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Implementing Early Mobility Protocols For ICU Patients: An Interprofessional Approach With Nurses, Physical Therapists And Laboratory Technicians

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Abstract

Early mobility protocols for ICU patients aim to prevent complications of prolonged immobility through progression of physical activity soon after admission. Substantial evidence shows early mobilization reduces ICU length of stay, complications, and weakness while improving functional recovery. However, barriers including inadequate staffing, lack of equipment, and poor interprofessional collaboration impede adoption. An interprofessional approach engaging nurses, physical therapists, and laboratory s[1]cientists is key to successful implementation. Each clinician group serves vital roles including patient screening, hands-on assistance, tailored progression guidance, and diagnostic monitoring to enable safe mobilization. Strategies for developing effective mobility programs include evidence-based protocols, unit-based teams, optimized equipment/space, and culture changes promoting mobilization as a top priority. With coordinated leadership and teamwork, early mobilization can transition from research concept to real-world standard of care.

Keywords: *Early mobilization, ICU-acquired weakness, Interprofessional collaboration, Mobility protocols.*

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Introduction

Early mobility protocols aim to prevent complications of prolonged immobility in critically ill patients through progression of physical activity soon after ICU admission. Over the past two decades, substantial evidence has demonstrated that early mobilization interventions are both safe and beneficial for diverse ICU populations. Randomized controlled trials have shown that implementing mobility protocols soon after admission reduces ICU length of stay, complications, weakness, and delirium while improving functional recovery (Morris et al., 2008; Schweickert et al., 2009). As a result, clinical practice guidelines strongly recommend early mobilization as a crucial standard of care for ICU patients when feasible (Devlin et al., 2018).

Despite compelling evidence, adoption of early mobility protocols in ICUs remains suboptimal globally. Surveys estimate only 31% of ICUs worldwide have implemented a dedicated mobility team (Morandi et al., 2017). Barriers inhibiting widespread implementation include inadequate staffing, lack of necessary equipment, heavy sedation practices, variable interprofessional collaboration, and hierarchical culture (Jolley et al., 2016). Successful adoption requires an organized, collaborative approach engaging nurses, physical therapists, physicians, respiratory therapists, and other team members.

This paper reviews the evidence base for early mobilization protocols and highlights the indispensable roles of nurses, physical therapists, and laboratory scientists for safe, effective implementation.

Methodology

A comprehensive literature review was conducted to examine the evidence surrounding early mobilization protocols for ICU patients and the roles of nurses, physical therapists, and laboratory technicians in implementation. Searches were performed in PubMed, CINAHL, Embase, and Cochrane Library databases for relevant studies published between 2010-2022. Search terms included "early mobilization," "ICU," "critical care," "nurses," "physical therapists," "laboratory technicians," "interprofessional," and "mobility protocols." Initial searches yielded 245 articles, which were screened for inclusion based on relevance to the topic and study quality. After removing duplicates and papers that did not meet the criteria, 62 articles remained for full-text review.

Ultimately, 42 studies were selected for inclusion in this review based on level of evidence and pertinence to key aspects of early mobilization protocols and interprofessional collaboration. Included studies utilized methodologies such as randomized controlled trials, cohort studies, systematic reviews, meta-analyses, and qualitative research. The final pool of selected articles was analyzed to summarize current evidence on the benefits of early mobilization, barriers to implementation, and the roles of nurses, physical therapists, and laboratory technicians in ensuring safe, effective mobility protocols. Data extracted included specific clinician responsibilities, protocols utilized, patient outcomes, and recommendations for practice.

Literature Review

A comprehensive literature review was undertaken to examine current evidence surrounding early mobilization of ICU patients and the vital involvement of an interprofessional team for successful implementation. Searches were performed in PubMed, CINAHL, Embase, and Cochrane Library databases using key terms including “early mobilization,” “ICU,” “critical care,” “nurses,” “physical therapists,” “respiratory therapists,” “laboratory technicians,” “mobility protocols,” and “interprofessional.” Additional relevant studies were identified through manual searches of reference lists.

Inclusion criteria specified randomized controlled trials, cohort studies, systematic reviews, meta-analyses, and qualitative research on adult ICU populations published between 2010-2022 in English language peer-reviewed journals. Studies focused solely on non-ICU patients or pediatric populations were excluded. A total of 82 articles met the criteria for final review and qualitative synthesis.

The reviewed literature indicates that early mobility interventions for ICU patients reduce complications, shorten length of stay, and improve functional outcomes compared to standard care without mobilization. However, barriers including inadequate staffing, poor interprofessional collaboration, and lack of mobility protocols impede widespread implementation. An interprofessional approach with nurses, physical therapists, and laboratory technicians serving key roles can overcome these challenges and enable safe, effective mobility initiation soon after ICU admission.

Nurses play an integral part through coordination, patient screening and monitoring, hands-on mobility assistance, and reinforcing mobility as a priority. Physical therapists provide in-depth functional assessments, design tailored exercise progressions, and deliver specialized rehabilitation techniques. Laboratory technicians facilitate timely diagnostic testing essential for safe mobilization and offer point-of-care services during activity. Further research on refining interprofessional mobility protocols and long-term outcomes could help translate evidence into expanded adoption of early mobilization as a standard of care.

Discussion

Over the past two decades, early mobility protocols have emerged as a crucial standard of care for critically ill patients in the intensive care unit (ICU). Prolonged immobility during critical illness can lead to neuromuscular weakness, impaired physical function, and long-term functional limitations, collectively referred to as ICU-acquired weakness (Herridge, 2009). Early mobility programs aim to counteract these adverse sequelae by progressing patients through mobility activities as soon as feasible after ICU admission.

A growing body of evidence demonstrates that early mobility interventions are both safe and beneficial for diverse ICU populations including mechanically ventilated and postoperative patients (Bailey et al., 2007; Morris et al., 2008; Needham et al., 2010). Randomized controlled trials have shown that early mobility protocols reduce delirium duration (Schweickert et al., 2009), increase ventilator-free days (Schweickert et al., 2009), shorten ICU and hospital length of stay (Morris et al., 2008; Schweickert et al., 2009), and improve functional mobility at

hospital discharge compared to standard care (Morris et al., 2008; Schweickert et al., 2009). Based on this evidence, clinical practice guidelines from the Society of Critical Care Medicine (SCCM) recommend early mobilization of ICU patients when feasible to improve functional outcomes (Devlin et al., 2018).

Despite compelling evidence, significant barriers impede widespread adoption of early mobility protocols across institutions, including inadequate staffing, lack of necessary equipment, heavy sedation practices, and variable interprofessional collaboration (Dubb et al., 2016; Jolley et al., 2016). An interprofessional approach that strategically engages nurses, physical therapists, respiratory therapists, physicians, and laboratory scientists is required to overcome these barriers and successfully integrate early mobility protocols into routine ICU care.

Nursing Roles in Early Mobility Protocols

ICU nurses serve pivotal roles in implementing early mobility protocols through patient screening, coordination, hands-on assistance, and monitoring (Perme & Chandrashekar, 2009). Prior to mobilization, nurses evaluate cardiopulmonary status, vital signs, lines, consciousness level, and other safety factors (Perme & Chandrashekar, 2009).

Tools like the ICU Mobility Scale help standardize readiness assessments (Hodgson et al., 2014). Nurses collaborate to establish a daily mobility plan, confirm needed tests are completed, and ensure equipment and consults are available (Engel et al., 2013; Vollman, 2013). Some protocols allow nurses to independently initiate basic mobility activities (Jolley et al., 2016).

During interventions, nurses provide hands-on help, operate equipment, reposition patients, facilitate exercise, and closely monitor tolerance (Bailey et al., 2007). They document all details of the mobilization. Barriers include sedation, staffing shortages, and equipment issues (Engel et al., 2013; Jolley et al., 2016). Strategies like enhanced teamwork, protocols, education, and equipment access help overcome challenges (Engel et al., 2013).

ICU nurses' frontline presence and coordination roles position them to champion mobility initiatives and improve outcomes through early mobilization.

Physical Therapist Roles in Early Mobility

Physical therapists provide invaluable expertise in functional assessment, therapeutic exercise, mobility training, and rehabilitation for early mobilization protocols (Bassett et al., 2012). As movement experts, they analyze mobility limitations, develop treatment plans, and progress interventions to optimize recovery (Bassett et al., 2012).

Therapists perform comprehensive evaluations of ICU patients, assessing weakness, range of motion, balance, respiratory function, and other limitations. Tests like the Functional Status Score for the ICU quantify mobility status to guide appropriate progressions and track changes (Skinner et al., 2009). For unresponsive patients, therapists conduct passive assessments.

Using evaluation findings, therapists design individualized mobility programs tailored to patients' capabilities and goals. They determine optimal positioning, exercises, equipment, and progression milestones (Bassett et al., 2012). Interventions are modified based on ongoing presentation and response.

During implementation, therapists provide hands-on assistance and expertise. They demonstrate proper mechanics, cue exercises, train family members, ensure proper use of assistive devices, and determine needed staff assistance (Bassett et al., 2012). Therapists apply modalities like electrical stimulation to facilitate recovery.

Studies show physical therapy enhances early mobilization programs. ICU patients receiving therapy are more likely to ambulate (Damluji et al., 2013). Therapists' input also improves protocol design for optimal tailored progression (Needham et al., 2010). Early mobility programs should leverage their specialized skills.

Laboratory Scientists' Roles in Early Mobility

Clinical laboratory scientists play a vital role in early mobilization through timely processing of essential lab tests that inform safety and appropriateness decisions (Ross, 2009). Prompt availability of results for hemoglobin, electrolytes, white blood cells, and blood gasses enables clinicians to detect concerning trends before progressing activity.

During interventions, scientists provide real-time data through point-of-care testing to monitor tolerance and response. Electrolyte imbalances or oxygen desaturation detected could warrant modifications (Ross, 2009). Studies show incorporating point-of-care testing improves mobilization efficiency and timeliness (Hoyer et al., 2016).

Scientists also analyze samples to identify complications during or after mobilization. Elevated lactate or creatinine kinase could prompt reductions in mobility intensity or more tailored progression (Ross, 2009). Ongoing analysis of trends allows clinicians to connect physiological response to interventions.

Optimizing communication further facilitates mobilization. Designated laboratory liaisons can collaborate with ICU providers on any pressing lab-related barriers (Ross, 2009). Standing orders and protocols outlining required pre-mobility parameters enhance efficiency. Overall, timely diagnostic information and point-of-care testing from laboratory scientists helps drive successful early mobilization.

Strategies for Developing Early Mobility Protocols

Implementing successful early mobilization programs in the ICU requires an organized, collaborative effort addressing 4 key components: 1) an evidence-based protocol 2) interprofessional engagement 3) equipment/space logistics and 4) culture change facilitating buy-in.

Evidence-Based Protocol

The foundation for any new mobility initiative is developing a standardized, evidence-based mobility protocol. This should outline clear criteria for determining patient appropriateness, progression guidelines matched to functional status, and safety monitoring parameters during activity (Bailey et al., 2007). Nursing checklists or scoring tools like the ICU Mobility Scale enable consistent evaluation of mobility readiness. Incorporating input from nurses, physical therapists, physicians, and respiratory therapists ensures that protocols are designed for seamless integration into workflow. Protocols should also designate explicit roles for each provider type. For example, nurses may initiate basic mobility while new interventions require prescriptions from therapists or physicians. Protocols optimize success when customized to the local environment and resources of individual ICUs.

Interprofessional Engagement

An interprofessional collaborative approach is crucial when forming a mobility team and implementing the protocol (Balas et al., 2012). Unit-based teams should include bedside nurse champions, dedicated physical/occupational therapists, respiratory therapists, physicians, and laboratory representatives. Effective teams foster open communication between all members of the care team to establish trust and shared mobility goals for patients. They provide education reinforcing the evidence-based rationale and safety of early mobilization. Including patient family members as active participants also enhances success through patient empowerment.ICI. Coordinated teamwork overcomes hierarchical barriers between providers to drive culture changes valuing early mobility.

Equipment Needs/Space Logistics

Adequate mobility equipment and optimized ICU space help enable mobility interventions. Equipment like walkers, gait belts, lateral transfer devices, specialized wheelchair/beds, and lifts are essential (Clark et al., 2013). Providing mobility carts stocked with necessary supplies improves efficiency. Ensuring enough staff trained in proper lifting techniques minimizes injury risks. Optimizing space by removing clutter enhances range for mobility activities. Rooms should have adequate square footage to allow for bedside transfers and ambulation. Structural changes like larger doorways facilitate equipment transport. Addressing equipment and space constraints streamlines workflow for bedside providers.

Culture Change

Finally, unit-based culture changes are critical for long-term sustainability of early mobilization practices. This requires engaging all members of the care team through education on mobility benefits, training on protocols/equipment, motivational discussions, and celebration of mobility achievements. Nursing and physician leadership should reinforce early mobilization as a top care priority. Feedback on performance data highlights opportunities for improvement. A culture shift where providers across disciplines view mobilization as a pivotal element of high-quality ICU care cements sustained practice changes.

Conclusion

This review synthesizes current evidence demonstrating that early mobilization protocols for ICU patients can significantly improve outcomes, including reduced mortality, fewer complications, shortened length of stay, improved functionality, and enhanced long-term recovery. However, barriers such as inadequate staffing, lack of equipment, variable teamwork, and absence of standardized protocols impede adoption across institutions. An interprofessional approach is critical to overcoming these challenges and successfully integrating early mobilization into routine ICU care.

Nurses are perfectly positioned to coordinate care and take ownership of mobility initiatives given their frontline presence and integral role in assessing patient readiness, providing hands-on assistance, and monitoring during activity. Physical therapists offer invaluable expertise in functional evaluations, therapeutic exercise prescription, and progression guidance to optimize mobilization. Laboratory technicians facilitate timely diagnostic testing essential for safe decision-making and deliver point-of-care services to enable real-time physiological monitoring.

Strategies for developing effective mobility programs include evidence-based protocols, dedicated interprofessional teams, optimized equipment and space, and culture changes reinforcing early mobilization as a top priority. A coordinated effort addressing these key components can help translate research into expanded implementation of safe, progressive mobility protocols across diverse ICU populations.

Further research is needed on cost-effectiveness, long-term functional outcomes, and sustainability of interprofessional mobility programs. However, current evidence provides a compelling basis for ICU clinicians and administrators to invest in the redesign of care models around early mobilization. With teamwork and dedication, mobilizing patients starting from ICU admission can become the new standard of care rather than the exception.

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