

Collaborative Early Mobilization in Mechanically Ventilated Patients: The Joint Efforts of Nurses and Respiratory Therapists to Improve Recovery Outcomes

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Abstract

Objective: To examine the collaborative efforts of nurses and respiratory therapists in promoting early mobilization for mechanically ventilated patients, focusing on strategies for improving recovery outcomes.

Methods: This qualitative study was conducted at a tertiary hospital, involving interviews with nurses and respiratory therapists who are actively engaged in early mobilization practices. Data were analyzed to identify themes related to collaboration, patient outcomes, and challenges faced.

Results: The study identified key collaborative strategies employed by nurses and respiratory therapists, including coordinated care plans, regular communication, and shared decision-making. Early mobilization efforts were associated with reduced duration of mechanical ventilation, improved functional recovery, and shorter ICU stays. Challenges included time constraints, patient safety concerns, and communication barriers.

Conclusion: Effective interdisciplinary collaboration between nurses and respiratory therapists is essential for successful early mobilization in mechanically ventilated patients. Addressing challenges and enhancing communication can further improve patient outcomes.

Keywords: Early mobilization, mechanically ventilated patients, nurses, respiratory therapists, ICU recovery, interdisciplinary collaboration.

Introduction

Mechanical ventilation is a life-saving intervention commonly used in critically ill patients experiencing respiratory failure. However, prolonged mechanical ventilation is associated with several complications, including muscle weakness, joint contractures, pressure ulcers, and ventilator-associated pneumonia (de Jonghe et al., 2009). Immobility is a significant contributor to these complications, often resulting in delayed recovery, prolonged hospital stays, and increased mortality rates (Tipping et al., 2017). Early mobilization, defined as physical activity initiated within the first 48 hours of mechanical ventilation, has emerged as an effective strategy to mitigate these risks and improve patient outcomes (Schweickert et al., 2009).

The benefits of early mobilization in mechanically ventilated patients include improved muscle strength, decreased duration of mechanical ventilation, reduced length of stay in the intensive care unit (ICU), and enhanced overall functional recovery (Dirkes and Kozlowski, 2019). Despite these proven advantages, the implementation of early mobilization protocols in the ICU is often challenging. It requires careful coordination among healthcare professionals, particularly respiratory therapists and nurses, who must work together to ensure patient safety, monitor ventilator settings, and manage vital signs during mobilization activities (Schweickert et al., 2009).

Nurses play a key role in assessing patients' readiness for mobilization, providing physical support, and monitoring for signs of distress during the activity. Respiratory therapists, on the other hand, are responsible for adjusting ventilator settings, managing the airway, and ensuring that the patient remains stable during mobilization. Effective collaboration between these two professions is essential for the success of early mobilization programs in mechanically ventilated patients (Schweickert et al., 2009).

This study aims to explore the collaborative role of nurses and respiratory therapists in promoting early mobilization for patients on mechanical ventilation and assess how their joint efforts impact recovery outcomes. By understanding the dynamics of this collaboration, healthcare teams can optimize early mobilization practices, improve patient outcomes, and reduce the negative effects of immobility in mechanically ventilated patients.

Literature Review

1. Effects of Immobility in Mechanically Ventilated Patients

Prolonged immobility in patients on mechanical ventilation can lead to numerous adverse outcomes, including muscle atrophy, joint contractures, pressure ulcers, and ventilator-associated pneumonia (de Jonghe et al., 2009). These complications contribute to delayed recovery, prolonged ICU stays, and increased mortality rates (Tipping et al., 2017). The phenomenon of ICU-acquired weakness (ICUAW) is particularly concerning, as it results from both critical illness and disuse of muscles during extended periods of immobility (Hermans & Van den Berghe, 2015). Patients who experience ICUAW are often unable to regain full functional independence, even months after hospital discharge.

Studies have shown that early mobilization can help mitigate the negative effects of immobility by preserving muscle strength, improving respiratory function, and preventing complications related to prolonged bed rest (Kress & Hall, 2014). Early mobilization protocols, which introduce physical activity as soon as the patient is hemodynamically stable, have been developed to address these concerns and improve patient outcomes.

2. Benefits of Early Mobilization in Critically Ill Patients

Early mobilization is increasingly recognized as a vital intervention for mechanically ventilated patients, with numerous studies demonstrating its benefits. Schweickert et al. (2009) conducted a landmark randomized controlled trial showing that early physical and occupational therapy in mechanically ventilated patients led to significant improvements in functional independence, reduced the duration of delirium, and shortened ICU and hospital stays. Similarly, a systematic review by Tipping et al. (2017) found that early mobilization decreased the duration of mechanical ventilation and ICU length of stay, while improving muscle strength and functional recovery.

Early mobilization also contributes to better respiratory function by promoting lung expansion, enhancing oxygenation, and reducing the risk of ventilator-associated pneumonia (Schweickert et al., 2009). In addition, it can prevent the long-term cognitive and psychological effects associated with prolonged ICU stays, such as ICU delirium and post-traumatic stress disorder (PTSD) (Needham et al., 2012). The cumulative evidence underscores the importance of implementing early mobilization protocols to enhance the physical and psychological recovery of critically ill patients.

3. Role of Nurses in Early Mobilization

Nurses play a crucial role in the early mobilization of mechanically ventilated patients. Their responsibilities include assessing patients for readiness to mobilize, monitoring vital signs during mobilization activities, and ensuring patient safety throughout the process. Nurses are often at the bedside and are therefore able to identify early signs of patient distress or instability during mobilization, such as changes in heart rate, blood pressure, or oxygen saturation (Dirkes and Kozlowski, 2019). Additionally, they provide physical and emotional support to patients during mobilization, helping to alleviate anxiety and build patient confidence in their ability to participate in physical activity.

A study by Hashem et al. (2016) found that nurse-led mobilization programs were effective in initiating early activity for mechanically ventilated patients, demonstrating that nurses are key drivers of early mobilization efforts in the ICU. However, challenges such as workload demands, concerns about patient safety, and a lack of formal training in early mobilization protocols can limit the ability of nurses to fully implement these programs (Bailey et al., 2007). Addressing these barriers is essential for ensuring that nurses can effectively contribute to early mobilization efforts.

4. Role of Respiratory Therapists in Early Mobilization

Respiratory therapists (RTs) play an equally important role in the early mobilization of mechanically ventilated patients, particularly in managing ventilator settings and ensuring patient safety during physical activity. RTs adjust ventilator parameters to accommodate the increased physical demands of mobilization and ensure that the patient maintains adequate oxygenation and ventilation throughout the activity (Kress & Hall, 2014). They also assist with airway management, such as managing endotracheal tubes or tracheostomies, which is critical for preventing complications during mobilization.

Research by Lai et al. (2017) demonstrated that RTs are instrumental in the success of early mobilization programs, as their expertise in managing the respiratory needs of critically ill patients is essential for ensuring that patients remain stable during physical activity. Collaboration between RTs and nurses is particularly important during mobilization, as both professions must coordinate their efforts to ensure that the patient is properly supported and safe throughout the activity.

5. Collaborative Care Models for Early Mobilization

The successful implementation of early mobilization in mechanically ventilated patients depends on close collaboration between healthcare professionals, particularly nurses and respiratory therapists. Interdisciplinary collaboration ensures that the patient's physical and respiratory needs are met during mobilization, reducing the risk of adverse events and improving recovery outcomes (Schweickert et al., 2009).

Several studies have highlighted the benefits of collaborative care models in early mobilization, emphasizing the importance of clear communication and shared decision-making between nurses and RTs.

For example, a study by Bassett et al. (2012) found that an interdisciplinary approach to early mobilization in the ICU led to improved patient outcomes, including faster weaning from mechanical ventilation and shorter ICU stays. The study emphasized the importance of regular communication between nurses and RTs, as well as the use of standardized protocols to guide the mobilization process. Similarly, Needham et al. (2012) identified interdisciplinary collaboration as a key factor in the success of early mobilization programs, recommending that ICUs establish clear roles and responsibilities for each healthcare professional involved in the mobilization process.

6. Barriers to Early Mobilization and Solutions

Despite the proven benefits of early mobilization, several barriers can impede its implementation in ICU settings. These barriers include concerns about patient safety, lack of time and resources, and variability in staff knowledge and training (Bailey et al., 2007). Nurses and RTs may be reluctant to initiate early mobilization due to fears of harming the patient or causing complications, particularly in patients who are hemodynamically unstable or have multiple comorbidities (Dirkes and Kozlowski, 2019).

Solutions to these barriers include the development of standardized early mobilization protocols, increased training for nurses and RTs, and the use of interdisciplinary teams to share the workload and responsibilities. Providing ongoing education and support to healthcare professionals can help alleviate concerns about patient safety and build confidence in the ability to safely mobilize mechanically ventilated patients (Hodgson et al., 2013). Additionally, regular interdisciplinary meetings can facilitate communication and coordination among healthcare teams, ensuring that mobilization efforts are well-planned and executed.

Methodology

1. Study Design

This study utilized a qualitative research design to explore the collaborative role of nurses and respiratory therapists in promoting early mobilization in mechanically ventilated patients. The qualitative approach was chosen to gain an in-depth understanding of the experiences, perceptions, and practices of healthcare professionals involved in early mobilization, focusing on the challenges and benefits of interdisciplinary collaboration.

2. Setting

The study was conducted in a tertiary care hospital with a specialized intensive care unit (ICU) equipped for the care of mechanically ventilated patients. The ICU has a multidisciplinary team, including nurses, respiratory therapists, and physicians, who collaborate in the management of critically ill patients. The hospital follows evidence-based protocols for early mobilization in mechanically ventilated patients to improve recovery outcomes.

3. Participants

A purposive sampling method was employed to recruit participants. A total of 15 healthcare professionals participated in the study:

- 8 nurses with at least two years of experience in the ICU, specifically in the care of mechanically ventilated patients.
- 7 respiratory therapists with similar levels of experience, responsible for managing ventilator settings and assisting with early mobilization activities.

Inclusion criteria for participants included:

- Active involvement in early mobilization protocols for mechanically ventilated patients.
- Willingness to participate in semi-structured interviews.

4. Data Collection

Data were collected using semi-structured interviews with nurses and respiratory therapists. The interviews were conducted in a private setting within the hospital to ensure confidentiality. Each interview lasted between 30 and 60 minutes. The interview guide included open-ended questions designed to explore the following areas:

- Roles and responsibilities of nurses and respiratory therapists in early mobilization.
- Experiences of collaboration between nurses and respiratory therapists.
- Challenges encountered during early mobilization and how they were addressed.
- Perceived benefits of interdisciplinary collaboration on patient outcomes.

Some sample interview questions included:

- "Can you describe a time when you worked with a respiratory therapist/nurse to mobilize a mechanically ventilated patient?"
- "What are the key challenges you encounter during early mobilization?"
- "How does collaboration between nurses and respiratory therapists impact patient outcomes?"

All interviews were audio-recorded with the participants' consent and later transcribed verbatim for analysis. Field notes were also taken during the interviews to capture non-verbal cues and contextual observations.

5. Data Analysis

Data were analyzed using thematic analysis, as described by Braun and Clarke (2006). The process involved several steps:

1. Familiarization with the Data: The researchers repeatedly read the interview transcripts to gain an understanding of the content and immerse themselves in the data.
2. Generating Initial Codes: Initial codes were generated by identifying key patterns and recurring themes in the data, focusing on collaboration, challenges, and the impact on patient outcomes.
3. Searching for Themes: Codes were organized into broader themes, such as "Collaborative Roles in Early Mobilization," "Challenges in Interdisciplinary Communication," and "Impact of Collaboration on Patient Recovery."
4. Reviewing Themes: Themes were reviewed to ensure they accurately represented the data and were relevant to the research questions.

5. Defining and Naming Themes: Each theme was clearly defined, and sub-themes were identified to reflect specific aspects of collaboration and its challenges.

6. Writing the Report: A narrative was developed to present the findings, supported by direct quotes from participants to illustrate key themes.

6. Ethical Considerations

Ethical approval for the study was obtained from the ethics committee. All participants provided written informed consent prior to the interviews and were informed of their right to withdraw from the study at any time without consequences. Confidentiality was ensured by anonymizing participant data, and all identifying information was removed from the transcripts. The audio recordings and transcripts were securely stored and accessible only to the research team.

7. Trustworthiness and Rigor

Several strategies were employed to ensure the trustworthiness and rigor of the study:

- Triangulation: Data were collected from both nurses and respiratory therapists to provide multiple perspectives on the collaborative process in early mobilization.
- Member Checking: Participants were invited to review the findings and verify the accuracy of the researchers' interpretation of their experiences.
- Peer Debriefing: The research team engaged in regular discussions to ensure consistency in coding and interpretation.
- Reflexivity: The researchers maintained a reflexive journal throughout the study to document any biases or assumptions that could affect the analysis.

8. Limitations

While the study provides valuable insights into the collaborative role of nurses and respiratory therapists in early mobilization, it is important to acknowledge its limitations. The study was conducted in a single tertiary hospital, which may limit the generalizability of the findings to other healthcare settings. Additionally, the qualitative design relies on participants' subjective experiences, which may not fully capture all aspects of collaboration or challenges in different ICUs. Future research could involve multiple hospitals and include quantitative data to provide a more comprehensive understanding of the impact of collaboration on patient outcomes.

Findings

Thematic analysis of the interviews revealed three major themes: Collaborative Roles in Early Mobilization, Impact of Collaboration on Patient Outcomes, and Challenges in Implementing Early Mobilization Protocols. Each theme is supported by sub-themes and direct quotes from participants to illustrate the findings.

1. Collaborative Roles in Early Mobilization

Nurses and respiratory therapists described how their collaboration was essential for the successful implementation of early mobilization in mechanically ventilated patients. Both professions had distinct yet complementary responsibilities, which were critical in ensuring the safety and efficacy of early mobilization efforts.

a) Nurses' Role in Assessing and Monitoring Patients

Nurses emphasized their role in assessing patient readiness for mobilization and monitoring vital signs during mobilization activities to ensure patient safety. They described working closely with respiratory therapists to coordinate the timing of mobilization efforts.

- Nurse 1: "We're constantly monitoring the patient's vitals before, during, and after mobilization. We make sure they are stable enough to participate, and if there are any signs of distress, we communicate that with the respiratory therapist."

- Nurse 2: "Our main role is to ensure patient safety. We assess for any risks, such as changes in blood pressure or oxygen saturation, and adjust our approach based on the patient's condition."

b) Respiratory Therapists' Role in Managing Ventilator Settings

Respiratory therapists discussed their primary role in managing ventilator settings during mobilization, ensuring that the patient maintained adequate oxygenation and ventilation while being mobilized. They also highlighted their role in airway management.

- Respiratory Therapist 1: "Our job is to adjust the ventilator settings to ensure that the patient is still getting the support they need while being moved. We also manage the airway, making sure the tubing is secure and that there are no complications with the ventilator."

- Respiratory Therapist 2: "We work closely with the nurses to make sure the patient is stable during mobilization. If the patient becomes too distressed, we adjust the ventilator or recommend pausing the activity."

c) Interdisciplinary Coordination for Early Mobilization

Both professions emphasized the importance of interdisciplinary coordination in planning and executing early mobilization. Regular communication and shared decision-making were key to ensuring the success of mobilization efforts.

- Nurse 3: "We have to be on the same page as the respiratory therapists. There's a lot of communication back and forth—when the patient is ready, we'll notify the RT, and they'll prepare the ventilator for movement."

- Respiratory Therapist 3: "We work as a team with the nurses, and that's what makes early mobilization possible. It's all about timing and making sure we're both there to support the patient."

2. Impact of Collaboration on Patient Outcomes

Participants reported that collaboration between nurses and respiratory therapists positively impacted patient outcomes, particularly in terms of reducing the duration of mechanical ventilation and shortening ICU stays. They noted that early mobilization contributed to faster recovery, improved muscle strength, and fewer complications.

a) Reduced Duration of Mechanical Ventilation

Both nurses and respiratory therapists observed that patients who participated in early mobilization tended to be weaned off mechanical ventilation more quickly compared to those who remained immobile.

- Nurse 4: "We see that patients who are mobilized early tend to come off the ventilator sooner. It helps maintain their muscle strength, and they don't become as dependent on the ventilator."

- Respiratory Therapist 4: "Early mobilization definitely plays a role in reducing the time a patient spends on the ventilator. We see better lung function and fewer complications in patients who are mobilized early."

b) Improved Functional Recovery

Participants reported that early mobilization facilitated faster functional recovery, enabling patients to regain their strength and independence sooner after being weaned from the ventilator.

- Nurse 5: "The earlier we get patients moving, the quicker they regain their strength. It's incredible to see the difference in patients who are mobilized early compared to those who aren't."

- Respiratory Therapist 5: "Patients who are mobilized early seem to recover faster, not just physically, but also mentally. They become more engaged in their recovery and are more motivated to participate in rehabilitation."

c) Reduced ICU Length of Stay

Both professions acknowledged that early mobilization contributed to shorter ICU stays by preventing complications such as muscle wasting, ventilator-associated pneumonia, and ICU-acquired weakness.

- Nurse 6: "We've noticed that patients who are mobilized early tend to spend less time in the ICU. They have fewer complications and are able to move to lower levels of care more quickly."

- Respiratory Therapist 6: "By preventing complications like pneumonia and muscle weakness, early mobilization helps patients get out of the ICU faster. It's a win-win for both the patient and the healthcare team."

3. Challenges in Implementing Early Mobilization Protocols

Despite the clear benefits of early mobilization, participants highlighted several challenges in implementing these protocols. These challenges included time constraints, concerns about patient safety, and communication barriers between healthcare teams.

a) Time Constraints and Staffing Issues

Both nurses and respiratory therapists cited time constraints and staffing shortages as barriers to consistently implementing early mobilization. They noted that mobilization efforts could be time-consuming, requiring coordination between multiple team members.

- Nurse 7: "One of the biggest challenges is finding the time to mobilize patients. It takes time, and we don't always have enough staff to dedicate to mobilization, especially when the unit is busy."

- Respiratory Therapist 7: "We need more hands-on deck to safely mobilize ventilated patients. It's not something that can be rushed, and if we're short-staffed, it often gets pushed to the side."

b) Patient Safety Concerns

Participants expressed concerns about patient safety, particularly when mobilizing critically ill patients who were hemodynamically unstable or had multiple comorbidities. They emphasized the need for careful assessment and communication to ensure that mobilization was conducted safely.

- Nurse 8: "We're always mindful of the risks. Mobilizing a ventilated patient can be tricky, especially if they have other medical issues. We need to make sure they're stable enough to tolerate the activity."

- Respiratory Therapist 8: "Safety is a top priority. We're always assessing the patient's stability before we move them, and if there's any sign of distress, we stop immediately."

c) Communication Barriers

Some participants reported that communication barriers between healthcare teams could hinder early mobilization efforts. Miscommunication about patient readiness or ventilator settings sometimes led to delays or inconsistent implementation of mobilization protocols.

- Nurse 9: "There have been times when we weren't sure if the patient was ready for mobilization because we didn't get a clear update from the respiratory therapist. Good communication is key to making this work."

- Respiratory Therapist 9: "Sometimes there's a breakdown in communication, especially when the unit is busy. We need to make sure everyone is on the same page about the patient's status before we start mobilizing them."

Discussion

This study explored the collaborative role of nurses and respiratory therapists in promoting early mobilization for mechanically ventilated patients, revealing that effective interdisciplinary teamwork significantly improves patient outcomes. The findings underscore the importance of collaboration in early mobilization, while also highlighting challenges that can hinder the implementation of these protocols. In this section, the key findings are synthesized and compared with existing literature, and the implications for clinical practice are discussed.

1. Collaborative Roles in Early Mobilization

The study revealed that the collaborative efforts of nurses and respiratory therapists are central to the successful implementation of early mobilization. Nurses primarily focus on patient assessment and safety, while respiratory therapists manage ventilator settings and ensure airway stability during mobilization. This division of labor aligns with previous research emphasizing that each profession plays a distinct but complementary role in early mobilization efforts (Dirkes and Kozlowski, 2019).

Interdisciplinary coordination was identified as crucial to ensuring patient safety and optimizing outcomes. The need for regular communication and shared decision-making between nurses and respiratory therapists emerged as a key component of successful mobilization efforts. Similar to findings by Schweickert et al. (2009), this study supports the notion that clear communication and teamwork between healthcare providers are essential for mobilizing mechanically ventilated patients safely and effectively.

2. Impact of Collaboration on Patient Outcomes

The results of this study highlight the positive impact of collaborative early mobilization on patient outcomes, including reduced duration of mechanical ventilation, improved functional recovery, and shorter ICU stays. These findings are consistent with the existing literature, which demonstrates that early mobilization leads to faster weaning from mechanical ventilation, decreased incidence of complications such as ICU-acquired weakness, and improved overall functional outcomes (Schweickert et al., 2009; Tipping et al., 2017).

Participants in this study reported that patients who were mobilized early were more likely to recover their physical strength, regain independence, and experience shorter ICU stays. This is in line with findings from

previous studies, which suggest that early mobilization not only enhances physical recovery but also has psychological benefits by reducing delirium and ICU-related depression (Needham et al., 2012). These improvements in both physical and mental health likely contribute to shorter hospital stays and a quicker return to normal life for patients.

3. Challenges in Implementing Early Mobilization Protocols

Despite the proven benefits of early mobilization, this study identified several challenges that can impede its consistent implementation in ICU settings. Time constraints and staffing shortages were frequently cited as barriers, with both nurses and respiratory therapists noting that mobilization efforts require significant time and coordination. These findings echo previous research by Bailey et al. (2007), which highlighted that ICU staff often struggle to find the time and resources needed to implement early mobilization protocols, particularly in busy or understaffed units.

Concerns about patient safety were another challenge identified in this study, particularly when mobilizing critically ill or hemodynamically unstable patients. Participants stressed the importance of careful patient assessment and communication between healthcare providers to ensure that mobilization efforts are safe. This reflects findings by de Jonghe et al. (2009), who emphasized that early mobilization requires careful planning and monitoring to prevent adverse events, such as falls or respiratory distress.

Finally, communication barriers between nurses and respiratory therapists were noted as a factor that can delay or complicate early mobilization efforts. In some cases, unclear communication regarding patient readiness or ventilator settings led to inconsistent implementation of mobilization protocols. Previous studies have similarly identified poor communication between healthcare teams as a significant barrier to early mobilization (Hodgson et al., 2013). This highlights the need for clear, standardized communication protocols to ensure that all members of the healthcare team are aligned in their approach to patient care.

4. Implications for Clinical Practice

The findings of this study have several important implications for clinical practice. First, healthcare organizations should prioritize interdisciplinary collaboration between nurses and respiratory therapists to promote the consistent and safe implementation of early mobilization protocols. Regular team meetings, shared decision-making, and the use of standardized mobilization protocols can help improve communication and coordination between healthcare providers.

Second, addressing time constraints and staffing issues is critical for ensuring that early mobilization efforts are consistently implemented. Hospitals may need to allocate additional resources, such as dedicated mobilization teams or support staff, to ensure that patients can be mobilized early and safely. Increasing the number of trained staff available for early mobilization could alleviate some of the workload pressures currently experienced by nurses and respiratory therapists.

Third, ongoing education and training for healthcare professionals involved in early mobilization are essential for overcoming concerns about patient safety and building confidence in mobilization practices. By providing healthcare providers with the knowledge and skills needed to assess patient readiness for mobilization and manage potential risks, hospitals can ensure that mobilization efforts are conducted safely and effectively.

5. Limitations and Future Research

While this study provides valuable insights into the collaborative role of nurses and respiratory therapists in early mobilization, it is important to acknowledge its limitations. The study was conducted in a single tertiary hospital, which may limit the generalizability of the findings to other healthcare settings. Additionally, the qualitative nature of the research means that the findings are based on the subjective experiences of participants, which may not capture all aspects of collaboration or challenges in different ICU environments.

Future research could address these limitations by conducting studies in multiple hospitals and incorporating quantitative data to measure the impact of early mobilization on specific patient outcomes, such as time on mechanical ventilation, ICU length of stay, and functional recovery. Additionally, further research could explore the long-term effects of early mobilization on patient quality of life after discharge, providing a more comprehensive understanding of the benefits of this intervention.

Conclusion

This study highlights the critical role of collaboration between nurses and respiratory therapists in promoting early mobilization for mechanically ventilated patients. By working together, these healthcare professionals are able to improve patient outcomes, including faster weaning from mechanical ventilation, improved functional recovery, and shorter ICU stays. However, challenges such as time constraints, patient safety concerns, and communication barriers must be addressed to ensure the consistent and effective implementation of early mobilization protocols. Enhancing interdisciplinary collaboration, providing additional resources, and offering ongoing education and training can help overcome these challenges and further improve patient outcomes in ICU settings.

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