-old male was retrieved for VV-ECMO due to presumed toxic shock syndrome, complicated by severe diabetic ketoacidosis (pH 6.8, ketones 6.0), reduced consciousness (GCS E4 V1 M1), profound hypothermia (23.2C), and hypothermic cardiac arrest with refractory ventricular fibrillation. His medical history included diabetes and recreational drug misuse.

Assessment:

On day 2 post-ECMO initiation, the patient remained intubated and ventilated (BiPAP mode: PEEP 10, P_{insp} 20, FiO₂ 30%) with SpO₂ 100% and stable gas exchange. Imaging demonstrated widespread bilateral consolidation with features suggestive of cavitation, airway plugging, and small pleural effusions. Additionally, an undisplaced fracture of the sternum. Auscultation revealed harsh breath sounds bilaterally. The patient was sedated (RASS -5) and supported with vasopressors. Notably, there was absence of an effective cough.

Intervention:

The risks and benefits of alternative physiotherapy interventions were considered when selecting mechanical insufflation: exsufflation (MI:E). Manual techniques may have been beneficial; however, there were concerns regarding the patient's undisplaced sternal fracture following CPR and the risk of ECMO cannula displacement. Manual and ventilator hyperinflation could have enhanced recruitment but generated limited expiratory flow bias for sputum clearance and may have exacerbated existing lung cavitations. Following multidisciplinary discussion, MI:E was deemed the most appropriate intervention, as it could generate the expiratory flow bias necessary for secretion clearance while allowing controlled airway pressures to minimise the risk of worsening lung cavitations. Additionally, we agreed to start with lower pressures similar to the ventilator settings and reassess. We started MI:E with +25/-35 cmH₂O on a 6:1 ratio. Approximately 8 cycles of MI:E were performed.

Outcomes:

Copious volumes of thick, tenacious secretions were cleared. The patient remained haemodynamically stable throughout. Post-interventions, tidal volumes improved (326mls to 560ml), and auscultation findings showed reduced crackles. Following 2 days of twice-daily chest clearance, secretion burden reduced. The patient was successfully weaned off ECMO sweep for 24 hours and subsequently decannulated.

Conclusion:

MI:E was a safe and effective airway clearance method with this patient and can be shared with other ECMO centres to assist with clinical reasoning future practise. It has confirmed existing knowledge that MI:E is safe within the VV-ECMO population when discussed as an MDT to weight up risk versus benefit. These interventions can facilitate significant secretion clearance, improve tidal volumes and potentially contribute to earlier ECMO weaning and decannulation.

E02 – Sun

Utilising serial P0.1 measurements to monitor work of breathing during active rehab on a mechanically ventilated patient on Veno-Venous ECMO.

Katie Dowling and Laura Mylott

Guy's and St Thomas' NHS Foundation Trust, Royal Brompton Hospital

Introduction

Rehabilitation practices for patients requiring ExtraCorporeal Membrane Oxygenation (ECMO) vary (Tonna JE, et al., 2003). This case study highlights options for monitoring work of breathing and respiratory drive to aid in decision making regarding use of increased Veno-Venous (VV) ECMO support during rehabilitation.

Methods

A 32-year-old female was retrieved from her local hospital for V-V ECMO due to hypoxia and severe septic shock. *Streptococcus pneumoniae* bacteraemia was identified. The patient required haemodynamic support.

Active rehabilitation began on day 12 of admission once sedation was weaned and RASS -1 achieved. The patient remained intubated and ventilated on PC-AC achieving 1.4ml/kg per ideal body weight and requiring pump flow 3.1lpm and sweep flow 6lpm to maintain adequate arterial blood gases. The patient was achieving tidal volumes of >100mls and a 100% test demonstrated a pO₂ 25.1kpa. Imaging also demonstrated a pneumothorax.

Due to the patient's poor native lung function and to prevent the risk of further lung injury, it was agreed through MDT discussion to proactively increase sweep to assist with rehabilitation.

To facilitate out of bed rehabilitation, sweep gas was increased from 6 to 7.5L. The patient was supported to sit on the edge of the bed with assistance of 3 therapists for 8 minutes. They were able to engage with some head and trunk control exercises.

Results

During rehabilitation, respiratory rate, observation of work of breathing, and P0.1 were monitored every 1-2 minutes to guide amount of ECMO sweep required (Table 1). Sweep flow was increased however no change to pump flow or ventilator settings were made. There were no adverse events, and rehabilitation was stopped due to patient fatigue.

The patient was extubated on day 15 to further reduce the risk of ventilator induced lung injury. Work of breathing during rehabilitation was monitored via respiratory rate and observed signs of high work of breathing, with sweep flow utilised to reduce this.

Conclusion

This case study demonstrates that rehabilitation of patients requiring VVECMO who are high risk for lung injury is safe and feasible. The use of P0.1 is a useful marker of respiratory drive and can be used in combination with other parameters to titrate VVECMO support.

Table will be displayed in the Poster

E03 – Sun

Upper airway and translaryngeal resistance during inspiratory muscle training in healthy volunteers.

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¹²Department of Surgical Science, The Faculty of Medicine, Bergen, Norway

Background and aim: Inspiratory muscle training (IMT) is widely used in respiratory medicine, yet upper airway and translaryngeal flow and pressure dynamics have not been characterized. We aimed to measure pressure gradients, airflow, and upper-airway- and translaryngeal resistance during maximal inspiratory manoeuvres (P_Imax) and graded IMT loading, while relating these findings to observed laryngeal responses.

Methods: In this cross-sectional study, nine healthy volunteers underwent video-recorded transnasal fiberoptic laryngoscopy with pressure catheters positioned above and below the larynx. P_Imax was determined prior to 16–18 inspiratory efforts using an electronic IMT device set at 40% of P_Imax. Upper airway (larynx to mouth) resistance and translaryngeal resistance were calculated from the segmental pressure differences divided by airflow. Laryngeal movements were assessed, and inducible laryngeal obstruction (ILO) was identified based on predefined laryngoscopic criteria.

Results: The mean inspiratory trachea-to-mouth pressure difference was 4.3 cmH₂O during the P_Imax manoeuvres and 6.6 cmH₂O during IMT. Mean (SD) upper airway- and translaryngeal resistance was 47.6 (46.1) cmH₂O·L⁻¹·s⁻¹ and 18.2 (19.4) cmH₂O·L⁻¹·s⁻¹, respectively. We observed ILO in 5/9 participants during the P_Imax procedure and in 7/9 during IMT, mainly caused by vocal fold adduction. Mean (95%CI) differences in translaryngeal pressure and resistance between breaths with vs. without ILO were 2.9 (0.7; 5.1) cmH₂O and 15.5 (-2.6; 33.7) cmH₂O·L⁻¹·s⁻¹, respectively.

Conclusions: Pressure transmission during IMT follows expected physiological patterns, with progressively more negative airway pressures distally during inspiration. ILO was associated with increased translaryngeal resistance and reduced pressure delivery measured at the mouthpiece. These findings may inform optimization of IMT strategies and device settings.

E04 – Sun (*not attending*)

The Role of Ice-chips in Swallow Assessment and Rehabilitation: A Review of the Benefits for Patients in the ICU

Murray, L.; Geraghty, K., Gigi, A. & Hill, F. – Speech and Language Therapy Dept., Tallaght University Hospital

Background: Dysphagia is highly prevalent in the intensive care unit (ICU), particularly following prolonged intubation, tracheostomy, and in patients with complex neurological or respiratory conditions. Severe ICU-acquired dysphagia is frequently characterised by impaired secretion management, increasing the risk of aspiration and pneumonia. Prolonged nil per oral (NPO) status and ongoing ventilation or oxygen requirements may further compromise oral, pharyngeal, and laryngeal function. Fibre-optic Endoscopic Evaluation of Swallowing (FEES) is considered the gold standard for assessment in this population due to the high incidence of silent aspiration; however, excessive tenacious secretions can obscure anatomical landmarks, limit assessment quality, and restrict safe oral trials.

Previous research has demonstrated that ice chips significantly improve secretion management in NPO patients. Pisegna and Langmore (2016) reported improvements in oral and tracheal secretions in 77.8% of cases. Ice chips also provide a gradual and controlled method of fluid reintroduction aligning with evidence supporting the Free Water Protocol, which has shown no increased risk of pneumonia when implemented with appropriate safeguards (Carlaw et al., 2012; Bernard et al., 2016).

Method: A retrospective review was undertaken into the use of ice chips during FEES assessment for patients with severe dysphagia over a two-month period. Inclusion criteria included the presence of significant tenacious secretions during FEES. Four patients met criteria.

Results: 4/4 patients had history of prolonged intubation and mechanical ventilation. In 100% of cases, secretions impaired FEES visibility and assessment accuracy. Introduction of ice chips improved patient engagement and visibility during FEES for all patients. Subjective improvements in secretion quality and viscosity were noted, with objective improvements demonstrated for 100% of patients.

Conclusion: Ice chips appear to be a low-risk, clinically useful adjunct to FEES assessment in ICU patients with severe dysphagia, facilitating improved secretion management and more accurate identification of airway compromise. Furthermore, they appear to be a useful therapeutic strategy for secretion management, offering sensory stimulation, motor function and mitigating risks associated with prolonged NPO status. Their introduction can also have a positive impact on patient's quality of life. Further investigation into dosage and functional outcomes is warranted.

E05 - Sun

Preventing foot drop in ECLS Patients: Development and feasibility of a positioning cushion

G.H. Heijnen PA, P. Wood PT, J. Stolwijk-Swüste MD PhD

Department of Rehabilitation, Physiotherapy Science and Sports, UMC Utrecht Brain Centre, University Medical Centre Utrecht, Utrecht University, Utrecht, The Netherlands

Introduction: Foot drop is a frequently observed neurological complication in patients treated with ECLS, with a reported prevalence of approximately 23%. It is most often caused by compression or ischemia of the peroneal nerve, although the exact mechanisms remain unclear. Foot drop can lead to long-term functional limitations, delayed rehabilitation, and reduced participation in daily activities. Despite its clinical relevance, no structured preventive intervention is currently implemented in ICU care. This project aimed to develop and evaluate a positioning cushion designed to reduce peroneal nerve pressure and thereby lower the risk of foot drop in ECLS patients.

Intervention: A multidisciplinary team of rehabilitation physicians, physiotherapists, perfusionist and plaster technicians developed a positioning cushion intended to optimize lower-limb alignment and reduce external pressure on the peroneal nerve. The design was based on feedback from ICU nurses and multidisciplinary team to ensure practical usability in a dynamic ICU environment.

Methods: A four-month baseline observation period was conducted to determine the incidence of foot drop in all ECLS patients in our hospital. After this period, nurses and physiotherapists were trained in the practical use of the positioning cushion to ensure consistent application in daily care. The cushion was subsequently implemented in clinical practice, and all ECLS patients treated with it between January and July 2026, were monitored prospectively for the occurrence of foot drop. Feasibility and usability were evaluated through interviews with ICU staff, nurses and paramedical professionals, as well as through observational assessments of positioning quality.

Results: During the baseline period, approximately 30% of ECLS patients showed signs of peroneal neuropathy. Early feasibility findings indicate that the positioning cushion is practical to use, well tolerated by patients, and easily integrated into routine ICU workflows. No safety concerns have been identified.

Quantitative outcome data on the incidence of foot drop during the intervention period are currently being collected and will determine whether the cushion has a measurable preventive effect.

Conclusion: The positioning cushion appears feasible and acceptable for routine use in the ICU daily care. A next step is an effectiveness study in a larger ECLS population to determine whether the positioning cushion truly lowers the incidence of foot drop.

Implications for practice: The project demonstrates that collaboration between ICU staff, rehabilitation physicians, physiotherapists, and plaster technicians can lead to practical, implementable innovations. Training and implementation increased awareness among ICU nurses and therapists about the risk of peroneal neuropathy, which may improve early detection and prevention.

E06 - Sun

Challenges of physiotherapy in the care of patients in the early, complicated period after heart transplantation in the ICU. Case study.

Piwoda Agnieszka (1,2), Dominika Batycka – Stachnik (1), Dorota Sobczyk (3,4)

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4 - Medical College, Jagiellonian University, Krakow, Poland

CLINICAL CONTEXT – PATIENT CHARACTERISTICS:

Heart transplantation is a procedure that poses significant therapeutic challenges for the patient and MDT. From a physiotherapy perspective, a patient with severe heart failure at baseline has significant limitations in terms of mobility, ventilation and overall physical capacity. This situation has a direct impact on the planning of the physiotherapy process, determining the choice of therapeutic measures and the need to take perioperative complications into account.

The difficulties are illustrated by the physiotherapy protocol a 52-year-old man with peripheral oedema and ascites, leading a predominantly sedentary lifestyle, following a heart transplant, complicated by the need for ECMO implantation.

DIAGNOSTIC PROCEDURES AND CLINICAL REASONING:

- before, during and after physiotherapy procedures was controlled ventilated and cardiac parameters,
- every other day used MRC scale and used ABCDEF bundle protocols,
- controlled kinds of support therapy (medicaments, ECMO and CVVHDCiCa),
- the types of physiotherapy were adapted to changing parameters and clinical condition,
- physiotherapy carried out 2 times / all week days (ICU physiotherapy support 27/7)

INTERVENTIONS, MANAGEMENT, AND OUTCOMES:

- from day 3 passive exercises of upper/lower limbs, with maintaining restrictions around the right hip joint (ECMO cannulation),
- day 10 - extubation followed by intensive respiratory therapy,
- from day 11 passive, assisted/active exercises,
- from day 13 in bed cycling started from 5 min,
- from day 17 verticalization - passive standing/ assisted sitting, gradually extended over the following days to 2 h/ twice daily;
- from day 26 assisted repositioning within the bed and standing with walking frame and support and on day 28 the patient discharged to postICU ward, where he stayed 4 months

CONCLUSION:

1. Complications during the early stages of surgical treatment significantly limit the range of physiotherapy procedures that can be used, causing the development of weakness during a stay in the ICU.
2. Psychological issues that overlap with the patient's clinical condition force the treatment team to rely on more basic forms of physiotherapy, thereby limiting the range of procedures used.
3. Foot drop is a common and sometimes difficult-to-treat functional complication in patients who have undergone vascular cannulation within the lower extremities following ECMO therapy.
4. The use of various scales to assess the clinical, movement and psychological status of ICU patients (the MRC scale, the ABCDEF protocol or the CPaX) enables both a better tailoring of physiotherapy interventions at any given time and the documentation of progress in restoring the patient's functional capacity.

E07 - Sun

Using Virtual Reality to Improve Wellbeing and Rehabilitation Engagement in ICU: A Quality Improvement Project

Kirsten Mitchell, Trainee Advanced Clinical Practitioner Physiotherapist for ICU, Fraser Walsh-Beney, Specialist Occupational Therapist in ICU, Dr Judith Highgate, Consultant in ICU and Anaesthetics, East Sussex Healthcare NHS Trust, Eastbourne District General Hospital and Conquest Hospital.

Problem: Patients recovering from critical illness frequently experience Post Intensive Care Syndrome (PICS), including physical, cognitive and psychological impairments (Herridge and Azoulay, 2023). High levels of anxiety, distress and reduced engagement with rehabilitation can negatively impact recovery (McPeake et al, 2021). Existing strategies to support psychological wellbeing and promote engagement are limited, highlighting a need for innovative, patient-centred interventions within ICU (Jawed et al, 2021; Schwitzer et al, 2023).

Intervention: A virtual reality (VR) intervention was introduced as an adjunct to standard rehabilitation. A standard operating procedure (SOP) and risk assessment were developed to ensure safe, consistent delivery. 15-minute immersive videos of local natural environments were created using Insta360° camera and delivered through MetaQuest 2 headsets. Both static and movement-based experiences were provided to accommodate patient tolerance and preference. Patients were selected based on defined safety criteria, and sessions were incorporated into rehabilitation practice.

Evaluation Methods: A mixed-methods approach was used. Psychological impact was measured pre- and post-intervention using the Distress Thermometer. Tolerability and safety were monitored through documentation of adverse effects. Qualitative feedback was collected from patients, family and the multidisciplinary team to assess acceptability and perceived benefit.

Outcomes and Results: We have trialled VR with 15 patients. The SOP enabled safe identification and selection of appropriate patients. VR was well tolerated, with no reports of claustrophobia, dyspnoea or agitation. Mild motion sickness occurred in some cases but did not prevent participation. Distress Thermometer scores indicated reductions in nervousness, sadness and worry (10/37 pre-VR to 1/37 post VR). Alongside increased interest in usual activities following VR exposure. Feedback from patients, carers and staff was consistently positive, with reports of improved mood and enhanced engagement with rehabilitation. A small number of patients declined participation due to personal preference or concerns about emotional impact. The project sustainability score is 43.8/100 (NHS, 2010).

Lessons Learned and Implications for Practice: This project demonstrates that VR is a feasible, safe and acceptable intervention within ICU, with potential to improve psychological wellbeing and rehabilitation engagement. Individual patient preference and tolerance must be considered, and alternative options should remain available. A structured SOP is essential to support safe implementation. Future work should focus on formal outcome, process and balance evaluations, expansion of VR content and wider integration across clinical pathways, including post-ICU follow-up.

Acknowledgements: East Sussex Healthcare NHS Trust, University of Brighton

References:

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E08 - Sun

Exploring oxygen consumption and its correlation with strength during standardized ICU rehabilitation exercises in a healthy population.

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Introduction: Early physical activity is considered a feasible and safe approach to prevent or treat neuromuscular complications in ICU, but current interventions lack standardization in intensity and duration [1]. The objective of this preliminary study in healthy subjects was to assess dynamics of oxygen consumption (VO₂) during standardized exercises commonly used in ICU and to explore the relationship of VO₂ dynamics with subject characteristics including muscle strength.

Methods: Forty-three healthy adults (25 women, 18 men; mean age (range): 46 (20-77) years) were included. The protocol consisted of 10 standardized exercises in bed: from #1 to #5 for the upper limbs (UL) and from #6 to #10 for the lower limbs (LL), both series with theoretical progressive increased charge. Each exercise lasted four minutes, followed by at least 3 minutes of rest. VO₂ variation during each exercise was measured using indirect calorimetry (QNR-G+, Cosmed®). Correlations were performed between weight-normalized-VO₂ (relative-VO₂) and demographics characteristics as age and genre and dynamometric assessment as handgrip, hip and elbow flexion and knee extension.

Results: VO₂ increases were observed during all standardized exercises. Relative-VO₂ increase was not correlated with age in any of exercises. A higher relative-VO₂ increase was observed in male subjects for the exercises #2, #4, #6, #7 and #9 (Figure). Correlations were observed between relative-VO₂ increase and: 1) handgrip strength on exercises #2 ($r=0,29$, $p=0,05$), #4($r=0,30$, $p=0,05$) and #7($r=0,45$, $p=0,002$); 2) handheld elbow flexion on exercise #2 ($r=0,46$, $p=0,001$), #4($r=0,30$, $p=0,05$), #7($r=0,43$, $p=0,004$) and #9 ($r=0,33$, $p=0,032$); 3) handheld knee extension on exercise #7($r=0,49$, $p=0,001$) and #9 ($r=0,35$, $p=0,021$) and 4) handheld hip flexion on exercise #2 ($r=0,49$, $p<0,001$), #4($r=0,38$, $p=0,012$), #6($r=0,43$, $p=0,003$), #7($r=0,50$, $p<0,001$), #8($r=0,56$, $p<0,001$) and #9 ($r=0,56$, $p<0,001$).

Conclusion: These preliminary data in healthy subjects demonstrate the potential of indirect calorimetry to quantify the intensity of exercises administered to patients undergoing rehabilitation and suggest a correlation with muscle strength across different segments, particularly for hip flexion strength. These findings primarily serve as a baseline for comparison in a clinical study involving ICU patients.

References:

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E09 - Sun

A Study on the Validity of the Upper Extremity Fugl-Meyer Assessment Scale in Greek ICU patients

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2. 1st University Intensive Care Unit, Evangelismos Hospital, Medical School, NKUA, Greece
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4. Department of Physiotherapy, Advanced Physiotherapy Lab, UNIWA

Introduction:

The Upper Extremity Fugl-Meyer Assessment (UEFMA) is one of the most recommended tools for clinical evaluation of post-stroke motor function disability. Critically ill patients admitted to the Intensive Care Unit (ICU) often present a series of functional deficits that resemble those observed in stroke patients. However, there is a limited number of validated tests that comprehensively assess upper extremity function in this population. The purpose of this study was to examine the validity of the Upper Extremity Fugl-Meyer Assessment scale in Greek ICU patients.

Methods:

Patients admitted to the General ICU of Athens General Hospital “Evangelismos” were recruited. The Greek version of UEFMA was used to evaluate the most affected upper limb, which was defined as the impaired one. Test-retest reliability was assessed using the interclass correlation coefficient (ICC). We used Pearson correlation with the Block-Box Test (BBT), the Motor Assessment Scale (MAS), Motricity Index (MI) to determine convergent validity and the MRCss and Hand-Grip for concurrent validity. Divergent validity was examined with APACHEII Score.

Results:

Thirteen patients (mean age: 60±14 years) were included in this pilot study. APACHE II was 18 ± 6 (mean±SD) and the mean ICU length of stay was 62 ± 38 days. The Intraclass Correlation Coefficient (ICC) index for average measures was 0.954, the Pearson correlation with BBT was 0.71, with MI was 0.91, with MAS was 0.82, with MRCss and HG was 0.62 (p<0.5).

Conclusion:

The Greek version of UEFMA is a reliable and valid tool which could be used in ICU patients to assess the function of the upper extremity.

E10 – Sun

Upper Extremity Exercise Capacity and Endurance are Reduced in Critically Ill Patients

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Introduction: Critically ill patients often experience short- and long-term impairments in upper limb (UL) function and fine motor skills. Given that most activities of daily living rely on UL strength and endurance, it is essential to investigate whether UL exercise capacity is also compromised in this population. This study aimed to evaluate peak unsupported arm exercise capacity and endurance in critically ill patients and examine its association with clinical and demographic factors.

Methods: In this cross-sectional study, adult patients admitted to the Intensive Care Unit (ICU) for ≥ 48 hours, who were clinically stable and had no prior UL impairments, were assessed at ICU discharge. Peak arm exercise capacity was measured using the Unsupported Upper Limb Exercise (UULEX) test and compared with published reference values via paired Student's *t*-tests. Associations between UULEX performance and clinical or demographic variables were analysed using Pearson correlations.

Results: Seventy-three patients from two hospitals (mean age 66 ± 16 years; 55% female; APACHE II 12 ± 5) were included. Median ICU and hospital stays were 4 (IQR: 3–6) and 9 (IQR: 6–14) days, respectively. Median UULEX completion time was 9.03 (IQR: 5.8–11.2) minutes, corresponding to 80% (IQR: 50.1–92.4%) of predicted values, with a mean load of 1 (IQR: 0.2–2) kg. Compared with age-, sex-, and BMI-matched reference values (11.8 [IQR: 11.1–12.6] minutes), critically ill patients showed significantly reduced UL capacity ($p < 0.001$). Women had lower UULEX performance (7.7 [IQR: 5.4–10.7] minutes) than men (10.4 [IQR: 6.9–12.8] minutes; $p = 0.03$). UULEX completion time was inversely associated with age ($r = -0.25$; $p = 0.03$) but was not correlated with disease severity (APACHE II), socioeconomic status, or ICU/hospital length of stay.

Conclusion: Critically ill patients demonstrate markedly reduced peak unsupported arm exercise capacity at ICU discharge. UL dysfunction is more pronounced in older adults and in women, highlighting the need for targeted rehabilitation strategies to restore functional independence.

E11 – Sun

IQARE study: Identification and Quantification of Activity Responsiveness in ICU patients Activity monitoring in ICU

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KEY words: critical illness, early mobilization, muscle weakness, actigraphy, rehabilitation

Introduction

Early mobilisation of patients in the Intensive Care Unit (ICU) can improve clinical outcomes, yet the metabolic impact of common activities remains largely unknown. This single center observational study aimed to determine the activity-related energy expenditure (AEE) of 2 distinct ICU activities, sitting and semi-sitting in mechanically ventilated ICU patients.

Methods

In this prospective observational study, mechanically ventilated adult patients admitted to the ICU with an expected stay of more than 48 hours were included after informed consent. Activity was continuously recorded using dual accelerometry, while energy expenditure was measured by indirect calorimetry. Duration and frequency of each activity was extracted from the accelerometry data. The difference in energy expenditure between rest and each activity was statistically analysed, and the absolute energy surplus was calculated.

Results

This study was conducted from April 2025 to June 2025. 220 patients were screened, 9 were eligible and due to non-available accelerometers, seven patients were included and contributed to 1963 hours of accelerometry data and 69 energy expenditure measurements. The Activity related Energy Expenditure (AEE) of semi-sitting was 6.0 kcal and not statistically significant. For sitting, the AEE was 240 kcal and reached statistical significance, but the absolute increase was minimal (+3.3 kcal/day)

Conclusion

These findings suggest that sitting should be considered a form of activity in this population, while semi-sitting is metabolically comparable to rest. Nevertheless, the contribution to total energy expenditure is negligible. This pilot study provides a foundation for further research combining energy expenditure measurements with activity monitoring. Future studies involving larger patient populations, multiple ICUs, and a broader range of activities are needed to fully quantify the metabolic cost of mobilisation

E12 – Sun

Beyond Voluntary Effort: Reliability and Validity of Magnetic Femoral Nerve Stimulation for Assessing Quadriceps Strength in Critically Ill Patients

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Introduction: Intensive care unit–acquired weakness (ICU-AW) remains a major complication of critical illness despite improved survival. Characterized by rapid skeletal muscle wasting already within the first 10 days of ICU admission, ICU-AW prolongs hospitalization and causes persistent impairments in muscle performance, physical function, and quality of life.

Although early identification of weakness is crucial, commonly used assessments like the Medical Research Council sum score and handgrip strength require voluntary activation and are not feasible in sedated or non-cooperative patients. Ultrasound allows non-volitional muscle mass quantification; however, muscle mass correlates only weakly with strength and function in these patients. Magnetic femoral nerve stimulation enables non-volitional quadriceps strength assessment through evoked twitch force, and has shown feasibility in critically ill patients. However, reproducibility, construct validity, and interpretation of the low reported twitch forces remain uncertain. Therefore, this study aims to evaluate the intra- and inter-rater reliability and convergent validity of quadriceps twitch force elicited by single and paired magnetic femoral nerve stimulation in cooperative critically ill patients using a custom-made measurement frame designed to minimize force dissipation.

Methods: In this prospective study, 33 cooperative ICU patients will be assessed over two consecutive days by two independent raters. After identifying the optimal stimulation site and supramaximal stimulus intensity, single and paired twitch force measurements will be performed. Maximal voluntary contraction (MVC) and potentiated twitch force will serve as reference measures. Single and paired twitch force reliability will be evaluated using intraclass correlation coefficients, standard error of measurement, minimal detectable change, and Bland–Altman analysis. Their convergent validity with MVC and potentiated twitch force will be assessed using Pearson correlations.

Results: Data collection is ongoing and expected to finish in August 2026. We hypothesize that quadriceps twitch force will demonstrate acceptable intra- and inter-rater reliability (ICC $\geq$ 0.75), with paired stimulation showing stronger associations with MVC and potentiated twitch force than single stimulation.

Conclusion: To our knowledge, this is the first study to evaluate both the reliability and validity of quadriceps twitch force in this population. Establishing these measurement properties could, for the first time, enable objective, non-volitional muscle function assessment in critically ill patients unable to participate in conventional strength testing. This would facilitate early baseline strength assessment, longitudinal muscle recovery monitoring, and the evaluation of interventions aimed at preventing or treating ICU-AW.

E13 - Sun

A multiprofessional intervention in patients at risk for physical and psychological problems after ICU stay - a feasibility study

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Introduction: Advances in intensive care have improved survival, yet more than half of ICU survivors develop long term physical, psychological, or cognitive impairments known as PICS. These consequences affect daily functioning, burden family members, and contribute to fragmented transitions from ICU to subsequent care. Limited awareness of PICS in primary care and variability in existing follow up models result in unmet patient needs. Although ICU follow up clinics, diaries, and early rehabilitation have been explored, evidence regarding their effectiveness remains inconsistent. To address this gap, we developed a structured multiprofessional follow up delivered within 1–5 days after ICU discharge for patients at increased risk of PICS. This study evaluates the feasibility and fidelity of the intervention to guide a future randomised controlled trial.

Methods: The study was conducted in two mixed medical–surgical ICUs using a single arm interventional design. At ICU discharge, patients were screened for risk of physical and psychological sequelae; those identified as high risk were eligible. The intervention consisted of an in hospital follow up, including a ward visit by a case manager within 1–5 days and development of an individual rehabilitation plan, and an out of hospital telephone follow up for 12 weeks. Feasibility outcomes included recruitment, retention, and completion of assessments. Fidelity was assessed through adherence to intervention components and experiences of delivery. Acceptability was evaluated through interviews with participants and family members, questionnaires completed by healthcare professionals, and patient reported outcomes three months post ICU.

Results: Of 155 patients screened, 57 were identified as high risk, 41 consented to participate. The intervention was assessed as feasible, demonstrated by a retention rate of 90%, and acceptable from the perspectives of patients, family members, and healthcare professionals. Fidelity varied across components, with high adherence to the initial ward visit, development of rehabilitation plans, and telephone follow up.

Discussion: A multiprofessional intervention is feasible and acceptable, though recruitment and assessment procedures require refinement. Rehabilitation adherence was high, and personalised plans appeared to enhance engagement. Variation in fidelity reflected intervention complexity and the need for individualised care. Follow up calls were particularly valuable in identifying unmet needs. Full CPAX assessment was often impractical during early ward visits, highlighting the importance of flexible, patient centred timing.

Conclusions: A multiprofessional follow up programme for high-risk ICU patients is feasible, requiring logistical adjustments while maintaining core components, and supports the feasibility of a future definitive effectiveness trial.

E14 - Sun

Mapping Impaired Neurocognition During Initial Treatment after Out-of-Hospital Cardiac Arrest: An Exploratory Quantitative Study

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Background: Cognitive impairment is a well-known long-term consequence of out-of-hospital cardiac arrest (OHCA), affecting approximately half of survivors. Yet, cognitive impairment may remain underrecognized in routine clinical care, potentially limiting opportunities for timely intervention, rehabilitation planning, and appropriate follow-up. Despite this, the prevalence of cognitive impairment during hospitalisation, the pattern of affected cognitive domains, and the patient characteristics associated with cognitive functioning in this acute phase remain insufficiently described.

Aim: To determine the prevalence and domain-specific profile of cognitive impairment during hospitalisation after OHCA using the Montreal Cognitive Assessment (MoCA), and to explore patient characteristics associated with cognitive impairment in this phase.

Methods: In this prospective cross-sectional observational study, adult OHCA survivors admitted to the cardiology and cardiac monitoring wards of a tertiary hospital in the Netherlands who were clinically stable and able to complete cognitive screening underwent bedside cognitive assessment using the Montreal Cognitive Assessment (MoCA). Descriptive statistics were used to assess cognitive outcomes. Non-parametric analyses were performed to explore group differences (Mann–Whitney U and Kruskal–Wallis tests) and associations (Spearman's rank correlation) between cognitive outcomes and patient characteristics.

Results: Cognitive screening was performed in 34 OHCA survivors. Cognitive impairment (MoCA <26) was present in 67.6% of patients, predominantly mild to moderate, with a median MoCA score of 23.5 (IQR 17–26). Recall was the most affected cognitive domain, with a median score of 1/5. Lower MoCA scores were associated with ICU admission, lower Glasgow Coma Scale scores at ROSC, clinician-documented new cognitive concerns, and lower educational level (all $p < 0.05$).

Conclusion and recommendations: Cognitive impairment was highly prevalent during hospitalisation after OHCA, affecting over two-thirds of patients, with memory recall emerging as the most vulnerable cognitive domain. While previous research has primarily focused on long-term cognitive outcomes, this study demonstrates that cognitive impairment is already common during the acute hospital phase. These findings highlight the potential value of routine cognitive screening as part of post-cardiac arrest care, enabling earlier identification of patients who may benefit from tailored communication, further neuropsychological assessment, rehabilitation, or structured follow-up. Future multicentre longitudinal studies are warranted to validate these findings and evaluate the prognostic value of early cognitive screening after OHCA.

E15 - Sun

Physiotherapy for patients with critical illness polyneuropathy (CIP) and critical illness myopathy (CIM)

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Introduction: Critical illness polyneuropathy (CIP) can occur in critically ill patients and is characterized by severe weakness in the extremities and difficulty weaning from mechanical ventilation. CIP is an acute and primary axonal motor and sensory polyneuropathy. Critical illness myopathy (CIM) refers to muscular atrophy and paresis. This study aims to contribute new knowledge about physiotherapists' clinical and embodied approach, and seeks to answer the research question: What do experienced physiotherapists emphasize in the prevention and early rehabilitation of CIP and CIM?

Methods: The study is grounded in a hermeneutic-phenomenological scientific tradition. Qualitative methods were employed, involving semi-structured interviews with four physiotherapists from various hospitals. The interviews were analyzed using a 6-step thematic analysis.

Results: Two themes emerged from the interviews: 1) The physiotherapist's bodily interaction with the patient, and 2) The physiotherapist's interaction with the patient and the interdisciplinary team. The first theme describes physiotherapists stimulating the patients to engage in activity, positioning and relearning body movement. The second theme describes communication processes and practical teamwork. Both motivation and communication are essential to promote rehabilitation and autonomy, and individualized daily schedules are often implemented.

Discussion: The results were discussed considering theories on neuroscience, phenomenology of the body and embodied-enactive clinical reasoning. Requirements for early rehabilitation of this patient group include good communication and organization of the interdisciplinary team and patients' activities such as training and resting. The physiotherapist's interventions are tailored to the patient's needs and goals through collaborative clinical reasoning and reflection-in-interaction. This can promote autonomy and participatory sense-making. Sensorimotor interventions can stimulate patients' alertness, as well as their sense of agency and ownership. Verbal and visual guidance is provided as needed to support the patients' body schema.

Conclusion: The physiotherapists' embodied interactions and participatory sense-making with their patients is a vital form of communication in the rehabilitation of persons with CIP and/or CIM. Physiotherapy interventions are integrated within an interdisciplinary collaboration, emphasizing the importance of addressing each patient's individual needs and specific goals. There appears to be a need for more research on physiotherapists' clinical work, and how embodied interventions can support the patients' body schema, thereby positively influencing their body image and overall recovery.

E16 - Sun

Aligning multidisciplinary expertise, Advancing rehabilitation: A new Rehabilitation ward round in Neurosciences Intensive Care.

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Introduction: True personalised medicine in the Intensive Care Unit (ICU) is essential to tailor individual treatments and avoid a 'one size fits all' approach¹. Optimal rehabilitation relies on effective multi-disciplinary team (MDT) communication and shared decision making to set patient specific goals.² The most recent Intensive Care guidelines recommend weekly MDT review using a standardised tool to meet the complex needs of chronically critically ill patients, to improve outcomes.³ ICU Rehabilitation ward rounds are advocated as part of an overall structured rehabilitation approach utilising collaborative team expertise.^{1,4,5} Neuro ICU is a complex clinical area, with significant patient heterogeneity, requiring MDT collaboration to facilitate bespoke neuro- rehabilitation⁶

Methods: The NHS Model for improvement framework was used with two overall project aims:

1. To improve the quality of MDT rehabilitation collaboration
2. To standardise rehabilitation MDT documentation

The intervention comprised a weekly bedside MDT Rehabilitation Ward round over six weeks in March 2024. Any professional involved in the patient's care attended the ward round. Included patients had complex rehabilitation needs and a length of ICU stay equal or greater than 14 days. Where possible the patient and family were involved in the discussions and rehabilitation planning. A standardised rehabilitation proforma was completed during the ward round to document patient progress, goals and MDT plans; auto-populating to the electronic notes. Primary data was collected via an online anonymous questionnaire utilising a non-probability purposive sampling method to capture staff perceptions of the new ward round.

Results: Eighteen staff responses were obtained, with data representing seven professional groups. Positively 94% of staff felt that MDT communication had improved since implementation of the rehabilitation ward round. 94% of staff felt the ward round proforma increased staff confidence when giving updates to patient and families. Additionally, 94% of staff reported feeling more involved in the decision making for patients since the ward round implementation. Open questions enabled further insight into the ward round benefits highlighting team collaboration and consistency for long stay patients, improved documentation and enhanced patient centred rehabilitation.

Conclusion: Within a local UK Neuro ICU, introducing a structured weekly rehabilitation ward round with standardised documentation improved MDT communication and collaboration. This service change is now fully embedded in the Neurosciences ICU with ongoing positive feedback from staff, patients and their families.

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E17 - Sun

Measuring Post-Intensive Care Syndrome (PICS): Current Fragmentation and the Need for Standardized Operationalization

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Introduction: Post-intensive care syndrome (PICS) is increasingly used as a measurable outcome in post-ICU follow-up and clinical research. While recent reviews and consensus initiatives have identified core outcome domains and recommended instruments to assess them, substantial heterogeneity in operationalization persists. A recent scoping review identified 107 different instruments across the physical, cognitive, and mental health domains of PICS, limiting the ability to stratify patients, accurately estimate prevalence, compare outcomes, and evaluate the effectiveness of rehabilitation or other interventions, leading to a fragmented evidence base. This fragmentation becomes particularly evident when developing clinical and scientific frameworks for longitudinal outcome assessment. We aimed to identify key methodological and conceptual barriers underlying this fragmentation.

Methods: We conducted a structured critical synthesis of clinical practice guidelines and literature on PICS measurement, including reviews, consensus studies, and quantitative research. Sources were comparatively analysed to identify recurring methodological and conceptual barriers across research and clinical practice.

Results: Four key barriers were identified. First, PICS is predominantly assessed at isolated, varying time points rather than longitudinally, limiting insight into the dynamic recovery. Second, binary dichotomization ('PICS present/absent') fails to reflect the graded and multidimensional nature of post-ICU impairments. Third, existing large-scale ('legacy') datasets remain underutilized due to a lack of validated thresholds and limited implementation of cross-walk initiatives such as the PROsetta Stone. Fourth, the conceptual status of PICS as a diagnostic entity versus a screening construct remains unclear, partly due to its incompletely understood pathophysiology. These challenges are insufficiently addressed by current consensus efforts, which mainly focus on harmonizing instruments.

Conclusion: Our findings highlight critical barriers in PICS operationalization that extend beyond instrument selection and contribute to an implementation gap. Addressing this requires a shift toward (1) standardized longitudinal assessment, (2) validation of threshold values and severity grading approaches, (3) integration of existing datasets through cross-walk initiatives, (4) international consensus on the operational boundaries and definitions of each PICS domain, and (5) a clearer distinction between PICS as a screening construct versus a diagnostic entity. Pending consensus, PICS should be considered a pragmatic, multi-domain screening and outcome framework rather than a definitive diagnostic entity.

This work generates new insight by identifying key methodological and conceptual barriers underlying fragmentation in PICS measurement. It extends existing knowledge by reframing the problem as an implementation and conceptual gap and provides a conceptual framework to guide future research, clinical follow-up and rehabilitation strategies, and the optimization of existing datasets.

E18 - Sun

Patients' and relatives' experiences of cognitive impairment following an intensive care unit admission: a qualitative study

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Introduction:

Cognitive impairment is a frequent and persistent consequence of critical illness, affecting patients' ability to resume everyday life. While its clinical features are increasingly recognised, less is known about how patients and their relatives experience and manage these impairments after intensive care. This knowledge is essential to inform rehabilitation and follow-up services.

Methods:

A qualitative multicentre study was conducted in Denmark across four ICUs. Data were collected through semi-structured single and dyadic interviews with ICU survivors and their relatives at 3- and 6-month follow-up. Participants were purposively sampled to ensure variation in demographic and clinical characteristics. Data were analysed using a phenomenological-hermeneutic approach inspired by Ricoeur, involving iterative interpretation across naïve reading, structural analysis, and critical interpretation.

Results:

Three themes emerged. *Living in a parallel world* described persistent cognitive difficulties such as memory loss, reduced concentration, and a sense of unreality, which disrupted patients' perception of themselves and their surroundings. *Getting back to a normal everyday life with a vulnerable self* captured the struggle to regain independence while experiencing reduced cognitive capacity and increased vulnerability. *Managing everyday life using self-invented strategies* illustrated how patients developed their own coping mechanisms, including structuring daily routines and relying on external aids, often in the absence of formal support.

Across themes, cognitive impairments significantly affected daily functioning, social roles, and identity. Patients often felt a loss of control and hesitated to burden others, while relatives played a crucial role in providing practical and emotional support. Notably, participants reported a lack of rehabilitation services specifically addressing cognitive impairments.

Conclusion:

Cognitive impairments following critical illness profoundly affect patients' everyday lives and place substantial demands on both patients and relatives. The absence of targeted cognitive rehabilitation leads patients to rely on self-developed strategies, potentially limiting recovery. Integrating systematic cognitive assessment, tailored rehabilitation, and structured follow-up into ICU care pathways is essential to support recovery and improve long-term outcomes.

E19 - Sun

Feasibility of Delivering Reflexology in a Critical Care Setting

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Introduction: Reflexology is a popular complementary therapy that allows a therapist to apply pressure to specific reflex zones on hands or feet through massage techniques. Thrane, Hsieh et al 2019 highlighted that reflexology in critically care led to statistically significant improvements in anxiety, agitation, sleep and reduced ventilation weaning time. In the absence of large, high-quality studies it is difficult to conclude the effectiveness of reflexology within critical care.

Objective: To identify whether it is feasible for reflexology to be delivered to patients in a critical care setting in Ireland.

Methodology:

1. A patient screening tool, a reflexology specific assessment/treatment form and a Pre/Post intervention questionnaire were developed.
2. A local standard operating procedure document was also developed.
3. Six patients were referred to the therapist. One patient declined consent and one patient became acutely unwell. Therefore four patients were included.
4. A single session of 15-20mins was delivered by the same therapist to three patients. One patient received three sessions due to prolonged ICU stay.

Results:

Vital Signs (RR, HR, BP, MAP, SpO2): Vital signs remained stable throughout all reflexology sessions delivered. Temporary improvements in blood pressure, heart rate and SpO2 were documented for three patients. No adverse effects or harm observed or reported.

Observations: Three of four patients fell asleep during all sessions.

VAS of Stress, mood, pain, anxiety and sleep quality:

Pre Intervention: All patients rated levels of anxiety and stress to be moderate/extreme, and sleep quality to be moderate.

Post Intervention: Only one patient was able to complete the post questionnaire rating significant reduction in stress from 6/10 to 2/10.

Verbal Feed: All patients described the reflexology experience to be enjoyable, with a strong sense of calm and relaxation.

Discussion/Conclusion: Although this study included a small number of participants, no adverse effects or harm were observed or reported. Short sessions of reflexology foot massage did demonstrate temporary improvements in some physiological vital signs, with 3 of 4 patients observed to have fallen asleep during intervention. Patient feedback suggests that the sessions were enjoyable and promoted a sense of calm and relaxation, thus creating a positive patient experience in a potentially stressful environment. Reflexology could be considered as a non-pharmacological adjunct to support patients during their critical care journey.

E20 - Sun

Early Mobilisation after Abdominal Surgery: A Concept Analysis

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Introduction: Early mobilisation is essential for postoperative recovery after surgery, helping reduce complications linked to bed rest. Although its importance is recognised, limited evidence defines the optimal timing and types of mobilisation specific to abdominal procedures. Variations in surgical techniques, anaesthesia, patient characteristics and clinical contexts contribute to inconsistent practice. The absence of a standard definition leads to variability across clinicians and institutions, hindering comparability and implementation of evidence-based physiotherapy. This study aimed to clarify and define the concept of early mobilisation after abdominal surgery based on current literature.

Methods: A concept analysis was conducted using Walker and Avant's method to identify defining attributes, antecedents and consequences. A structured literature search was performed in PubMed, CINAHL and Scopus, including studies published from 2000 through December 2024. The search strategy combined terms such as "early mobilisation", "early ambulation" and "abdominal surgery". Inclusion criteria comprised original research articles in English involving adult patients and describing the timing and/or type of mobilisation after abdominal surgery. Studies lacking conceptual relevance or focusing on non-abdominal procedures were excluded. Organisational, physiological and contextual influences were treated as antecedents to maintain conceptual clarity.

Results: Analysis of 140 studies identified that early mobilisation was described as activities performed out of bed—such as sitting, standing or walking—within the first 24 hours after surgery. Considerable variation existed in the exact timing of initiation, although the majority of studies aligned with this timeframe. Early mobilisation was further characterised as an active process requiring patient engagement, distinguishing it from passive movement. Antecedents encompassed the patient's cognitive and physical readiness, haemodynamic and respiratory stability, adequate pain management and contextual factors. Consequences comprised improved physiological recovery and enhanced postoperative outcomes.

Discussion: Although early mobilisation is frequently referenced, a unified theoretical definition has been lacking. This concept analysis generates new knowledge by providing a clear, evidence-based definition of early mobilisation as active mobilisation out of bed within the first 24 hours after abdominal surgery. The findings confirm that early mobilisation is consistently associated with active, out-of-bed activities, while highlighting variability in how timing and content are described across studies. By synthesising this variability, the analysis expands existing knowledge and clarifies essential attributes of the concept. Contextual factors such as patient characteristics, surgical variability and healthcare professionals' knowledge and attitudes influence its feasibility. The structured search strategy and explicit eligibility criteria enhance transparency and support more consistent clinical practice, improved interdisciplinary communication and greater comparability in future research.

Conclusion: This analysis clarifies the concept of early mobilisation after abdominal surgery and provides a standardised, practice-oriented definition. By outlining key attributes and prerequisites, the findings contribute to the development of clinical guidelines, support consistent implementation in practice and offer a foundation for future research aimed at optimising postoperative recovery.

E21 - Sun

Beyond the ICU Walls: A Qualitative Analysis of Patient Experiences During Outdoor Therapeutic Exercise

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Introduction: The ICU environment presents significant challenges that can hinder rehabilitation. Integrating outdoor spaces aligns with Patient-Centered Care, humanizing treatment. However, there is a lack of literature regarding patients' direct experiences in these settings.

Objective: To analyze and describe the experience of ICU patients performing therapeutic exercises in outdoor environments.

Methods: This qualitative and descriptive study analyzed therapeutic outings from the ICU over a two-year period. Participants were hemodynamically stable adults with preserved verbal communication and no cognitive impairments who performed physical exercises outdoors. Data were collected immediately following the intervention through a questionnaire developed by the researchers to capture subjective and sensory experiences. To minimize response bias, interviews were conducted by an independent researcher not involved in the exercise execution. Responses were subjected to thematic content analysis.

Results: The study included 21 patients from two hospitals, with a mean age of 58±19 years (71% female). The median ICU stay before the first outing was 4 days (IQR: 3–7). Most patients (90.5%) had no artificial airway and 2 had a tracheostomy. Regarding oxygen therapy, 19 patients were on room air, 1 on a nasal cannula, and 1 on a large-volume nebulizer. Concurrent invasive devices included central (43%) and peripheral (43%) venous catheters, dialysis catheters (19%), indwelling urinary catheters (19%), and nasoenteric tubes (14.3%). Patients exited the ICU walking (n=13), in a wheelchair (n=7), or in a bed (n=1). The primary intervention was gait training (71.4%), followed by limb exercises (35%). Quantitatively, 100% reported a positive experience (91.7% reporting a score of 5 on Likert scale) and 95.8% expressed a strong desire to repeat the activity. Furthermore, 91.7% believed the outing benefited their rehabilitation, projecting post-discharge health gains (83.3%). Qualitatively, three thematic axes emerged: first, the restoration of normalcy and identity ("feeling alive again," "rebirth"); second, psychological relief and freedom (transitioning from "feeling trapped" to "tranquility"); and third, a catalyst for motivation and recovery ("renewed strength" and returning to a functional baseline by "doing everything they used to do").

Conclusion: Outdoor therapeutic exercise could be a highly valued intervention transcending physical gains. By humanizing intensive care and providing a sense of liberty, this practice could serve as a psychological catalyst, increasing patient engagement and representing an essential component for holistic recovery.

E22 - Sun

Occupational therapy best practices guide for acute spinal cord injuries

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Introduction: The Canadian Spinal Cord Injury Practice (Can-SCIP) Guideline (2019) outlines best practices for spinal cord injury (SCI) patients. Can-SCIP also provides a platform for occupational therapists (OTs) to support occupational participation; however, there are no directives on how OTs should implement Can-SCIP recommendations with individual patients. This poster will provide directives on how to implement best practices for SCI patients in acute care.

Methods: The authors compiled a 115-page OT resource guide integrating research, clinical, and community resources on implementing the Can-SCIP recommendations for ideal healthcare (patient education, staff education, early acute care, specialized rehabilitation, comprehensive wellness) and managing complications (bowel care, emotional wellbeing, skin integrity, wheeled mobility, activity therapy, upper limb interventions). This process was multimodal, including: 1) Systematic searches of Can-SCIP, Spinal Cord Injury Research Evidence Project, and CorTree; 2) Critical review of research studies (n=64) and clinical practice resources (n=24); 3) Semi-structured interviews with a SCI survivor (1) and a SCIO service navigation coordinator (1). The guide followed a "Question and Answer" format to address 40 clinical learning objectives arising with acute, long-stay, and chronic SCI patients at the practice site.

Results: OT best practices were outlined for: determining readiness for assessment, seating, and rehabilitation; autonomic dysreflexia; cognitive and coping screens; call bells; splinting; peer support; and specialized referrals. The guide includes: 1) OT Best Practices Checklist (70 items) from intensive care to acute units; 2) Directory of 46 patient and 38 clinician educational resources; 3) OT outcome measures (18); and 4) Policy recommendations for OT services.

Discussion: The resource guide has been in use for nine months. Practically, the guide has supported early intervention by OTs in the intensive care unit with progression to surgical ward then inpatient rehabilitation. It has supported consistency with patient care across assessments, interventions, equipment prescription and purchasing decisions, and establishing readiness for rehabilitation. The guide identifies standardized assessments to guide patient care, and it also lists key educational and learning resources to build OT competency and confidence to care for patients with SCI. This guide supported community building within the hospital, connecting multiple departments and disciplines who care for patients with SCI with the right tools and approaches to do so. Externally, the guide has facilitated partnerships and collaboration with rehabilitation, patient support, and research groups supporting SCI populations.

Conclusion: This guide supports early intervention and holistic care by OTs for patients with SCI in acute care.

E23 – Sun

Mobilisation Pathway in the Surgical Intensive Care Unit (SICU)

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Introduction

Early mobilisation of post-operative patients in critical care settings is associated with improved functional recovery and reduced complications. However, delays in mobilisation are common due to unclear processes, reliance on physiotherapy presence, and limited interdisciplinary coordination. In SICU, patients were frequently not mobilised until reviewed by physiotherapy, reducing time available for rehabilitation and limiting patient engagement due to insufficient post-exertion recovery time. This project aimed to establish a standardised and sustainable mobilisation pathway to improve early mobilisation practices and interdisciplinary collaboration.

Methods

A quality improvement initiative based on Lean Six Sigma methodology was undertaken to identify barriers and implement targeted interventions. Baseline data was collected over two weeks. Measures included timing of mobilisation, staff involved in bed-to-chair transfers, and whether transfers contributed to rehabilitation. A staff survey assessed knowledge and confidence regarding early mobilisation in SICU. A cause-and-effect analysis was conducted to identify system inefficiencies.

Interventions included: (1) agreement with nursing leadership to trial earlier mobilisation timing (prior to breakfast and ward rounds), (2) development and bedside display of a mobilisation algorithm, (3) implementation of a daily mobility assessment chart outlining assistance and equipment needs, and (4) structured daily communication between physiotherapy and nursing staff.

Results

Post-intervention data demonstrated improvements in mobilisation practices. Patients were mobilised earlier in the day, increasing opportunities for subsequent physiotherapy-led rehabilitation. Nursing staff undertook a greater proportion of bed-to-chair transfers independently, supported by clear guidance tools. Time spent by physiotherapy on routine transfers decreased, allowing greater focus on targeted rehabilitation. Staff reported improved confidence and clarity regarding mobilisation roles. Overall, there was an increase in direct physiotherapy rehabilitation time and enhanced interdisciplinary communication. Patient feedback indicated positive perceptions of earlier mobilisation.

Discussion

The introduction of structured tools and clear communication pathways facilitated a cultural shift toward shared responsibility for early mobilisation. Reducing reliance on physiotherapy for routine transfers enabled more efficient use of resources and increased rehabilitation capacity. Empowering nursing staff and optimising physiotherapy input were key drivers of success.

Conclusion

Implementing a standardised mobilisation pathway in SICU improved timing, efficiency, and interdisciplinary collaboration in patient mobilisation. This approach increased rehabilitation opportunities and supported a sustainable model of care. Ongoing efforts will focus on maintaining communication structures, supporting staff education, and reinforcing a culture of early mobilisation across the multidisciplinary team.

E24 - Sun

Connecting Expertise — Establishing an International Network for Physiotherapists in Cardio-Pulmonary Transplantation, ECMO, and LVAD

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Introduction

Advances in medical and surgical management for patients undergoing lung or heart transplantation, or receiving ECMO or LVAD support, present physiotherapists with complex clinical challenges that demand specialised expertise. Opportunities for knowledge exchange in these highly specialised clinical fields are limited, particularly in smaller countries such as Denmark. The establishment of an international network aims to connect physiotherapists working with these complex patient populations and establish a professional cross-border collaboration. To enhance knowledge sharing, professional development. To strengthen clinical practice and strengthen pre- and postoperative rehabilitation quality cardiothoracic transplantation and during mechanical circulatory support.

Methods

An initiative was launched to establish an international network for physiotherapists involved in cardiopulmonary transplantation and mechanical circulatory support. Initial contacts were made via email with physiotherapists based at Scandinavian transplant and ECMO centres to identify interested participants.

Results

Twelve physiotherapists—six from Sweden, four from Norway, and two from Denmark (represents both intensive care units and ward)—have joined the initiative expressing interest in establishing a professional forum for clinical discussion and knowledge exchange. Informal meetings during Euro-pean conferences and specialised Scandinavian events have further confirmed the shared interest for international knowledge exchange. A professor in the Netherlands and a physiotherapist with a PhD in Canada have now also joined the group.

Discussion

An international network for physiotherapists working with cardiopulmonary transplantation, ECMO, and LVAD patients has the potential to drive clinical excellence through collaboration. By linking specialised clinicians across centres/countries, the network can support and promote evidence-based rehabilitation and ensure and facilitate the transfer of research findings into clinical practice across borders and encourage innovation in complex patient care.

Conclusion

Identifying physiotherapists specialising in these highly advanced fields remains a key challenge. Access to conference participant lists—including profession, fields of specialisation, and contact information—could facilitate future collaboration and network growth.

Establishing a global physiotherapy network with clinicians and researchers, is essential for advancing knowledge exchange, strengthening clinical competence, and ultimately optimising the quality of the rehabilitation and patient outcomes before and after transplantation and during mechanical circulatory support. A systematic comparison of physiotherapy practices across centres, ICU/wards has not yet been conducted but is planned for future development.

E25 - Sun

Knowledge translation in intensive care rehabilitation: Interdisciplinary cooperation between a regional hospital and a specialist rehabilitation center

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Introduction: There is a critical need for evidence-based rehabilitation in intensive care units (ICU), specifically for the increasing volume of patients with severe trauma due to the war in Ukraine. The primary problem identified is that systemic resource constraints, acute nursing shortages, and the absence of standardized protocols pose significant barriers to safe, continuous early mobilization and advanced respiratory therapy. This international project aims to adapt and implement early rehabilitation protocols within a regional hospital's ICU.

Methods: An international knowledge translation project was established between a regional hospital and a specialist rehabilitation center, guided by the Knowledge-to-Action (KTA) framework. The intervention focused on adapting and implementing evidence-based ICU physiotherapy practices through two key strategies: 1) a clinical study visit (November 2024) involving job-shadowing at a university hospital; and 2) five monthly digital clinical supervision sessions (February–June 2025) led by an international ICU physiotherapy specialist using active case-based analysis. The action cycle of the KTA model informed the identification of local practice gaps, adaptation of knowledge to the clinical context, implementation of new protocols, and monitoring of practice change. Evaluation consisted of a qualitative assessment of practice development. Adherence to implemented protocols, team engagement, and system-level barriers were continuously assessed through longitudinal case reviews and iterative feedback.

Results: The intervention successfully established a modified interdisciplinary care model. Key outcome measures and results included:

- **Structural adaptation:** Due to nursing shortages, the standard "physiotherapist-nurse" mobilization dyad was contextually adapted into an "anesthesiologist-physiotherapist" collaborative model to ensure patient safety.
- **Protocol implementation:** Integration of strict hemodynamic and intracranial pressure monitoring during early verticalization for post-craniectomy patients.
- **Advanced respiratory care:** Implementation of evidence-based tracheostomy management, cuff pressure monitoring, and the combined use of mechanical insufflation-exsufflation with manual techniques.
- **Patient-centered strategies:** Implementation of individualized mobilization plans and structured family involvement for patients presenting with neglect or contraversive pushing.

Conclusion: This project demonstrates that international clinical mentorship, guided by the Knowledge-to-Action (KTA) framework, effectively facilitates the translation of complex rehabilitation knowledge into acute care settings. The core scientific contribution—and the new knowledge generated—is that standard international ICU protocols can be successfully adapted to resource-constrained environments through flexible interdisciplinary task-shifting aligned with the KTA action cycle. These lessons learned provide a scalable, theory-driven framework for enhancing early ICU rehabilitation in emerging or crisis-affected healthcare systems.

Physiotherapy Provision and Practice: A European Intensive Care Unit (ICU) Survey (PEAiCE) – a snapshot of physiotherapy practice in Polish ICUs.

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Introduction: Physiotherapy constitutes an integral component of care in intensive care units (ICUs); however, its organisation and clinical practice vary across Europe, and very little is known about practice in Poland.

Aim: To evaluate ICU physiotherapy provision and practice in Poland

Methods: The European, cross-sectional, anonymous survey was translated into Polish and disseminated using survey software (JISC V.2) in 2024 via professional networks and social media. The survey covered organisational aspects, physiotherapists' experience, and detailed clinical interventions. Data were analysed using descriptive statistics.

Results: A total of 37 responses were obtained, predominantly from physiotherapists (n=36; 97%). Most respondents worked in non-university hospitals (n=22; 59.5%) with adult patients (n=31, 83.8%), and in small-to-medium ICUs (n=31; 83.8%). All treated ICU patients, but 6 (16.7%) provided only rehabilitation without respiratory management. Physiotherapy mostly requires referral (n=26, 70.3%), with 5 cases (13.5%), the referral has to specify the treatment. Over half (n=24; 64.8%) combined ICU work with other wards or mainly worked on other wards, while only 35% (n=13) worked exclusively in ICUs.

Musculoskeletal assessment was performed routinely (n=32; 88.9%), whereas respiratory assessment was less frequently used (n=18; 50%). Respiratory techniques were used by 83.3% (n=30) respondents, with manual techniques (n=26; 86.7%), postural drainage positioning (n=21; 70%) being used regularly, while other methods, such as suctioning, Manual Hyperinflation, Mechanical In-Exsufflation or respiratory muscle training, were less frequently applied (approximately 27–36%).

Mobilisation predominantly around the bed, including regular passive (n=33, 91.7%) and active in-bed exercise (n=31, 86.1%), and bedside sitting (n=27, 75.0%), with techniques requiring equipment or more assistance used less often. Most respondents had less than 6 years of experience (n=22; 61.1%); although 70.3% (n=26) had completed training, none held a formal specialisation.

Conclusion: The reported provision of ICU physiotherapy was inconsistent in ICUs in Poland. ICU physiotherapy practice variability was evident, especially for respiratory management and active mobilisation outside the bed.

A predominantly referral-based model of care, with limited specialised training or years of ICU experience, may be a factor influencing the provision and scope of physiotherapy practice in ICUs. However, the results are a snapshot of ICU physiotherapy practice and are not representative of all Polish ICUs; they should be interpreted with caution.

E27 - Sun

A 24-hour model of physiotherapy in the early period after bilateral lung transplantation. Preliminary Report

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INTRODUCTION:

Lung transplantation (LTX) is an elective treatment for end-stage respiratory diseases in which other medical therapies have been exhausted. Lung transplant candidates suffer from dyspnea, reduced activity of daily living, training intolerance and low quality of life. The extremely advanced form of the disease affects the clinical and functional condition of the patient in the perioperative period. Early physiotherapy after the operation prevents complications, improves prognosis and is an important part of medical treatment. However, there are no specific reports on how to plan the physiotherapy programme (time, intensity) after LTX and its impact on the length of ICU stay.

METHODS:

The study was conducted between June 2023 and February 2026. During this time 9 bilateral lung transplants were performed at the St. John Paul II Specialist Hospital in Krakow. Data was collected from medical records. Diagnosis, patient age and gender, postoperative complications (reintubation, death), successful extubation, length of stay in ICU and the early mobilization model were analyzed. The following stages of EM were assessed: sitting on the edge of the bed, standing, sitting in a chair, walking with a walker/support. Physiotherapy was conducted 24/7, based on individual work with the patient (dedicated physiotherapist) – respiratory therapy and early mobilization.

RESULTS:

The analysis included 9 patients (4 women, 5 men) aged 45 to 70 years (mean age 62.66 ± 7.49) who underwent bilateral lung transplantation. The main indication for surgery was chronic obstructive pulmonary disease (COPD) or interstitial lung disease. Patients were extubated on days 0-3, on average 1.22 ± 1.03 . Complications occurred in 2 patients (reoperation, prolonged MV and death). Subsequent stages of early mobilization were performed in the given days: sitting on the edge of the bed 2.25 ± 1.29 , standing 2.62 ± 0.99 , sitting in a chair 3.5 ± 1.11 , walking within the bed/room 4.12 ± 0.92 . The mean duration of ICU stay was 4.88 ± 1.28 days.

CONCLUSION:

1. Early physiotherapy has a crucial role to prevent both pulmonary and functional complications after LTX
2. The introduction of a 24-hour individual physiotherapy model shortens ICU stays, reduces the number of pulmonary complications and reduces the need for bronchoscopy.
3. Due to the small sample size further studies are necessary to confirm the obtained data.

E28 - Sun

Danish intensive care occupational and physiotherapy questionnaire: A three-year follow-up and comparison of physiotherapy practices and competencies and current status for occupational therapy

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Introduction: In the last years there has been an increased drive to map and gain knowledge of current physiotherapy and occupational practices and competencies in Denmark. This resulted in a baseline questionnaire of physiotherapy practices and competencies in intensive care in 2023. Following the initial physiotherapy questionnaire, the first three-day post-graduate intensive care course was held and a second one held in 2025.

A second questionnaire is currently being sent out to map the changes in practices and competencies following the two intensive care courses. An initial occupational therapy questionnaire will be sent out simultaneously in 2026 to ascertain the current status of occupational therapy in intensive care.

Methods: A questionnaire survey was sent to all intensive care departments in Denmark with the aim that one physiotherapist and one occupational therapist answer from each department. The questionnaire included multiple choice and open-ended questions regarding organizational set-up and clinical skills, practice and competencies.

Results: The initial physiotherapy questionnaire in 2023 had a response from 35 intensive care units (100% response rate). The initial questionnaire highlighted overall similarities within practices of early mobilization. There were significant differences in the respiratory practices and competencies and an overall minimal use of neuromuscular electrical stimulation. The second questionnaire is being sent out in Spring 2026. Analysis of results and comparisons to previous questionnaire will be carried out in June/July 2026.

Discussion: Discussion will be included following the analysis of questionnaire results. The knowledge which will be generated, from the questionnaire will be used to track changes over the passed three years, as well as bench-mark current competencies. These results will inform the current work on completing a national intensive care competency framework. These findings can further underpin the completed international study „Physiotherapy Provision and Practice: An European Intensive Care Unit (ICU) Survey (PEAiCE)“ and contributes with a greater understanding for national differences.

Conclusion: The initial physiotherapy questionnaire informed the three-day post-graduate intensive care course and became the basis for investigating the development of national intensive care physiotherapy competencies. The second physiotherapy questionnaire will highlight changes in practice and competencies over time and further support the current work into a national intensive care physiotherapy competency framework. The occupational therapy questionnaire will map the current status of practice and competencies from which the results will inform future direction.

Mobilisation during mechanical ventilation: A qualitative study exploring the practice of conscious patients, nurses and physiotherapists in intensive care unit

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Aim: To explore the practice of mobilisation of conscious and mechanically ventilated patients and the interaction between patients, nurses and physiotherapists.

Background: Long-term consequences of critical illness can be reduced by mobilisation starting in Intensive Care Units, but implementation in clinical practice is presently sparse.

Design: A qualitative study with a phenomenological-hermeneutic approach.

Methods: Participant observations in three Intensive Care Units involved twelve conscious mechanically ventilated patients, thirty-one nurses and four physiotherapists. Additionally seven semi-structured patient interviews, respectively at the ward and after discharge and two focus group interviews with healthcare professionals were conducted. The data analysis was inspired by Ricoeur's interpretation theory. The study adhered to the COREQ checklist.

Findings: Healthcare professionals performed a balance of support and guidance to promote mobilisation practice. The complexity of ICU mobilisation required a flexible mobility plan. Furthermore, interaction with feedback and humour was found to be 'a leverage' for patient's motivation to partake in mobilisation. The practice of mobilisation found patients striving to cope and healthcare professionals promoting a 'balanced standing by' and negotiating the flexible mobility plan to support mobilisation.

Conclusion: The study revealed a need to clarify interprofessional communication to align expectations towards mobilisation of conscious and mechanically ventilated patients.

Relevance to clinical practice: The study demonstrated the important role of healthcare professionals to perform a stepwise and 'balanced standing by' in adequately supporting and challenging the mobilisation of mechanically ventilated patients. Furthermore, a synergy can arise when nurses and physiotherapists use supplementary feedback and humour, and cooperate based on a flexible situation-specific mobility plan in intensive care.

E30 - Sun

Implementing an APN-Led Delirium Management Strategy Using the Iowa Model in a Pulmonary ICU Setting

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Introduction:

Delirium remains a major risk factor for long-term cognitive impairment and impaired ICU recovery, particularly among patients undergoing non-invasive ventilation, prolonged weaning, and chronic pulmonary diseases, and remains prevalent despite existing knowledge of preventive strategies. To achieve sustainable improvements in delirium care, a structured implementation strategy based on the Iowa Model for Evidence-Based Practice ([Iowa Implementation for Sustainability Framework | Implementation Science | Springer Nature Link](#)) to Promote Quality Care was initiated including introduction of an Advanced Practice Nurse role.

Methods:

Guided by the Model, a stepwise implementation process was conducted. As an integral component, an APN for delirium management was established to coordinate training, support clinical decision-making, and identify context-specific barriers to implementing non-pharmacological prevention measures. The APN also provides targeted education and bedside coaching on the consistent and correct use of the CAM-ICU screening tool. The implementation is accompanied by a longitudinal pre– post survey of the nursing team using a self-report questionnaire based on Benner’s model and its seven domains of nursing competence at three time points: T1 before APN implementation, T2 after initial training and introduction of the standard, and T3 after full integration of the APN. Quantitative data are analysed descriptively and inferentially, while qualitative comments are thematically examined to capture perceived facilitators and barriers in practice.

Results:

Preliminary findings suggest that nurses generally rate their knowledge and skills in delirium assessment and prevention as adequate, but report inconsistent and irregular application of non-pharmacological interventions and screening tools in routine care. The APN-led strategy aligned with the Iowa Model has led to increased visibility of delirium screening, more frequent discussion in ward rounds, and greater awareness of barriers such as workload, priorities, and limited time resources. Early data indicate increased adherence to standardized delirium screening and more consistent application of non-pharmacological interventions.

Conclusion:

Focusing on a structured implementation strategy based on the Iowa Model, rather than on competence development alone, is essential for achieving sustainable improvements in delirium management in a pulmonary ICU. The APN role functions as a key driver by monitoring practice, supporting nurses at the bedside, and identifying barriers that hinder routine use of prevention measures and screening. Future analyses will explore how existing competence can be translated more consistently into practice to support the consistent application of these competencies in daily clinical practice.

E31 - Sun

Implementation of the eCASH approach in elective cardiac surgery: Association of early extubation, mobilisation a Postoperative recovery

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Background

The eCASH (early Comfort using Analgesia, minimal Sedatives and maximal Humane care) approach promotes patient-centred intensive care through adequate analgesia, minimal sedation, early extubation, and early mobilization. Although increasingly incorporated into enhanced recovery pathways, evidence regarding its implementation in routine cardiac surgical practice remains limited. This study evaluates the association between key eCASH components and postoperative recovery outcomes following elective cardiac surgery.

Objective

To assess the association between early extubation, early mobilization, and postoperative outcomes in patients undergoing elective cardiac surgery.

Methods

This retrospective cohort study includes adult patients (≥ 18 years) undergoing elective cardiac surgery via median sternotomy, including coronary artery bypass grafting (CABG), valve surgery, and combined CABG-valve procedures. Minimally invasive procedures, emergency surgery, surgery for acute aortic dissection, and other non-elective procedures are excluded. Patients are stratified according to time to extubation following surgery (< 6 hours versus ≥ 6 hours). Data collected from electronic medical records include age, sex, body mass index, type of surgery, cardiopulmonary bypass time, aortic cross-clamp time, duration of mechanical ventilation, intensive care unit (ICU) length of stay, hospital length of stay, postoperative delirium, timing of first out-of-bed mobilization, and dexmedetomidine use. The primary outcome is ICU length of stay. Secondary outcomes include duration of mechanical ventilation, postoperative delirium, mobilization within 24 hours after extubation, hospital length of stay, and dexmedetomidine use. Continuous and categorical variables will be analysed using appropriate statistical tests, with $p < 0.05$ considered statistically significant.

Results

Data collection is ongoing. Planned analyses will examine associations between early extubation, mobilization, postoperative delirium, dexmedetomidine use, and recovery outcomes.

Conclusions

This study will provide insight into the implementation of eCASH principles in elective cardiac surgery and their association with postoperative recovery. By evaluating early extubation and mobilization in routine clinical practice, the study aims to contribute to the evidence supporting recovery-focused intensive care strategies and inform future quality improvement initiatives in cardiac surgical ICUs.

E32 - Sun

The Role of the Rehabilitation Nurse Specialist in the Functional Recovery and Self-Care of Critically Ill Patients

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Introduction

Critically ill patient (CritPt) are at high risk of functional decline associated with prolonged immobility, clinical instability, and the use of invasive devices. The Rehabilitation Nurse Specialist (RNS) plays a key role in preventing complications, promoting functional recovery, and restoring independence. The objective was to describe the contribution of the RNS to the recovery of CritPt in terms of functionality and self-care ability.

Methods

Quantitative, descriptive, and observational study. Convenience sample comprising 141 CritPt admitted to the Intensive Care Unit of a hospital in northern Portugal. The instrument “Assessment of Functionality and Self-Care in Critically Ill Patients in an Intensive Care Unit” designed by the research team, was administered. Descriptive and inferential statistical analyses were performed, with a significance level of $p < 0.05$. Approval was obtained from the Health Ethics Committee (Reference 140/2024).

Results

87.2% ($n=123$) of CritPt received specialized rehabilitation nursing care. The average minutes of the RNS's intervention per patient was 374 (62.3 minutes/day), over an average hospital stay of 6 days. The average time to the start of RNS intervention was 3 days, confirming the importance of early mobilization (≤ 72 hours). CritPt cared for by RNS, compared to the others, presented: i) greater complexity of clinical parameters at 24 hours (SAPS II: 41.93 vs. 35.61; SOFA: 5.71 vs. 4.94); ii) greater functional impairment, specifically: more days on invasive mechanical ventilation and with impaired ventilation; higher percentage with committed airway clearance and impaired swallowing; higher percentage without dynamic balance while standing; higher risk of pressure ulcers; iii) greater impairment in self-care at discharge; iv) longer hospital stays (9.32 vs. 6.0 days), but more significant improvement at discharge (SAPS II: 24.85 vs. 27.83; SOFA: 2.29 vs. 2.56). The minutes of the RNS's intervention was negatively correlated with the number of days of: i) impaired ventilation ($p=0.021$), ii) impaired airway clearance ($p=0.006$); iii) impaired swallowing ($p=0.013$); and, finally, iv) ICU stay ($p<0.001$).

Conclusion

The RNS intervention has had a positive impact on the functional recovery of CritPt, resulting in improved functionality and self-care abilities, fewer complications, and shorter hospital stays.

E33 – Sun

Physiotherapy Provision and Practice in Latin American Intensive Care Units: A PEAiCE-Based Survey of Physical and Respiratory Therapy

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Introduction: Physical and respiratory therapy are essential components of intensive care unit (ICU) management, yet their provision and practice vary widely across regions. In some countries, care is delivered by two distinct professions: physical therapists (PTs) and respiratory therapists (RTs), with overlapping roles. Although evidence supporting early mobilization and structured rehabilitation is well established, data from Latin America remain limited. This study builds on a recent European survey and adapts its approach to the Latin American context.

Objectives: To explore the provision and clinical practice of PTs and/or RTs in delivering respiratory care and rehabilitation in Latin American ICUs.

Methods: A cross-sectional, online survey adapted from the Physiotherapy Provision and Practice: A EuropeAn Intensive CarE Unit (ICU) Survey (PEAiCE) was conducted in Latin America between February and November 2025 and was available in Spanish and Portuguese. The study is reported in accordance with CROSS guidelines. Responses were provided by one representative per ICU, who reported the presence of PTs, RTs, or both within the unit. Data were analyzed descriptively using frequencies and percentages, and comparisons between PTs and RTs were performed using chi-square or Fisher's exact tests.

Results: A total of 399 responses from 14 countries were included. Respondents were primarily RTs (52.4%) and PTs (42.9%). Only 27.6% of ICUs had both professions available, while 40.6% relied solely on RTs, 31.1% on PTs, and 0.7% reported none. Both professions reported high involvement in respiratory care for patients with and without invasive mechanical ventilation (IMV); however, RTs more frequently performed airway clearance and ventilatory techniques, whereas PTs more commonly implemented respiratory muscle training. Clear differences were observed in rehabilitation practices. PTs led active mobilization, including standing and ambulation, while the involvement of RTs was largely limited to passive techniques. In non-IMV patients, PTs reported high rates of active rehabilitation. Experience with safe mobilization under special conditions, such as ECMO and vasoactive support, was limited across both professions.

Conclusions: ICU rehabilitation in Latin America reflects not only variability but the coexistence of distinct professional models, with PTs and RTs contributing to different therapeutic approaches. This potentially leads to partially aligned instead of fully integrated care limiting the delivery of active, evidence-based rehabilitation. Advancing ICU outcomes in the region will require deliberate interdisciplinary integration, supported by shared frameworks and targeted training.

IN01 – Sun

Virtual Reality for patient relaxation in the intensive care unit: A convergent mixed methods feasibility study

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Introduction:

Immersive Virtual Reality (VR) for patient relaxation is an emerging intervention in intensive care, but due to the complex nature of critical illness, appropriate outcome measures and assessment methods remain uncertain. This study aimed to assess the feasibility of a study design evaluating a VR intervention targeting relaxation and distraction in ICU patients, focusing on uncertainties in data collection, outcome measurements, and contextual influences.

Methods:

A convergent mixed methods feasibility study was conducted. A quasi-experimental pre–post design assessed anxiety (adapted six-item State–Trait Anxiety Inventory (STAI), STAI sum scores >6 indicating symptoms of anxiety), pain (numeric rating scale), and physiological stress (heart rate variability, heart rate, blood pressure, and respiratory rate), measured at the bedside. Short post-intervention interviews explored patients' experiences.

Qualitative data were analysed using deductive content analysis. Quantitative and qualitative findings were integrated to assess the feasibility of the study design.

Results:

Fifty patients were included across three ICUs, with complete datasets for 42 participants. Five patients (10%) did not complete the planned 10-minute VR session, and four were unable to complete both anxiety assessments. Technical interruptions occurred in four sessions (8%), but sessions were completed.

Pre–post analyses indicated a reduction in the proportion reporting STAI sum score >6 (56.5% vs. 37%). Pain and physiological stress measures remained largely unchanged. During the session, 14 patients (28%) fell asleep and 8 (16%) dozed.

Interview findings suggested that VR redirected attention away from the ICU environment and internal stimuli and was commonly experienced as calming. Integration indicated agreement between datasets for anxiety and sleep, while physiological stress outcomes diverged from patient-reported experiences. Patient perceptions appeared central to perceived benefit.

Discussion/Conclusion:

The study design was generally feasible, although cognitive overload and equipment discomfort affected completion of sessions and questionnaires. The mixed methods approach supported evaluation of outcome measures and highlighted challenges in capturing constructs such as well-being and relaxation in ICU patients. These findings provide a guidance for designing future evaluations.

IN02 – Sun

Physical Environment and Rehabilitation in the ICU: A Multicenter Survey on Physiotherapists' Perceptions

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Introduction:

Early mobilization in intensive care units (ICUs) improves clinical and functional outcomes but remains inconsistently implemented. Structural constraints, including inadequate infrastructure and limited equipment, are recognized barriers; however, their impact on rehabilitation delivery remains poorly characterized. This study aimed to characterize ICU infrastructure and resource availability and examine physiotherapists' perceptions of their influence on practice.

Methods:

A multicenter, cross-sectional survey conducted between March 2025 and February 2026, with online data collection involving physiotherapists from five South American countries. The questionnaire comprised three domains: (1) demographics; (2) infrastructure and equipment; (3) perceptions of environmental influence and structural barriers on clinical practice, assessed using Likert scales. Eligible participants were physiotherapists working in ICUs. Data were analyzed using frequencies and percentages. Approved by the Research Ethics Committee (CAAE 85017124.0.0000.0068; Approval No. 8163773).

Results:

523 physiotherapists from 231 hospitals participated (Brazil: 442; Peru: 74; others from Chile, Bolivia, and Colombia); 80% held postgraduate degrees. Regarding infrastructure, 71.3% worked in units ≥ 3 meters wide and 84.2% had corridors. Storage was inside units for 42.3%, while 25.2% lacked resources. Resource access was 82.9%, mainly low-cost items: dumbbells (67.5%), ankle weights (65.6%), and elastic bands (64.0%). Higher-cost equipment, such as transfer (49.8%) and standing devices (36.5%), was less available. Cycle ergometers (86.3%) were common; pulmonary equipment (61.5%) less so. In the perception module (n=412), 97.8% agreed equipment access and 96.9% that armchairs aid rehabilitation. Regarding therapy, 61.6% did not perform out-of-bed mobilization due to lack of armchairs, 60.9% transfers due to equipment lack, and 42.4% gait training due to missing devices. Most ICUs had shared bathrooms, though 80.7% agreed private facilities improve rehabilitation. Natural light was beneficial (99.1%). Family presence (85.2%) was considered beneficial despite limited infrastructure.

Conclusions:

ICU infrastructure and resource availability may directly influence rehabilitation, particularly mobility. Structural limitations lead to omission of essential therapies such as out-of-bed mobilization and gait training, potentially affecting care. These findings highlight the need to integrate structural factors into ICU rehabilitation models. Future rehabilitation-oriented ICUs should address these gaps to support clinical practice and recovery of critically ill patients.

IN03 – Sun

Capacity-Building for Intensive Care Unit (ICU) Physiotherapy Education in Ukraine: A Train-the-Trainer Programme with International Collaborative Curriculum Development

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Introduction: Ukrainian universities had limited capacity and experience in teaching physiotherapy for Intensive Care Unit (ICU) patients, and a critical gap has been exacerbated by wartime healthcare demands. International expertise can help to build faculty expertise, and a train-the-trainer approach could expand the future specialised workforce.

Aim: To assess the participants' perception of learning, competence, and confidence for teaching before and after completing the ICU Physiotherapy train-the-trainer programme for Ukrainian Educators

Methods: The collaborative team (five Ukrainian and two international clinical/academic experts) co-designed the curriculum guided by educational frameworks and pedagogical principles. Ethics approval was obtained from the Health Sciences Research Foundation, Ukraine (KE-007-2025).

In 2025, the 160-hour blended programme was delivered. It was comprised of four stages: 1) needs assessment to inform participants' selection; 2) Eight weekly online Zoom lectures with learning resources and discussion board hosted on Canvas platform; 3) Four-day face-to-face practical training in Ukraine; 4) five-day clinical ICU internship. Teaching methods and assessments were aligned to the thirteen previously developed learning outcomes. Self-assessed competence, training effectiveness and participant satisfaction were evaluated using a five-point Likert scale through the Qualtrics online survey.

Results: Ten Ukrainian university representatives participated in the training (90% completion rate). Mean (SD) self-assessed confidence increased across all thirteen learning outcomes (pre-training: 3.24 ± 0.63 ; post-training: 4.33 ± 0.60). The proportion of participants reporting high confidence (scores ≥ 4) increased from 36% pre-training to 88% post-training. The greatest improvements were observed in evidence-based assessment, clinical data interpretation, and ICU clinical reasoning. All participants rated three programme components (online, face-to-face, clinical practice) and eleven core topics as useful or highly useful for professional development. While seven of ten participants strongly agreed the training strengthened their ICU physiotherapy competencies, only three reported high confidence in independently applying the acquired knowledge in practice.

Conclusion: Collaborative curriculum design proved feasible in a conflict-affected setting. Participants showed improved confidence, competency, and satisfaction. Ongoing peer support may facilitate curriculum implementation and strengthen teaching confidence. This approach could be applied to build ICU physiotherapy educational capacity in resource-constrained contexts.

IN04 – Sun

Walking distance and associated factors four months after discharge from the intensive care unit

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Introduction

Post-Intensive Care Syndrome (PICS) encompasses new or worsening physical, cognitive, and mental health impairments that persist beyond intensive care unit (ICU) discharge.

Among the PICS domains, physical impairments are the most prevalent, and described to affect both patients' functional exercise capacity, activities of daily living, delayed return to work and overall poorer health-related quality of life. This study aimed to assess functional exercise capacity among adult ICU survivors and identify factors associated with functional exercise capacity during an ICU follow-up consultation.

Methods

This cohort study included adult ICU survivors attending a multidisciplinary ICU follow-up clinic between 1 April 2024 and 30 June 2025. The visit was conducted approximately four months after ICU discharge. Functional exercise capacity was assessed using the six-minute walk test (6MWT). Demographic variables and clinical data from the ICU stay were obtained from medical records provided by a local research and quality registry. Multivariable linear regression analysis was used to examine associations between six-minute walk distance (6MWD) and selected demographic and ICU-related factors as well as long-term symptoms assessed during the consultation. Results of the 6MWD was expressed as a percentage of predicted values with Norwegian norms and a threshold of $\geq 80\%$ of predicted values were defined as within normal range.

Results

Of 198 patients attending the follow-up clinic during the inclusion period, 163 completed the 6MWT. The median 6MWD was 480 meters (IQR 180–695) and 93 (57%) patients demonstrated functional exercise capacity below normal limits compared to Norwegian norm values. Female sex ($B = -57.6$, 95% CI $[-102.5 - -12.8]$, $p = 0.01$) and higher a Clinical Frailty Scale score at ICU admission ($B = -33.9$, 95% CI $[-60.7 - -7.2]$; $p = 0.01$) were significantly associated with shorter 6MWD. Achieving a higher level of mobilization while in the ICU ($B = 35.1$ 95% CI $[15.6 - 54.5]$, $p = <0.001$) was associated with a longer 6MWD at four months follow-up.

Conclusion

The study identified that higher levels of mobilization while patients are in the ICU were associated with longer walking distances four months after ICU discharge, underscoring the importance of mobilization in the ICU. The findings support previous research demonstrating persistent impairments in physical capacity after critical illness, highlighting the importance of structured follow-up and targeted rehabilitation in ICU survivors.

IN05 – Sun

Physical rehabilitation in the intensive care unit for adults with traumatic brain injury: a systematic review and meta-analysis

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Introduction: Traumatic brain injury (TBI) is a leading cause of death and disability worldwide, with approximately half of all adults who present to hospital with acute TBI requiring intensive care unit (ICU) admission. Rehabilitation in the ICU is a recommended intervention for the critically ill. However, the safety and effectiveness of physical rehabilitation in adults admitted to the ICU with TBI is currently unknown. The primary objective of this systematic review was to evaluate the safety of physical ICU rehabilitation in adults with TBI, and secondary outcomes aimed to evaluate its effect upon physical outcomes and length of admission.

Methods: Five electronic databases were searched up to 1st September, 2025, including studies investigating physical ICU rehabilitation interventions in adults with acute TBI (PROSPERO: CRD420251131380.) Narrative synthesis of safety outcomes and interventions was conducted due to heterogeneity. Meta-analysis was performed for secondary outcomes using the random-effects model, to compare pooled data for rehabilitation and no-rehabilitation groups. Risk of bias was assessed using ROBINS-E tool for observational studies and RoB2 tool for randomised studies.

Results: Thirteen studies consisting of 3,582 adults with TBI were included, of which 69.8% were male, with a mean age of 48.02 ± 7.72 years, and mean Glasgow Coma Scale score of 7.89 ± 5.76 at admission. Four studies reported safety outcomes, reporting no or low rates of adverse events, with an overall safety event rate of 5.8% (179 events across 3066 sessions). The most common intervention was out-of-bed mobilisation (n=10 studies) delivered by physiotherapists, taking place between five and seven days per week, once to twice per day, using clinical parameters to determine initiation (e.g. after cessation of sedation or haemodynamic stability). Meta-analysis identified an increase in the Perme ICU Mobility Scores at ICU discharge in those that received ICU rehabilitation (MD 3.25 [2.05 – 4.44], p<0.00001) compared to no-rehabilitation controls. Trends suggest that rehabilitation may be associated with improved functional status, mobility status and muscle function and worse neurological disability at ICU discharge, and increased ICU and hospital length of stay, yet results were not statistically significant. Risk of bias assessment identified very high risk of bias in observational studies and some concerns of bias in randomised studies.

Conclusion: Physical ICU rehabilitation for adults with TBI is potentially safe with suggested benefit upon mobility status at ICU discharge. Further high-quality studies of ICU rehabilitation for adults with TBI are required to impact policy and practice.

IN06 – Sun

Towards Therapeutic Outings for ICU Critically Ill Patients: A Prospective Cross-Sectional Analysis of Clinical Practice and an Expert Consensus Delphi Study

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Introduction: ICU patients face risks like Post-Intensive Care Syndrome. While early rehabilitation improves outcomes, the ICU environment can reduce adherence. Outdoor humanization strategies could offer sensory stimulation and accelerate recovery but pose mobilization risks. Establishing standardized safety protocols is crucial to enhance patient safety during these interventions. Therefore, this study aims to characterize outdoor therapy practices and establish an expert consensus on safety criteria, providing a foundation for future clinical protocols.

Methods: A two-stage study: (1) A two-year observational analysis of electronic medical records from a Brazilian public tertiary ICU, assessing clinical characteristics, outing features, and adverse events using descriptive statistics. (2) A remote Delphi study with experts to define intervention criteria, where consensus was defined as $\geq 75\%$ agreement.

Results: The observational phase included 265 patients (66% clinical; median age 49; 55% male). Across 1,027 outings: 78% were on room air; among those needing oxygen, 97.4% received $\text{FiO}_2 < 40\%$. Vasoactive drugs were used in 40 outings; 78 (7.6%) involved drains (mostly thoracic and abdominal). Catheters were present in 594 (57.8%) outings, primarily peripheral lines (79.4%). Physiotherapists conducted 88.5% of outings independently.

Patients walked in 76% of outings, while 21.3% used wheelchairs. Walking training (79%) and limb exercises (31%) were the primary interventions. Only 27 adverse events (2.6%) occurred, with just two minor events (desaturation, postural hypotension) requiring intervention. In the Delphi study, 22 professionals from four countries evaluated 145 items. Consensus was reached on 78 items (53.7%). Absolute contraindications included hemodynamic/respiratory instability, severe hypoxemia, uncontrolled arrhythmias, active hemorrhage, and intracranial hypertension. Basic supports and simple medications were classified as low-risk. Advanced supports (e.g., ECMO, intra-aortic balloon pump) lacked consensus, requiring individualized assessment. Rehabilitation consensus strongly endorsed orthostatism and short-distance walking (90.9%), reaching exercises, ADL training, and dual-tasking (81.8%). Essential requirements included multidisciplinary accompaniment (100%), disconnecting unnecessary devices prior to transport (100%), and careful motor/respiratory evaluation (81.8%).

Conclusion: Outdoor therapy represents a strategy that can potentially be incorporated into ICU rehabilitation, as evidenced by the analysis of its practical application and the small number of occurrences. The Delphi process demonstrated agreement on key factors, suggesting that it is possible to develop a clinical guideline. Together, these findings support the development of protocols to guide safer implementation.

IN07 – Sun

Association between cancer diagnosis and post intensive care unit stay weakness: retrospective cohort.

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Introduction: The functional status of patients with cancer after an intensive care unit (ICU) stay determines whether their cancer treatment continues, however, studies on post-ICU weakness in patients with cancer are scarce because it is difficult to determine whether the sarcopenia, cachexia, and poor nutritional status of these patients is pre-existent or acquired in the ICU. Research identifying subgroups at higher risk is lacking. This study sought to explore the relationship between clinical and demographic factors, a cancer diagnosis, and post ICU muscle weakness.

Methods: Retrospective cohort study of patients admitted to ICU using routinely collected data from a Chilean private hospital. We included all mechanically ventilated (MV) adults admitted to ICU between 2022 and 2025 that had an assessment of muscle strength using the Medical Research Council Sum Score (MRC-SS). We compared the sex, age, body mass index, severity of illness scores (APACHE II and SOFA), sepsis on admission, duration of MV, length of ICU stay and mortality by cancer diagnosis using Mann-Whitney or chi-square test. Additionally, we estimated odds ratio (OR) and 95% confidence intervals (95%CI) using univariate logistic regressions to determine the association between these factors and post ICU weakness and multivariate regression to determine the influence of a cancer diagnosis in these relationships.

Results: we included 289 patients, of which 76 (26%) had a cancer diagnosis. Patients with cancer were older (median[P₂₅-P₇₅]: 66[58-73] vs 61[58-73] years; p=0.007) and had greater severity of illness on admission (APACHE II: 14[10-19] vs 12[8-17]; p=0.04). No differences were found for the other variables. The MRC-SS was lower in patients with cancer (40[27–50] vs 44[31–53]; p=0.03), but post-ICU weakness was not different between groups (73% vs 62%, p=0.2). Greater severity of illness, older age, sepsis on admission, longer duration of MV and length of ICU stay were independently associated with post-ICU weakness. A cancer diagnosis was not independently associated with weakness, however, we found an interaction between cancer and sepsis on admission (OR 5.3; 95% CI 1.37–26.83).

Conclusion: Although a cancer diagnosis was not independently associated with post ICU weakness, we found a fivefold increase in the risk in patients with cancer and sepsis on admission. Developing and implementing rehabilitation strategies for patients with cancer admitted to ICU, in particular, those presenting with sepsis is pivotal for ensuring a functional recovery that allow them to continue their cancer treatment.

Current Practice in Respiratory Muscle Training in Intensive Care Units in Ireland: A Survey of Physiotherapy Practice

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Background:

Respiratory muscle weakness is a common consequence of mechanical ventilation and critical illness and can result in delayed weaning and poorer clinical outcomes. Respiratory muscle strength training(RMST), including inspiratory muscle training(IMT) and expiratory muscle strength training(EMST), has been proposed as a strategy to address respiratory muscle weakness in critically ill patients. Despite increasing evidence supporting RMST, little is known about its current clinical implementation in Irish intensive care units(ICUs).

Aim:

To describe current practice in RMST delivery among physiotherapists working in Irish, adult, level-4 ICUs.

Methods:

A cross-sectional survey design was employed in accordance with the CROSS reporting guidelines. Senior or clinical specialist physiotherapists from all nine, adult, level 4-ICUs in Ireland were invited to complete a structured survey describing current RMST practices, including modality, intervention dosing, outcome measures, and barriers to implementation. Descriptive statistics were used to summarise responses.

Results:

Responses were received from n=9(100%) of the ICU's invited to participate. IMT is currently used in n=6/9(67%) of units, with a further n=1/9(11%) in the process of procuring equipment. Threshold IMT devices were the most commonly used modality n=5/9(56%). IMT was typically delivered once daily, at 30– 50% of maximal inspiratory pressure(MIP). MIP was the most frequently used outcome measure. The most commonly reported barrier to IMT implementation was insufficient staffing n=4/9(44%), followed by lack of training n=3/9(33%). EMST was used by physiotherapists in n=2/9(22%) units but was reported to be used by other multidisciplinary team members in n=5/9(56%) units. All respondents n=9/9(100%) indicated willingness to participate in a future randomised controlled trial examining RMST effectiveness in ICU.

Conclusion:

IMT is widely implemented in Irish level 4 ICUs, although practice varies in terms of training dose and protocols. EMST is widely used by other MDT in ICU. Staffing limitations remain a key barrier to wider, more structured implementation. These findings highlight the need for further research and development of clinical guidance to support standardised RMST delivery in critical care.

IN09 - Sun

Feasibility of two cognitive rehabilitation interventions (ICU CogHab) across the ICU-to-home recovery pathway: Evaluation of the study design, acceptability and fidelity

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Introduction: Cognitive impairment is common among survivors of critical illness and contributes to persistent functional limitations and reduced quality of life. Despite increasing recognition of these consequences, structured cognitive rehabilitation initiated during ICU admission and continued after discharge remains limited. ICU CogHab comprises two stakeholder-informed cognitive rehabilitation components - Mindfulness-based exercises and Brain Training - delivered as separate interventions from early ICU admission through six-month follow-up. In two studies we aimed to evaluate the feasibility of both study procedures and intervention acceptability and delivery.

Methods: A pragmatic five-arm randomised feasibility study was conducted across four general ICUs at two Danish university hospitals. Patients were allocated to either Mindfulness-based exercises or Brain Training activities, delivered during ICU admission across post-discharge phases, with or without post-discharge support, or to usual care. Feasibility of study procedures was evaluated through screening, eligibility, recruitment, retention, and completion of outcome assessments. Feasibility of the intervention components was examined using a pre-specified multi-method evaluation of acceptability and fidelity. Data were collected through structured patient surveys, nurses' registrations and semi-structured interviews.

Acceptability was assessed using selected domains of the Theoretical Framework of Acceptability, and fidelity was evaluated in terms of adherence and achieved dose.

Results: A total of 115 patients were eligible and 83 were enrolled and randomised. Recruitment procedures were feasible across sites but influenced by short ICU length of stay, clinical instability, and variable screening capacity. Retention at six-month follow-up was approximately 40%, reflecting substantial attrition related to mortality, needs and recovery burden. Completion of outcome assessments at ICU discharge was limited by fluctuating alertness, fatigue, delirium, and unplanned transfers. Twenty-seven patients contributed with survey data, while 194 intervention sessions were prospectively registered by ICU nurses. Interviews were conducted with patients (n=9) and ICU nurses (n=7). Both intervention components were generally perceived as relevant and acceptable. Intervention fidelity varied across recovery phases with delivery in the ICU influenced by competing clinical priorities and patient condition, whereas post-discharge engagement depended on limited energy and reintegration into everyday activities.

Conclusions: Early cognitive rehabilitation initiated during ICU admission was acceptable but presents important feasibility challenges. Substantial attrition and context-dependent variability in fidelity highlight the need to optimise delivery approaches, timing, and follow-up strategies before progression to further evaluation.

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IN10 – Sun

Determinants of Muscle Excitability in Mechanically Ventilated Patients at Risk of Intensive Care Unit-Acquired Weakness (CIW)

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Introduction and Objectives:

Neuromuscular electrical stimulation (NMES) may reduce the prevalence of critical illness weakness (CIW). However, current protocols are heterogeneous, and not all at-risk patients appear to benefit from this intervention. Understanding the determinants of muscle excitability could help optimize NMES interventions in mechanically ventilated ICU patients at risk of developing CIW.

Materials and Methods:

This is a secondary analysis of the observational DETECT study (NCT04722445), which included critically ill patients under mechanical ventilation (MV). On the first day when feasible (after 24 hours of MV or following discontinuation of neuromuscular blocking agents), each patient received electrical stimulation of the quadriceps aimed at inducing leg segment elevation, combined with ultrasound measurements of the quadriceps muscle. The analysed variables included: pennation angle, thickness and echogenicity of the rectus femoris (RF), subcutaneous adipose tissue thickness, fluid balance, use of vasopressors, neuromuscular blocking agents, and aminoglycosides; and presence of sepsis between intubation and the day of assessment.

Results:

Among the 75 patients included in the analysis, 29 (39%) were defined as non-responders to NMES (maximum stimulation intensity reached: 120 mA). The 46 responders (61%) required a mean stimulation intensity of 74.5 ± 20.7 mA. Non-responders had greater RF thickness ($1.56 [0.67]$ cm for the non-responders vs. $1.15 [0.61]$ cm for responders; $p = 0.012$). They also had higher body weight (87.4 ± 16.8 kg for the non-responders vs. 73.1 ± 15.8 kg for responders; $p = 0.001$), higher BMI ($30.0 [6.6]$ kg/m² for the non-responders vs. $24.8 [7.6]$ kg/m² for responders; $p = 0.005$), and higher admission SOFA score ($7.0 [4.0]$ for the non-responders vs. $6.0 [3.0]$ for responders; $p = 0.014$). Sepsis at the time of assessment was more frequent among responders (67% for the non-responders vs. 34.5% for responders; $p = 0.002$). Non-responders were more frequently exposed to aminoglycosides (41.4% for non-responders vs. 4.4% for responders; $p = 0.001$) and received higher doses of vasopressors ($0.21 [0.42]$ µg/kg/min for non-responders vs. $0.00 [0.19]$ µg/kg/min for responders; $p = 0.045$).

Conclusion:

Body weight, BMI, rectus femoris thickness, exposure to aminoglycosides, and vasopressor dose may influence muscle excitability during NMES in the ICU.

IN11 - Sun

Impact of Probiotic Administration and Nutrition on Gut Microbiota and Inflammation in Critically Ill Intensive Care Unit Patients: A Prospective Interventional Cohort Study

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Introduction: The human gut microbiome plays a crucial role in host homeostasis, immune regulation, and the pathophysiology of critical illness. Dysbiosis in the intensive care unit (ICU) is associated with adverse outcomes, including infections, organ dysfunction, and prolonged hospitalization. Nutritional strategies and microbiome-targeted interventions, such as probiotics, may modulate gut microbial balance; however, clinical evidence in critically ill populations remains limited.

Methods: A prospective interventional cohort study was conducted including adults (>18 years) requiring mechanical ventilation for ≥ 3 days. Exclusion criteria included immunosuppression, gastrointestinal/autoimmune or liver disease, terminal illness, HIV, drug use, transfer from another ICU, and lack of consent. Of 240 screened patients, 16 met eligibility criteria and were enrolled. Participants were allocated to a probiotic group ($n=7$; VSL#3 administered for 10 days) or a control group ($n=9$). Stool samples were collected on days 1 and 10 for 16S rRNA sequencing and fecal calprotectin measurement. Microbial diversity was assessed using the Shannon Index, Richness, and Evenness. Clinical data included infection rates, SOFA/APACHE II scores, nutritional modality, medication use, ICU length of stay, and outcomes. Statistical analysis was performed using SPSS v29. Changes over time within groups were assessed, and comparisons between groups were performed where applicable.

Results: Probiotic administration resulted in a statistically significant increase in microbial diversity within the probiotic group from day 1 to day 10, as reflected by both the Shannon Index ($p=0.007$) and Evenness ($p=0.019$), independent of nutritional modality. No significant changes were observed in Richness. These changes were observed despite the known impact of critical illness and antibiotic exposure on gut microbial disruption. Fecal calprotectin levels showed a decreasing trend in the probiotic group ($p=0.070$), suggesting a potential attenuation of intestinal inflammation. No statistically significant differences were observed between groups. Similarly, trends toward reduced infection rates (including ventilator-associated pneumonia and sepsis) and shorter ICU length of stay were observed in the intervention group. A more favorable microbial profile was observed in patients receiving enteral nutrition compared to mixed or absent feeding.

Conclusions: Probiotic supplementation was associated with significant improvements in gut microbial diversity in critically ill ICU patients, regardless of nutritional modality. Favorable trends were observed for secondary outcomes, including inflammatory markers and clinical endpoints. However, the absence of statistically significant differences in secondary clinical outcomes highlights the need for cautious interpretation. These findings support the potential role of microbiome-targeted interventions, particularly probiotics and enteral nutrition, in restoring gut ecological stability during critical illness. Larger randomized controlled trials are warranted to confirm these findings.

IN12 – Sun

Current practice of physiotherapy in Greek Intensive Care Units

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Introduction: Intensive Care Unit (ICU) physiotherapy focuses on the management and rehabilitation of critically ill patients admitted to the ICU. It includes a variety of techniques aimed at improving respiratory function, preventing complications, and promoting early rehabilitation and recovery. These techniques can be broadly divided into respiratory techniques and mobilization techniques. The **PEAiCE Project** has been developed to map physiotherapy provision and describe physiotherapy practice in ICUs across Europe.

Objectives: The objective of this sub-analysis was to present current physiotherapy practices in Greek ICUs.

Methods: This is a post-hoc analysis of the PEAiCE project. Data were obtained from the primary piloted, cross-sectional survey. The questionnaire was translated into Greek using a standardised forward and backward method with at least two native speakers as per recommended international standards. A list of ICU departments was retrieved by the Ministry of Health in order to ensure the participation of the majority of ICUs and each ICU was invited to participate via email. Additionally, we disseminated the survey via social media. Primarily, we asked the physiotherapists to answer, and in their absence, other lead ICU member could also participate.

Results: The survey was open for five months (19th of February to 21st of July 2024). Responses were collected from 33 Greek ICUs (out of 50), with the majority being from Public General Hospitals (70%). Most ICUs were medical (57%) and/or covering all types. 97% of the participants were physiotherapists. Half of participants were dedicated to work only or mostly in the ICU (48.5%) with the other half shared between the ICU and other areas (42%). Formal referral was required in 48.5% whereas in 33% there was a standard procedure with a general referral for all patients. In all cases the referral covered both physical and respiratory assessment and treatment. Respiratory assessment was reported to be regularly performed (84%) but did not always involve thoracic ultrasound (6%). Physical assessment was also reported to be performed regularly and involves joint range of movement and muscle strength (87%), ICU-acquired weakness (94%), delirium (28%) and dysphagia (9%). Participants reported to regularly performing respiratory interventions: positioning (72%), percussion/vibrations (92%), manual hyperinflation (20%), ventilatory hyperinflation (32%), manual assisted cough (80%), manual recruitment manoeuvre (48%), respiratory muscle training (56%), weaning (72%), spontaneous breathing trial (48%) and tracheostomy management (44%). They stated to regularly perform early mobilisation including in-bed active-passive exercises (13%), transfer out of bed with mechanical lift (70%), Neuromuscular stimulation (47%), sitting on the edge of the bed (43%) and assist to stand (40%).

Discussion: Greek physiotherapists are involved regularly in both physical and respiratory assessment, but these don't involve ultrasonography. There is a variance regarding both respiratory and mobilization techniques that they perform which is in agreement with former national studies. Regarding mobilization techniques, there is a trend to be engaged in an increased level of activities.

Conclusions: Greek ICU physiotherapists are regularly involved in both respiratory and physical assessment and treatment. There is heterogeneity across the various treatment interventions. Overall, the reported clinical practices seem aligned with current guidelines, although the lack of assessment for delirium is concerning.

References.

1. Lewko A, Eggmann S, Ámundadóttir ÓR, et al. Physiotherapy provision and practice: A European Intensive Care Unit (ICU) survey (PEAiCE) - A profile of ICU physiotherapy in Europe. *Intensive Crit Care Nurs*. Published online March 25, 2026.
2. Grammatopoulou E, Charnpas TN, Strati EG, et al. The scope of physiotherapy services provided in public ICUs in Greece: A pilot study. *Physiother Theory Pract*. 2017;33(2):138-146.
3. Christakou, A., Seitaridi, A., Koutsoumba, E., et al. Current physiotherapy practice in Greek intensive care units: a national study. *European Journal of Physiotherapy*, 2019; 21(4), 210-216.

List of Posters

TOPICS

- 1 Respiratory Rehabilitation & Airway Management
- 2 Physical Rehabilitation & Early Mobilization
- 3 Evaluation and rehabilitation technologies & tools
- 4 Post-Intensive Care Syndrome (PICS) & Recovery follow-up
- 5 Patient/Family-Centered Care & Humanization
- 6 Professional Practice, Networks & Education

Place:
PATIO

DAY 1 - Saturday September 26th from 12:30 to 13:15

Group 1

Moderators: Clément Medrinal, Alexandre Demoule

Topics: 1 & 2

E01 - Sat	Persistent inspiratory muscle weakness among extubated patients after prolonged intubation is frequent and can be predicted early by maximal inspiratory pressure measured 12 days after its initial diagnosis: a prospective observational study
E02 - Sat	Is a combined respiratory muscle training intervention, incorporating inspiratory and expiratory muscle training, feasible in adult critical care patients? A single-arm feasibility trial.
E03 - Sat	Therapy of Tracheal Stenosis in Patients with Post Tracheostomy Tracheal Stenosis (PTTS)
E04 - Sat	Evaluation of standardized weaning schedules on physical functioning in patients with weaning failure; the WEANFIT study
E05 - Sat	Rehabilitation Whilst Intubated – Is it Worth the Risk?
E06 - Sat	Prehabilitation in Multi Limb Loss on ICU
E07 - Sat	Effects of Early Neuromuscular Electrical Stimulation on Muscle Strength in Mechanically Ventilated COVID-19 Patients: A Randomized Controlled Trial

Group 2

Moderators: Peter Spronk, Rik Gosselink

Topics: 3 & 4

E08 - Sat	Aligning physiotherapist CPaX domain profiles with nurse-led mobilisation in the intensive care unit: a prospective observational cohort study
E09 - Sat	Enhancing ICU Rehabilitation with S-PRESS
E10 - Sat	Co-creation of a Visual Recovery Tool for ICU Patients: The ICARE Project
E11 - Sat	Criterion Validity of Handheld Spirometers for Monitoring Lung Function During Airway Clearance: A Critical Appraisal
E12 - Sat	Virtual Reality in the Early Rehabilitation of Critically Ill Patients: feasibility and safety - a case study
E13 - Sat	The association between functional disabilities and health-related quality of life in ICU survivors: A prospective cohort study
E14 - Sat	What are ICU survivors' experiences of a UK-based, national virtual recovery support program
E14 - Sat	Mobilisation during mechanical ventilation: A qualitative study exploring the practice of conscious patients, nurses and physiotherapists in intensive care unit

Group 3

Moderators: Juultje Sommers, Paulo Azevedo

Topics: 4 & 5

E15 - Sat	Cognitive rehabilitation during ICU stay: an integrative review of interventions, providers, and patient important outcomes
E16 - Sat	"A little brainpower goes a long way". Patient and family experience of early cognitive rehabilitation in critical illness: a qualitative interview study
E17 - Sat	Functional outcomes and access to rehabilitation after hospital discharge in patients with impaired physical function at ICU discharge: preliminary analysis of a prospective cohort
E18 - Sat	Cognitive impairment in intensive care unit patients: a qualitative exploration through observations and interviews
E19 - Sat	Psychological support during weaning in Germany
E20 - Sat	Exposure to nature-based environments for patients admitted to critical care and their family/loved ones: a scoping review

Group 4 **Moderators:** Eleftherios Karatzanos, Åse Valsø **Topics:** 5 & 6

E21 - Sat	Family Participation in ICU Care; The UMC Utrecht Participation Poster
E22 - Sat	A national transplant prehabilitation and rehabilitation care pathway
E23 - Sat	An exploration of multidisciplinary experiences and perceptions of prolonged mechanical ventilation weaning in the adult intensive care unit
E24 - Sat	Physiotherapy-Led Mobilisation and Functional Recovery in Orthopaedic ICU Patients
E25 - Sat	Diaphragm ultrasonography to guide physiotherapeutic respiratory interventions in a patient with prolonged weaning. A case report
E26 - Sat	Early Interdisciplinary Rehabilitation in the ICU for Patients with Disorders of Consciousness: Development, Implementation and Evaluation of a Structured Care Pathway

Group 5 **Moderators:** Irini Patsaki, Florence Dabas **Topics:** 6

E27 - Sat	A Evaluation of An Advanced Tracheostomy Competency Framework for Non- Medical Healthcare Professionals.
E28 - Sat	Establishment of an Early Rehabilitation Network – bridging the gap between professions, locations, and levels of care in Norway
E29 - Sat	ICUSteps Active: Who Are We Rehabilitating? Evaluation of our national, online ICU rehabilitation programme.
E30 - Sat	The Unspoken Challenge: Psychology and SLT-Led Simulation training to Enhance Resident Doctors Communication Interactions with Patients and Families on Critical Care
E31 - Sat	An Occupational Therapy Rounding Protocol for the Intensive Care Unit

Place: **Hall 102** **“The scientific committee selection”**

Group 6 **Moderators:** Yann Combret, Peter Nydahl **Topics:** all topics

IN01 - Sat	Muscle Ultrasound Quality in Relation to Cumulative Fluid Balance and Muscle Strength in Mechanically Ventilated ICU Patients
IN02 - Sat	Predictors for the length of stay of inpatient medical rehabilitation in patients with Post-Intensive Care Syndrome (PICS): The role of patient characteristics and the domains of the Utrecht Scale for Evaluation of Rehabilitation (USER)
IN03 - Sat	Staff perceptions of interprofessional collaboration during weaning and extubation: a mixed methods service evaluation
IN04 - Sat	Physiotherapy and Optimised Enteral Nutrition In the post-acute phase of critical illness (PHOENIX): a randomised controlled feasibility trial
IN05 - Sat	Early mobilisation in patients admitted to the intensive care unit with acute traumatic brain injury: a three-year service evaluation
IN06 - Sat	Mobility level at ICU Discharge and Its Association with Functional Independence and Medium-Term Mortality: A Retrospective Study

Group 7 **Moderators:** Greet Hermans, Guillaume Fossat **Topics:** all topics

IN07 - Sat	Variations in ICU physiotherapy provision and clinical practice across Denmark, Norway, Sweden, Finland and Iceland: A Nordic substudy of the PEAiCE survey.
IN08 - Sat	Retrospective review of the incidence of silent aspiration and dysphagia post 5 days or more of intubation on the intensive care unit
IN09 - Sat	The Interconnectedness of Post-Intensive Care Syndrome Domains: A Qualitative Study
IN10 - Sat	Physiotherapy Staffing in Polish Intensive Care Units: A Nationwide Cross- Sectional Analysis of Workforce Allocation and Bed Capacity
IN11 - Sat	The Influence of Baseline Risk on the Effects of Perioperative Rehabilitation in Cardiac Surgery: A Post Hoc Analysis of the PORT Randomized Trial
IN12 - Sat	Learning from survivors: How former intensive care unit patients' experiences influence nursing practice

Place:
PATIO

DAY 2 - Sunday September 27th from 13:00 to 13:45

Group 1

Moderators: Guillaume Fossat, Martin Dres

Topics: 1 & 2

E01 - Sun	Early chest clearance following VV-ECMO: A Case Report
E02 - Sun	Utilising serial P0.1 measurements to monitor work of breathing during active rehab on a mechanically ventilated patient on Venovenous ECMO.
E03 - Sun	Upper airway and translaryngeal resistance during inspiratory muscle training in healthy volunteers.
E04 - Sun	The Role of Ice-chips in Swallow Assessment and Rehabilitation: A Review of the Benefits for Patients in the ICU
E05 - Sun	Preventing foot drop in ECLS Patients: Development and feasibility of a positioning cushion
E06 - Sun	Challenges of physiotherapy in the care of patients in the early, complicated period after heart transplantation in the ICU. Case study
E07 - Sun	Using Virtual Reality to Improve Wellbeing and Rehabilitation Engagement in ICU: A Quality Improvement Project

Group 2

Moderators: Cheryl Hickmann, Anne Kristine Brekka

Topics: 2, 3 & 4

E08 - Sun	Exploring oxygen consumption and its correlation with strength during standardized ICU rehabilitation exercises in a healthy population.
E09 - Sun	A Study on the Validity of the Upper Extremity Fugl-Meyer Assessment Scale in Greek ICU patients
E10 - Sun	Upper Extremity Exercise Capacity and Endurance are Reduced in Critically Ill Patients
E11 - Sun	IQARE study: Identification and Quantification of Activity Responsiveness in ICU patients
E12 - Sun	Beyond Voluntary Effort: Reliability and Validity of Magnetic Femoral Nerve Stimulation for Assessing Quadriceps Strength in Critically Ill Patients
E13 - Sun	A multiprofessional intervention in patients at risk for physical and psychological problems after ICU stay - a feasibility study
E14 - Sun	Mapping Impaired Neurocognition During Initial Treatment after Out-of-Hospital Cardiac Arrest: An Exploratory Quantitative Study

Group 3

Moderators: Juultje Sommers, Peter Nydahl

Topics: 4 & 5

E15 - Sun	Physiotherapy for patients with critical illness polyneuropathy (CIP) myopathy (CIM)
E16 - Sun	Aligning multidisciplinary expertise, Advancing rehabilitation: A new Rehabilitation ward round in Neurosciences Intensive Care.
E17 - Sun	Measuring Post-Intensive Care Syndrome (PICS): Current Fragmentation and the Need for Standardized Operationalization
E18 - Sun	Patients' and relatives' experiences of cognitive impairment following an intensive care unit admission: a qualitative study
E19 - Sun	Feasibility of Delivering Reflexology in a Critical Care Setting
E20 - Sun	Early Mobilisation after Abdominal Surgery: A Concept Analysis

Group 4

Moderators: Rik Gosselink, Yann Combret

Topics: 5 & 6

E21 - Sun	Beyond the ICU Walls: A Qualitative Analysis of Patient Experiences During Outdoor Therapeutic Exercise
E22 - Sun	Occupational therapy best practices guide for acute spinal cord injuries
E23 - Sun	Mobilisation Pathway in the Surgical Intensive Care Unit (SICU)
E24 - Sun	Connecting Expertise — Establishing an International Network for Physiotherapists in Cardio-Pulmonary Transplantation, ECMO, and LVAD
E25 - Sun	Knowledge translation in intensive care rehabilitation: Interdisciplinary cooperation between a regional hospital and a specialist rehabilitation center
E26 - Sun	Physiotherapy Provision and Practice: A EuropeAn Intensive Care Unit (ICU) Survey (PEAiCE) – a snapshot of physiotherapy practice in Polish ICUs.

Group 5**Moderators:** Marike van der Schaaf, Clément Medrinal**Topics:** 6

E27 - Sun	A 24-hour model of physiotherapy in the early period after bilateral lung transplantation.Preliminary Report
E28 - Sun	Danish intensive care occupational and physiotherapy questionnaire: A three-year follow-up and comparison of physiotherapy practices and competencies and current status for occupational therapy
E29 - Sun	Mobilisation during mechanical ventilation: A qualitative study exploring the practice of conscious patients, nurses and physiotherapists in intensive care unit Presented on Saturday position #E14 – Sat
E30 - Sun	Implementing an APN-Led Delirium Management Strategy Using the Iowa Model in a Pulmonary ICU Setting
E31 - Sun	Implementation of the eCASH approach in elective cardiac surgery: Association of early extubation, mobilization postoperative recovery
E32 - Sun	The Role of the Rehabilitation Nurse Specialist in the Functional Recovery and Self-Care of Critically Ill Patients.
E33 - Sun	Physiotherapy Provision and Practice in Latin American Intensive Care Units: A PEAiCE-Based Survey of Physical and Respiratory Therapy

Place:
Hall 102**“The scientific committee selection”****Group 6****Moderators:** Caroline Bouteau, Greet Hermans**Topics:** all topics

IN01 - Sun	Virtual Reality for patient relaxation in the intensive care unit: A convergent mixed methods feasibility study
IN02 - Sun	Physical Environment and Rehabilitation in the ICU: A Multicenter Survey on Physiotherapists' Perceptions
IN03 - Sun	Capacity-Building for Intensive Care Unit (ICU) Physiotherapy Education in Ukraine: A Train-the-Trainer Programme with International Collaborative Curriculum Development
IN04 - Sun	Walking distance and associated factors four months after discharge from the intensive care unit
IN05 - Sun	Physical rehabilitation in the intensive care unit for adults with traumatic brain injury: a systematic review and meta-analysis
IN06 - Sun	Towards Therapeutic Outings for ICU Critically Ill Patients: A Prospective Cross-Sectional Analysis of Clinical Practice and an Expert Consensus Delphi Study

Group 7**Moderators:** Eleftherios Karatzanos, Peter Spronk**Topics:** all topics

IN07 - Sun	Association between cancer diagnosis and post intensive care unit stay weakness: retrospective cohort.
IN08 - Sun	Current Practice in Respiratory Muscle Training in Intensive Care Units in Ireland: A Survey of Physiotherapy Practice
IN09 - Sun	Feasibility of two cognitive rehabilitation interventions (ICU CogHab) across the ICU-to-home recovery pathway: Evaluation of the study design, acceptability and fidelity
IN10 - Sun	Determinants of Muscle Excitability in Mechanically Ventilated Patients at Risk of Intensive Care Unit-Acquired Weakness (CIW)
IN11 - Sun	Impact of Probiotic Administration and Nutrition on Gut Microbiota and Inflammation in Critically Ill Intensive Care Unit Patients: A Prospective Interventional Cohort Study
IN12 - Sun	Current practice of physiotherapy in Greek Intensive Care Units