

Title: Clinical Practice Guidelines for Non-pharmacological Prevention and Management of Patient Agitation in the Adult ICU

Authors: Anne Mette N. **Adams**^{1,2*}, Diane **Chamberlain**^{1,2}, Matthew **Maiden**³, Cherie **Waite**⁴, Kay **Bruce**⁵, Charlotte **Brun Thorup**⁶, Marianne W **Nørgaard**⁷, Britt **Laugesen**^{7,8}, Mette Grønkjær⁸, Cornelia Lamprecht⁹, Tiffany **Conroy**^{1,2,10}.

Affiliations

¹Flinders University, College of Nursing and Health Sciences, Adelaide, South Australia, Australia

²Caring Futures Institute, Flinders University, Adelaide, South Australia

³Intensive Care Unit, Royal Melbourne Hospital, Melbourne, Victoria, Australia

⁴Intensive Care Unit, Flinders Medical Centre, Adelaide, South Australia, Australia

⁵Patient Representative, Central Adelaide Local Health Network, South Australia, Australia

⁶Research Centre of Health and Applied Sciences & Department of Radiography, University College of Northern Denmark, Denmark

⁷The Centre for Clinical Guidelines, Department of Clinical Medicine, Aalborg University, Denmark

⁸The Clinical Nursing Research Unit, Aalborg University Hospital & Aalborg University, Aalborg, Denmark

⁹Department of Anaesthesiology and Intensive Care Medicine, and Department of Orthopaedic Surgery, Copenhagen University Hospital Herlev and Gentofte, Denmark; Department of Clinical Medicine, Faculty of Health Sciences, University of Copenhagen, Denmark.

¹⁰ Southern Adelaide Local Health Network, South Australia, Australia

*Anne Mette Adams, Sturt Road, Bedford Park, SA 5052

email: mette.adams@flinders.edu.au

Abstract

Background: Patient agitation is a prevalent and complex issue in the intensive care unit, affecting 32-70% of patients. Agitation can lead to disruption of life-saving treatment, increased length of hospital stays and psychological trauma. Although clinicians are encouraged to use non-pharmacological interventions to mitigate the adverse effects of medications, existing guidelines on preventing and managing agitation predominantly focus on pharmacological management. The lack of comprehensive guidance on non-pharmacological strategies can result in an over-reliance on medications and the underutilisation of effective non-pharmacological approaches.

Objective: To provide evidence-based recommendations for the non-pharmacological prevention, minimisation and management of patient agitation in the adult ICU.

Method The guidelines were developed following the Australian National Health and Medical Research Council (NHMRC) Guidelines for Guidelines and the Danish Health Authority's manual on guideline development. The process included stakeholder consultation on the initial scope of the guidelines, a systematic review and an umbrella review, a Delphi study of 114 participants and finally, stakeholder and methodological reviews of the draft guidelines. The quality of the evidence was assessed using the GRADE approach.

Results: The guidelines offer thirteen recommendations, including nine consensus recommendations and four conditional recommendations. In addition, the guidelines highlight the importance of providing fundamental patient-centred care to reduce patient agitation and offer recommendations to organisations on the staff support required to successfully implement the guidelines.

Conclusions: These guidelines provide the best available evidence for reducing patient agitation through non-pharmacological strategies. They should be integrated into standard ICU care and serve as a foundation for education and practice. Further research is needed to expand the evidence base on optimising care for agitated patients in the ICU.

Keywords: Aggression, Agitation, Clinical Practice Guidelines, Critical Care, Delirium, Fundamental Care, Intensive Care, Non-pharmacological

1 Background

Patient agitation affects 32-70% (1-5) of intensive care unit (ICU) patients. It is a complex psychomotor condition characterised by excessive motor activity, emotional tension, cognitive impairment, disruption of care, and sometimes aggression and changes in vital signs (6). Clinicians often confuse agitation with delirium (7). While delirium is often the cause of agitation in the ICU (8), patients can be agitated without being delirious (9) and delirious without being agitated (8).

Managing agitation is essential, as it can lead to accidental extubation and dislodgement of life-sustaining devices (6), interfering with life-saving treatments and resulting in prolonged hospitalisation (10, 11). Agitated ICU patients may experience psychological trauma, including fear, confusion, shame and guilt (12, 13). Additionally, patient agitation can be stressful for family members (13-15), and health professionals (16, 17).

The traditional primary management strategy for patient agitation, deep sedation, has been associated with exacerbation of delirium and agitation, instability in haemodynamics and respiration, prolonged mechanical ventilation, extended ICU stays, and heightened mortality rates (18-22). While medication may be needed to treat underlying causes of agitation and facilitate weaning from mechanical ventilators (18, 23, 24), there is now a strong focus on minimising pharmacological treatment. Agitation in the ICU results from complex interactions between a patient's critical illness, history, preferences and needs and the ICU environment (6). Therefore, a comprehensive approach to managing agitation, beyond medication, is necessary. Non-pharmacological interventions, such as massage therapy and animal-assisted interventions, have been shown to reduce agitation in other healthcare areas (25). Despite significant evidence favouring lighter sedation and non-pharmacological approaches, many ICUs continue to rely heavily on pharmacological management (26-30), highlighting a critical gap in guidance relating to alternative strategies. Recent papers suggest ICU health professionals lack knowledge about holistic and person-centred strategies for addressing patient agitation (17, 31, 32).

Existing ICU guidelines predominantly focus on the pharmacological management of agitation due to limited empirical evidence on non-pharmacological interventions (18). This gap leads to ineffective and inconsistent practices, disagreements among interdisciplinary healthcare staff, inappropriate use of medication and coercive treatments, and underutilisation of effective non-pharmacological interventions (17, 32, 33). While agitated patients in the ICU often suffer from delirium (8), current guidelines provide minimal advice on the non-pharmacological management of delirium (18). Furthermore, these guidelines fail to provide tailored advice to clinicians managing hyperactive and agitated delirious patients. In contrast to hyperactive and agitated patients, hypoactive delirious patients exhibit lethargy, withdrawal, diminished attention, and minimal engagement with their surroundings (34). Given the pronounced disparity in the behavioural profiles, different and tailored treatment approaches are required (34). Another limitation of existing guidelines is the lack of recommendations for agitated patients who fall outside the delirium spectrum.

In light of these challenges and the lack of comprehensive guidelines, this paper aims to provide evidence-based recommendations for the non-pharmacological prevention and management of patient agitation in the adult ICU.

The guidelines were developed across Denmark and Australia and contextualised for each country. Developing guidelines across countries offers several advantages, including the pooling of resources and knowledge (35). This publication focuses on the guidelines contextualised for Australian ICUs.

2 Methods

2.1 Working group and approach to guideline development

The steering committee consisted of experts in guideline development, experienced ICU clinicians and researchers and a patient representative. The guidelines were developed following the Australian National Health and Medical Research Council (NHMRC) (36) and the Danish Health Authority's manuals for guideline development (37). These manuals were chosen for their international recognition and rigorous standards, serving as cornerstones for evidence-based practices in both Denmark and Australia. The quality of the evidence and the strength of the recommendations were assessed using the GRADE (Grading of Recommendations Assessment, Development and Evaluation) approach (38).

2.2 Stakeholder consultation

We initially consulted 51 multidisciplinary stakeholders, patients and family members regarding the guideline scope (39) and it was determined that person-centred guidelines for the non-pharmacological management of agitation in adult critically ill patients were needed. The guidelines needed to focus on patient agitation, the use of pharmacology, physical restraints, patient length of stay, adverse events, and staff satisfaction. Stakeholders were also consulted about the draft guidelines. Supplementary Material 13 provides an overview of the feedback received and how this was managed (to be added after consultation).

2.3 Identifying the evidence

We systematically reviewed the existing literature to answer the following guideline question: *in the adult ICU, what non-pharmacological interventions should healthcare professionals use to prevent and manage patient agitation?* A systematic review (40) and an umbrella review were conducted with the support of a university-based librarian. The searches were carried out in 2021 and updated in 2024. A full overview of the systematic searches can be found in Supplementary Material 4, and the critical appraisal and data extraction in Supplementary Material 9.

2.3 Modified three-round Delphi study

A modified three round Delphi study was carried out in 2022 (41). The aim of this study was to see which recommendations would reach a high level of consensus amongst experts. The study also investigated the perceived feasibility and importance of interventions. An expert was defined as "a person who is very knowledgeable about or skilful in a particular area" (39). Experts included ICU patients or family members with experience of patient agitation, researchers who had published in the field, and ICU clinicians with at least three years of experience or a postgraduate qualification in intensive care or those in managerial

positions. A total of 114 participants, including health professionals, researchers, patients and family members from Denmark and Australia, took part in the study. The first Delphi round included all the non-pharmacological interventions and recommendations to prevent and manage agitation identified in the systematic review and umbrella review. The participants were also able to suggest additional interventions and evaluate if interventions were patient-centred, useful, and safe. All interventions were evaluated by the study investigators between Delphi rounds. A recommendation was endorsed if it reached consensus (IQR ≤ 1) and the consensus level was $\geq 75\%$ in both countries. Sixty-three recommendations reached consensus amongst the participants. All interventions that reached consensus in both countries were evaluated in terms of their importance and feasibility (41). A summary of the Delphi study can be found in Supplementary Material 10.

3 Recommendations

Initially, the guidelines comprised 63 recommendations derived from the Delphi study. Through an amalgamation process, similar recommendations were grouped, resulting in 13 consolidated recommendations with sub-recommendations (see Table 1¹). Each recommendation is presented below with its rationale and the quality of the supporting evidence². In addition to the 13 consolidated recommendations, we identified two additional recommendations that, while not directly answering our guideline question (see section 2.3), provide valuable insights into the importance of fundamental patient-centred care for this group of patients and organisational strategies for implementation.

3.1 Early, Regular and Systematic Assessment

Consensus Recommendation

It is considered good practice to assess ICU patients for agitation early, regularly, and systematically.

Rationale for the recommendation

This recommendation is based on the Delphi study. Early assessment of agitation helps prevent escalation and supports clinicians in evaluating the effectiveness of implemented interventions. The recommendation originates from an ICU guideline (44) and guidelines established for health professionals outside the ICU setting (45-48).

Quality of the evidence: very low

The AGREE II (49) scores for the guidelines were between 38-63%. Due to the indirect, low quality and limited available evidence, the recommendation was tested in a Delphi study, where it reached a high level of consensus.

¹ Table 1 provides an overview of the recommendations, the evidence supporting the recommendations and any undesired effects or comments related to the feasibility and importance of the recommendations.

² A detailed overview of the quality of the evidence can be found in Supplementary Material 9, while a Summary of the Evidence can be found in Supplementary Material 11.

3.2 Identifying and Treating the Cause of Agitation

Consensus Recommendation

It is considered good practice to identify and, when possible, treat the causes of agitation.

Various factors can trigger agitation. Delphi participants agreed that it was helpful to understand the patient's background (preferences, aversions, culture, history, values, fears, and routines) and basic care needs.

Rationale for the recommendation

This recommendation is based on the Delphi study. It originates from ICU guidelines (44) and three guidelines developed for healthcare professionals outside the ICU (45, 46, 50).

Certainty of the evidence: very low

The AGREE II scores of the guidelines were between 40-63%. Due to the indirect, low quality and limited available evidence, the recommendation was tested in a Delphi study, where it reached a high level of consensus.

3.3 Non-Pharmacological Strategies as First Choice

Consensus Recommendation

It is considered good practice to use non-pharmacological strategies before pharmacological treatment to manage agitation.

Rationale for the recommendation

This recommendation is based on the Delphi study. While medication may be necessary for treating agitation, it should be a last resort after evaluating other treatment measures. The recommendation derives from three guidelines developed outside the ICU (45, 46, 50). The working group also noted that non-pharmacological interventions typically have fewer side effects than medications (18-22) and often address the underlying causes of agitation rather than just the symptoms (51, 52).

Quality of the evidence: very low

The guidelines scored between 40% to 63% with the AGREE II tool. Due to indirect, low quality and limited evidence, the recommendation was included in a Delphi study where it reached a high level of consensus.

3.4 De-escalation

Consensus Recommendation

It is considered good practice to use de-escalation techniques to minimise agitation.

De-escalation techniques involve the use of verbal and non-verbal communication to help calm patients and prevent a situation from becoming more intense or violent.

Sub-recommendations

- Prioritise the safety of patients, staff, and relatives when managing agitation.
- Use physical restraint only as a last resort to ensure the safety of patients and staff.
- Do not use physical restraints as a substitute for direct observation.
- ICUs should have clear, well-defined guidelines for the use of physical restraints.
- Ensure that aggressive and violent patients do not have access to objects that can cause harm to themselves or others (e.g., sharp objects, weapons, hard objects that can be thrown).
- Maintain a physical safety distance from violent patients.
- Develop a relationship with the patient based on empathy, respect, and trust.
- Respect the patient's need for privacy.

Rationale for the recommendation

This recommendation is based on the Delphi study. Delphi participants highlighted how staff behaviours can trigger or exacerbate patient agitation. The recommendation stems from four guidelines (45-48) for healthcare professionals in emergency departments and psychiatry. Ten domains for de-escalation include respecting personal space, avoiding provocation, establishing verbal contact, being concise, identifying wants and feelings, listening closely, agreeing or agreeing to disagree, setting clear limits, offering choices and optimism, and debriefing the patient and staff (48). Additionally, the importance of 'a trusting relationship' between patients and healthcare professionals is highlighted (47), and healthcare professionals are advised to be aware of their own behaviours, move slowly and maintain a safe distance (45).

Quality of the evidence: very low

The guidelines received an AGREE II score between 38% and 63% (45-48). Due to low quality and indirect evidence, the recommendation was included in the Delphi study, where it reached a high level of consensus.

3.5 Use of Multi-component Non-Pharmacological Strategies

CONDITIONAL RECOMMENDATION FOR

Consider using multi-component non-pharmacological treatments for the prevention and management of agitation.

Studies on multi-component interventions included re-orientation, therapeutic activities, interventions that promote sleep, early mobilisation, hydration and nutrition, music, and support for patients with hearing or vision impairments as components (40).

Rationale for the recommendation

This recommendation is based on the Delphi study. The recommendation is supported by a meta-analysis of two smaller studies (53, 54). The meta-analysis showed a Standardised Mean Difference (SMD) of -0.75 (95% CI: -1.02 to -0.47), indicating that using multi-component interventions is more effective than usual care when aiming to reduce agitation (55). The working group also considered that various factors lead to agitation (56), highlighting the importance of using various treatment approaches rather than focusing on single interventions.

Quality of the evidence: very low

Confidence in the meta-analysis estimate is very low due to unclear differences between the intervention and standard treatment, imprecision regarding psychoactive medication administration, small trial sizes with a total of 220 patients, and short intervention and follow-up periods. Due to this very low certainty of the evidence, the recommendation was included in the Delphi study, where it reached a high level of consensus.

3.6 Involvement of Relatives

CONDITIONAL RECOMMENDATION FOR

Consider involving relatives in the prevention and management of agitation.

Sub-recommendations

- Assess the extent to which relatives wish to and are able to be involved in managing the patient's agitation.
- Provide relatives with information about agitation.
- Teach relatives to use non-pharmacological strategies.
- Involve relatives in patient care.
- Use phone and/or video meetings when relatives are unable to visit the patient.

Rationale for the recommendation

This recommendation is based on the Delphi study. Delphi study participants highlighted how relatives can provide crucial information about patient preferences and needs and often help patients feel safe (41). The recommendation originates from three qualitative systematic reviews (12, 13, 57). Interviews with patients and relatives suggest that relatives offer comfort, guidance and orientation and can engage patients in meaningful activities and assist with care. Finally, the recommendation is supported by an ICU guideline (58) and a guideline developed for patients with traumatic brain injury (50).

It is important to note that two studies, a randomised controlled trial (RCT) with 70 patients and a quasi-experimental study with 31 patients (59, 60), did not find significant effects of family presence. However, due to small sample sizes, lack of intervention details and issues with the reliability of agitation measurements, it was not possible to draw definitive conclusions from the studies. Finally, it was noted that one ICU guideline (18) called for more research on the role of families in order to make recommendations.

Quality of the evidence: very low

The working group found limited evidence for involving relatives in preventing and treating patient agitation. An RCT and a quasi-experimental study were rated as being of moderate and adequate quality, respectively. Three qualitative reviews were rated high quality. The guidelines were rated between 39% and 94% using the AGREE II tool. Based on the low levels of evidence the recommendation was included in a Delphi study, where it achieved a high level of consensus.

3.7 Helping Patients Feel Safe and Involved

CONDITIONAL RECOMMENDATION FOR

Consider helping patients feel safe and involved in their treatment to prevent and manage agitation.

Sub-recommendations

- Reassure the patient that they can feel safe.
- Create familiar surroundings with photographs or other items from the patient's home.
- Use "active listening". Active listening means listening carefully and showing interest in what the person has to say.
- Respect and protect the patient's dignity.
- Develop care plans based on the patient's preferences and values.
- Engage the patient in personal care activities.
- Debrief with the patient after an episode of agitation if they are able to participate.
- Incorporate neuro-pedagogy into care strategies.
- Involve a psychologist or psychiatrist in the treatment when appropriate.
- Hold a patient's hand.
- Use therapeutic touch.
- Use trauma informed care principles (this only reached consensus in Australia)

Rationale for the recommendation

This recommendation is based on the Delphi study. Delphi study participants noted that patients often became calmer when they felt staff were present and cared about them (41). Consistent care from the

same team provides stability and continuity in treatment and relationships, which is crucial for a confused and agitated patient (41). The recommendation is supported by guidelines (45, 46, 48, 61) developed for healthcare professionals working in emergency and psychiatry. It is also based on three qualitative systematic reviews (12, 13, 57) describing agitated patients' anxieties related to feelings of helplessness, the real risk of death, surreal experiences, and delusions. The reviews illustrated how patients experience an overwhelming sense of dependency, powerlessness and loss of control and how being more involved in care could calm an agitated patient (12, 13, 57).

Quality of the evidence: very low

The quality of the evidence was very low. The three qualitative reviews (12, 13, 57) were of high quality according to JBI's checklist (62). The guidelines received AGREE II scores ranging from 41% to 69%. Due to the indirect, limited and overall low-quality evidence the sub-recommendations supporting this recommendation were included in the Delphi study, where they all reached a high level of consensus.

3.8 Music

CONDITIONAL RECOMMENDATION FOR

Consider playing music to prevent and manage agitation.

Positive effects have been found with relaxing music, live music therapy (acoustic guitar, humming and soft singing) tailored to the patient's preferences, the patient's music preference, classical relaxing music, and Mozart Piano Sonatas.

Rationale for the recommendation

This recommendation is based on the Delphi study and originates from a meta-analysis of two smaller studies (63, 64), which showed a mean difference of 0.60 (95% CI 0.81-0.38), indicating a medium effect size (55) in reducing agitation when the patient listens to music.

Quality of the evidence: very low

Two small RCT studies with 70 and 118 patients were included in a meta-analysis. The studies were rated as being of adequate and moderate quality, according to JBI's checklist. Both studies lacked blinding, and one received financial support from the music industry. Due to the very low certainty of the evidence (see Table 3), the recommendation was included in the Delphi study where it reached a high level of consensus.

3.9 Supporting Patient Comfort and Relaxation

Consensus Recommendation

It is considered good practice to use methods that support patient comfort and relaxation to prevent and manage agitation.

Sub-recommendations

- Ensure a comfortable environment (e.g., optimising room temperature, ventilation, and room design).
- Offer the patient a fidget toy.
- Take the patient outdoors.
- Involve pets. Pet therapy involves an animal, usually a dog or cat.

Rationale for the recommendation

This recommendation is based on the Delphi study. It originates from three guidelines (45, 46, 48, 50) developed for healthcare professionals outside the ICU. The different sources highlight the importance of supporting the patient's physical comfort, such as adjusting temperature, lighting, noise, ventilation, and colours. Delphi study participants noted that fidget toys, taking patients outside, and involving pets could distract patients from discomfort and restlessness (41).

Quality of the evidence: very low

The guidelines received AGREE II scores ranging from 41% to 63%. Due to the indirect, low quality and limited evidence, the recommendation was included in the Delphi study, where it achieved a high level of consensus.

3.10 Re-orientation and Using Situation-oriented Communication Techniques

Consensus recommendation

It is considered good practice to re-orientate the patient and use situation-oriented communication techniques to prevent and manage agitation.

Sub-recommendations

- Inform the patient about the day's plan.
- Use clear and accurate language.
- Employ alternative communication methods (e.g. methods such as pen and paper, boards with icons and pictures, alphabet boards, and computer communication systems).
- Use a personal daily schedule with familiar activities.
- Explain the situation to the patient, regardless of their level of understanding.
- Use hearing aids for patients with hearing impairments.

- Use visual aids for patients with visual impairments.
- Adjust lighting according to the time of day.
- Ensure the time and date are visible to the patient.

Rationale for the recommendation

This recommendation is based on the Delphi study and stems from three qualitative reviews (12, 13, 57) and existing guidelines for emergency and psychiatric health professionals (45, 48). This literature and the Delphi study (41) describe how re-orientating patients by using situation-orientated communication can be crucial, as confusion, a disturbed sense of time, and misunderstandings of the ICU environment can lead to agitation.

Quality of the evidence: very low

According to JBI's checklist for systematic reviews and research synthesis (62), the three reviews (12, 13, 57) are considered to be of high quality (10-11 criteria met out of 11). The existing guidelines (45, 48) were rated at 41% and 45%, respectively, using the AGREE II instrument (62). Due to indirect, low quality and limited evidence, the recommendation is included in the Delphi study, where a high level of consensus was reached.

3.11 Mobilisation

Consensus recommendation

It is good practice to mobilise the patient to prevent agitation.

Patients can be supported to be physically active, e.g., by mobilising to the bedside or taking short walks.

Rationale for the recommendation

This recommendation is based on the Delphi study, where participants described physical activity as an important way to prevent agitation by stimulating the patient, calming them, and ensuring better sleep through natural tiredness (41). It was also described how changing from a lying to a sitting position, with both feet on the floor, can have a calming and grounding effect (41). Physical activity was also described as a way to distract patients and promote their well-being and self-control (41).

Quality of the evidence: very low

The working group has not identified any direct evidence for the use of mobilisation to prevent agitation. Due to the lack of evidence, the recommendation was included in the Delphi study, where it reached a high level of consensus.

3.12 Adjusting the Amount of Stimuli

Consensus recommendation

It is considered good practice to adjust the amount of stimulation to prevent and manage agitation.

Sub-recommendations

- Minimise unnecessary stimuli. Stimuli can be auditory (sounds), visual (light, moving objects), tactile (wires, equipment), or social (interacting people).
- Group care and treatment activities to avoid disturbing the patient multiple times.
- Minimise routine interventions and monitoring that are less critical for patient outcomes, such as unnecessary glucose monitoring, endotracheal suctioning, and neurological assessments.
- Offer the patient a calm environment, e.g., a private room.
- Use mental stimulation (engage the patient with activities such as Lego, puzzles, radio, TV, internet, magazines, and photos).

Rationale for the recommendation

This recommendation is based on the Delphi study and originates from guidelines (45-48, 50) developed for health professionals outside the ICU. The Delphi study and guidelines indicate that overstimulation from light, sound, heat, and cold can exacerbate agitation. Therefore, it is crucial to modify the environment to minimise external stimulation.

Quality of the evidence: very low

The guidelines received AGREE II scores ranging from 38% to 63%. Due to indirect, low quality and limited evidence, the recommendation was included in the Delphi study, where it received a high level of consensus.

3.13 Promoting Sleep

Consensus recommendation

It is considered good practice to promote sleep to prevent and manage agitation.

Sub-recommendations

- Support the patient's usual circadian rhythm.
- Minimise nighttime disruptions from noise, light, and activities.

Rationale for the recommendation

This recommendation is based on the Delphi study and derives a guideline for managing traumatic brain injury (50) and three qualitative reviews (12, 13, 57). One review (57) highlights a vicious cycle where sleep deprivation due to critical illness and the ICU environment leads to agitation and delirium, further

worsening sleep. It is suggested that changing the environment in ICUs by reducing noise at night and promoting natural light could help mitigate these issues (13).

Quality of the evidence: very low

The three qualitative reviews were rated as high quality according to JBI's checklist for systematic reviews and research synthesis (62) (10-11 criteria met out of 11). The guideline, focusing on patients with traumatic head injuries (50), received an AGREE II score of 53%. Due to indirect, low quality and limited evidence, the recommendation was included in the Delphi study, where it achieved a high level of consensus.

DRAFT - DO NOT COPY

Table 1 Summary Table of Recommendations

	Recommendation	Sub-recommendations	Origin of evidence	Consensus N, Percentage (95% CI), Median (IQR)	Feasibility/ Importance	Undesirable effect/comments	Certainty of the Evidence	Strength of recommendations
1.	It is considered good practice to assess ICU patients for agitation early, regularly, and systematically.		(1-6)	N=100, 97% (CI 0.92- 0.99), 5(0)	100/96	Assessments should be done without disrupting patients. No recommendations can be provided on assessment tool and frequency.		Good practice recommendation
2.	It is considered good practice to identify and, when possible, treat the causes of agitation.		(1, 2, 5-7).	N=103, 100% (CI. 96-100), 5(0)	89/99			Good practice recommendation
3.	It is considered good practice to use non-pharmacological strategies before pharmacological treatment to manage agitation.		(1, 2, 6-14).	N=113, 89% (CI.81-93), 5 (1)	92/90	Some situations may require urgent medical treatment to ensure the safety of patients and staff. Medical treatment must still be considered for other psychological comorbidities.		Good practice recommendation
4.	It is considered good practice to use de-escalation techniques to minimise agitation.		(1-4, 6)	N=106, 99% (CI.95-100), 5 (0)	92/97			Good practice recommendation
		Prioritise the safety of patients, staff, and relatives when managing agitation.		N=114, 97% (CI 93-99), 5 (0)	93/94			
		Use physical restraint only as a last resort to ensure the safety of patients and staff.		N=114, 85% (CI 77-90), 5 (1)	85/91			
		Do not use physical restraints as a substitute for direct observation.		N=104, 93% (CI.87-97), 5 (0)	89/94			
		ICUs should have clear guidelines for the use of physical restraints.		N=102, 95% (CI.89-98), 5 (0)	93/98			
		Ensure that aggressive and violent patients do not have access to objects that can cause harm to themselves or others (e.g., sharp objects, weapons, hard objects that can be thrown).		N=104, 99% (CI.95-100), 5 (0)	94/98	Staff may not have the right to search patients' personal belongings for objects that could be used as weapons.		
		Maintain a physical safety distance from violent patients.		N=112, 88% (CI.81-93), 5 (1)	78/98	Close contact with patients may be necessary to reduce agitation and increase patient safety e.g., for administering medication and avoiding extubation. Physical distance should be applied cautiously and only for short periods.		

	Recommendation	Sub-recommendations	Origin of evidence	Consensus N, Percentage (95% CI), Median (IQR)	Feasibility/Importance	Undesirable effect/comments	Certainty of the Evidence	Strength of recommendations
		Develop a relationship with the patient based on empathy, respect and trust.		N=114, 95% (CI..89-98), 5 (0)	98/99			
		Respect patients' need for privacy		N=112, 94% (CI.88-97), 5 (0)	85/95			
5.	Consider using multi-component non-pharmacological treatments for the prevention and management of agitation.		(6, 15-17)	N=114, 89% (CI.81-93), 5 (1)	89/91		⊕○○○ Very low ^{a,b,c}	Conditional/Weak
6.	Consider involving relatives in the prevention and management of agitation.		(6, 8, 18-22)	N=114, 90% (CI..), 5 (.)	77/86	Relatives may not have capacity to be involved. They should never feel responsible for care. It is essential to protect the patients' dignity when involving relatives (17). In some cases, relatives might exacerbate patient agitation.	⊕○○○ Very low ^{a,e}	Conditional/Weak
		Assess the extent to which relatives wish to and are able to be involved in managing the patient's agitation.		N=113, 89% (CI.81-93), 5 (1)	95/97			
		Offer relatives information about agitation.		N=114, 98% (CI.94-100), 5 (0)	99/95			
		Teach relatives to use non-pharmacological strategies.		N=109, 91% (CI.84-95), 5 (1)	80/92			
		Use phone and/or video meetings when relatives are unable to visit the patient.		N=96, 83% (CI.75-89), 4 (1)	89/94			
7.	Consider helping patients feel safe and involved in their treatment to prevent and manage agitation.		(1, 2, 4, 6, 18-20, 23)				⊕○○○ Very low ^{a,c,e}	Conditional/Weak
		Reassure the patient that they can feel safe.		N=114, 97% (CI.88-97), 5 (0)	99/96			
		Create familiar surroundings (e.g. with pictures or other items from the patient's home).		N=111, 94% (CI.88-97), 5 (1)	94/93			
		Hold a patient's hand.		N=114, 89% (CI.81-93), 4 (1)	94/83			

	Recommendation	Sub-recommendations	Origin of evidence	Consensus N, Percentage (95% CI), Median (IQR)	Feasibility/ Importance	Undesirable effect/comments	Certainty of the Evidence	Strength of recommendations
		Use "active listening". Active listening means listening carefully and showing interest in what the person has to say.		N=113, 93% (CI.87-96), 5 (1)	96/96			
		Respect patient dignity.		N=113, 99% (CI.95-100.), 5 (1)	97/99			
		Develop care plans based on patient preferences and values.		N=105, 91% (CI.85-95), 5 (0)	88/93			
		Engage patients in personal care activities.		N=111, 92% (CI.85-96), 5 (0)	91/95			
		Debrief with the patient after an episode of agitation if they are able to participate.		N=85, 88% (CI.80-93), 5 (0)	85/89			
		Use neuro-paedagogy ^b .		N=45, 82% (CI.80-93), 5 (1)	72/69	Neuro-pedagogy was seen as less important and feasible. The reason for this is unclear,		
		Involve a psychologist or psychiatrist in the treatment plan when appropriate.		N=91, 77% (CI.67-84), 4 (1)	51/70	Involving a psychologist or psychiatrist was deemed less important and feasible due to their limited availability in the ICU and potential lack of knowledge about the complex issues in treating ICU agitation		
		Use trauma informed care principles (this only reached consensus in Australia)		N=41, 83%, 4 (1)	Not rated			
		Use therapeutic touch.		N=102, 82% (CI.74-89), 4 (1)	89/81			
8.	Consider playing music to prevent and manage agitation.		(6, 24, 25)	N=99, 89% (CI.81-94), 4 (1)	85/84	Some patients may not appreciate this form of touch from healthcare professionals. Touch may be inappropriate for very agitated patients. Health professionals must feel comfortable with this method.	⊕○○○ Very low ^{a,c,d}	Conditional/Weak
9.	It is considered good practice to use methods that support patient comfort and relaxation to prevent and manage agitation.		(1, 2, 4, 6, 7)					Good practice recommendation
		Ensure a comfortable environment (e.g., optimising room temperature, ventilation, and room design).		N=106, 84% (CI.76-90), 5 (1)	73/94	May not be feasible due to limitations to adjust temperature, light, noise, ventilation and colours of room.		
		Offer the patient a fidget toy.		N=80, 83% (CI.73-89), 4 (1)	73/74	Hygienic principles and safety should be prioritised		

	Recommendation	Sub-recommendations	Origin of evidence	Consensus N, Percentage (95% CI), Median (IQR)	Feasibility/Importance	Undesirable effect/comments	Certainty of the Evidence	Strength of recommendations
		Take the patient outdoors.		N=105, 92% (CI.86-96), 5 (1)	70/86	Patients should only be taken outside if their condition is stable and their behaviour does not pose a risk to themselves and others (41). Not all ICUs have facilities to take patients outdoors.		
		Involve pets. Pet therapy involves an animal, usually a dog or cat.		N=79, 86% (CI.77-92), 5 (1)	42/78	Staff should consider local guidelines and the risk of infections and allergies.		
10.	It is considered good practice to re-orientate the patient and use situation-oriented communication techniques to prevent and manage agitation.		(1, 4, 6, 18-20)					Good practice recommendation
		Use clear and accurate language.		N=114, 96% (CI.90-98), 5 (1)	99/98			
		Employ alternative communication methods (e.g. methods such as pen and paper, boards with icons and pictures, alphabet boards, and computer communication systems).		N=109, 95% (CI.89-97), 5 (1)	93/94			
		Inform the patient about the day's plan.		N=113, 88% (CI.80-92), 4 (1)	95/95			
		Use a personalised fixed daily schedule with familiar activities.		N=105, 89% (CI.81-93), 5 (1)	82/87	Fixed daily schedules should be flexible to adapt to the patient's needs. Fixed schedules are most beneficial for patients who are hospitalised for extended periods.		
		Explain the situation to the patient, regardless of their level of understanding.		N=113, 95% (CI.89-98), 5 (0)	96/94			
		Use hearing aids for patients with hearing impairments.		N=106, 100% (CI.97-100), 5 (0)	98/99			
		Use visual aids for patients with visual impairments.		N=106, 97% (CI.92-99), 5 (0)	100/98			
		Adjust lighting according to the time of day.		N=109, 97% (CI.92-99), 5 (0)	93/98			
		Ensure the time and date are visible to the patient.		N=111, 93% (CI.86-96), 5 (1)	94/98			
11.	It is good practice to mobilise the patient to prevent agitation.		(6)	N=113, 99% (CI.95-100), 5 (0)	92/99	Moving an agitated patient can be dangerous and should be approached with caution		Good practice recommendation

	Recommendation	Sub-recommendations	Origin of evidence	Consensus N, Percentage (95% CI), Median (IQR)	Feasibility/Importance	Undesirable effect/comments	Certainty of the Evidence	Strength of recommendations
12.	It is considered good practice to adjust the amount of stimulation to prevent and manage agitation.		(1-4, 6, 7)					Good practice recommendation
		Minimise unnecessary stimuli. Stimuli can be auditory (sounds), visual (light, moving objects), tactile (wires, equipment), or social (interacting people) ^b .		N=104, 97% (CI.92-99), 5 (1)	80/98			
		Group care and treatment activities to avoid disturbing the patient multiple times.		N=113, 96% (CI.90-98), 5 (0)	92/97			
		Minimise routine interventions and monitoring that are less critical for patient outcomes, such as unnecessary glucose monitoring, endotracheal suctioning, and neurological assessments.		N=102, 87% (CI.79-92), 5 (1)	92/90	Minimising routine interventions and monitoring should be guided by professional judgment, experience, and knowledge of healthcare professionals		
		Offer the patient a calm environment, e.g., a private room.		N=112, 95% (CI.89-98), 5 (0)	83/95			
		Use mental stimulation (engage the patient with activities such as Lego, puzzles, radio, TV, internet, magazines, and photos) ^c		N=101, 88% (CI.80-93), 4 (1)	80/85	Mental stimulation must be adjusted for each individual patient as it may result in frustration and/or overstimulation.		
13	It is considered good practice to promote sleep to prevent and manage agitation.		(7, 18-20)					Good practice recommendation
		Support the patient's usual circadian rhythm. ^b		N=103, 98% (CI.93-99), 5 (0)	80/97			
		Minimise interruptions at night from noise, light and activities.		N=114, 100% (CI.97-100), 5 (0)	91/100			

Explanations

- a. Serious risk of bias (unclear differences between the intervention and usual care, blinding issues, lack of inter-rater reliability)
- b. Serious imprecision with uncertainty about whether psychoactive medication was given before or during the intervention
- c. Serious imprecision due to small sample sizes, short intervention periods, and short follow-up periods
- d. Serious risk of bias one study funded by a music organisation
- e. Serious risk of bias (limitations to study design, consensus statements and qualitative research).

3.14 Additional Recommendations

3.14.1 The importance of fundamental person-centred care

Delphi participants agreed that healthcare professionals should support patients' fundamental care needs to prevent and manage agitation. Clinicians should become familiar with each patient's background (e.g. preferences, culture, personal history, values, fears, daily routines) in order to better support their basic care needs (41). While unmet basic needs can trigger or intensify agitation (44, 46, 56, 65), ICU patients often struggle to communicate these needs due to mechanical ventilation, physical weakness, and confusion (12, 13, 57). To bridge this gap, healthcare professionals should use situation-oriented communication techniques and engage with relatives to learn more about the patient. Building trusting relationships is essential and helps patients feel safer and better able to express their needs (47). This person-centred approach aligns with the broader healthcare guidelines for agitation (45, 47, 48) and the feedback received from former ICU patients (66, 67).

Table 2 Importance of fundamental person-centred care

	Consensus Percentage	Feasibility/Importance
Clinicians should support patients' fundamental care needs to reduce and manage agitation.	N=102, 99%	95/100
Become familiar with the patient's background (e.g., likes, dislikes, culture, history, values, fears and routines).	N=113, 99%	94/98
Non-drug interventions must be adjusted to the individual patient (e.g. patient needs, history and preferences, level of agitation, previous experiences with interventions) ^b	N=106, 100%	94/97

3.14.2 Recommendations for organisations aiming to implement the guidelines

Delphi study participants agreed that health professionals in the ICU should receive organisational support to effectively prevent and manage patient agitation (17). It can be physically and mentally challenging for nurses caring for agitated patients. The Delphi study (41) and multiple other sources (12, 17, 45, 47, 48) suggest that ICUs must prioritise staff safety by maintaining adequate staffing levels, allowing regular staff breaks and ensuring staff have access to immediate practical support. Training on agitation and de-escalation techniques is essential. Debriefing sessions should be conducted by experienced staff in a safe environment. Balancing continuity of care with staff rotation is crucial to prevent fatigue and burnout. Organisations should support the use of non-pharmacological interventions and encourage multidisciplinary collaboration.

Table 3 Recommendations for Organisations

	Consensus Percentage	Feasibility/Importance
Clinicians caring for and treating agitated patients should always have access to immediate practical support ^b .	N=106, 99%	82/99
The intensive care unit should be laid out in a way that makes observing agitated patients easier.	N=103, 85%	64/96
Additional staffing should be considered when there is an agitated patient in the ICU.	N=103, 95%	64/96
Staff caring for agitated patients should be offered debriefing.	N=103, 86%	79/89
Clinicians who provide care and treatment for agitated patients should be offered frequent breaks during their shift ^b .	N=106, 99%	60/94

Ongoing staff education about agitation and methods to reduce agitation should be provided.	N=102, 98%	88/97
Nursing and medical leaders should support the use of non-drug interventions to reduce and manage agitation.	N=103, 93%	99/98
The multi-disciplinary team should collaborate to reduce and manage patient agitation.	N=103, 99%	99/100

5 Implementation of the guidelines

Although implementing these guidelines is crucial for optimising care in the ICU, implementation can be challenging, time-consuming, and costly (68). Barriers include insufficient resources, difficulties in changing habits, and lack of awareness of the importance of non-pharmacological strategies (41). The current guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility and Sleep Disruption (PADIS) guidelines predominantly offer recommendations for the pharmacological management of agitation (69). We suggest incorporating our guidelines into the PADIS guidelines. Agitation is linked with pain, delirium and sleep, and some recommendations overlap with ours such as multi-component interventions for delirium (18). However, PADIS lacks a holistic model of care, including assessment and identification of causes of agitation, identifying causes of agitation, the establishment of trusting relationships, promoting staff behaviours, involving families and supporting staff, which are essential for optimising care in the ICU.

The ABCDEF bundle, which addresses pain, spontaneous awakening and spontaneous breathing trials, analgesia and sedation, delirium assessment, early mobilisation and family engagement, has shown promising results (70, 71). However, research has indicated that patient agitation is a barrier to implementing the ABCDEF bundle (71). Strengthening the bundle to include fundamental care to prevent and manage patient agitation, ABCDEF₂ could improve outcomes and experiences for patients, families and staff. The ABCDEF bundle aims to humanise care in the ICU (72) and insights from our guidelines can further this goal.

Implementation of the presented guidelines requires a rigorous knowledge translation framework supporting the implementation of complex interventions (73). Frameworks such as Integrated Promoting Action on Research in Health Services (i-PARIHS) has shown promising results in offering a structured guide for engaging with stakeholders, exploring contextual factors and supporting targeted facilitation (74). The Adaptable Framework To Evaluate Products of Participatory Research (PROLIFERATE) may also be beneficial, with its ability to track and evaluate stakeholder behaviours and preferences in real time, enabling iterative changes during the implementation process (75).

6 Strengths and limitations

Major strengths of these guidelines include significant stakeholder involvement, a robust development process, a Delphi study meeting all key quality criteria (76-78), including a priori criteria for consensus, endorsement of recommendations, number of Delphi rounds, rigorous participant selection criteria, and strict criteria for modifying or removing recommendations (41). High level of consensus was required in both countries for endorsement (41). The validity was enhanced by rigorously tested surveys and thorough translation to ensure unambiguous survey questions (41).

The primary limitation is the reliance on low levels of evidence. There is a paucity of evidence on non-pharmacological interventions for agitation in the ICU, and there is an urgent need to develop a larger evidence base on how care can be optimised for agitated patients in the ICU. However, it must also be acknowledged that studying non-pharmacological interventions is challenging, and some answers may not be fully uncovered through experimental designs. All recommendations align with the causative mechanisms of agitation (6), including biological causes, unmet needs, and lowered stress thresholds, providing conceptual justifications for their effectiveness. The thirteen recommendations are generalisable to the Australian and Danish contexts, and some of the sub-recommendations are only applicable to the Australian context. However, the guidelines are likely adaptable to other countries.

7 Conclusion

To our knowledge, this paper is the first to offer guidelines for the non-pharmacological prevention and management of patient agitation in the ICU. The guidelines will equip staff with knowledge on how to reduce patient agitation using non-pharmacological strategies, thus reducing the overuse of medication and restrictive practices and improving patient experiences. Moreover, the guidelines are expected to foster interdisciplinary collaboration and empower intensive care nurses' clinical decision-making and leadership in delivering person-centred care to patients in the ICU. Ultimately, the guidelines can serve as a framework for the education of new and existing ICU staff and encourage evaluation of current practices and standards of care.

References

1. Fraser GL, Prato BS, Riker RR, Berthiaume D, Wilkins ML. Frequency, severity, and treatment of agitation in young versus elderly patients in the ICU. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*. 2000;20(1):75-82.
2. O'Connor H, Al-Qadheeb NS, White AC, Thaker V, Devlin JW. Agitation during prolonged mechanical ventilation at a long-term acute care hospital: risk factors, treatments, and outcomes. *Journal of intensive care medicine*. 2014;29(4):218-24.
3. Mahmood S, Mahmood O, El-Menyar A, Asim M, Al-Thani H. Predisposing factors, clinical assessment, management and outcomes of agitation in the trauma intensive care unit. *World J Emerg Med*. 2018;9(2):105-12. Epub 2018/03/27. doi: 10.5847/wjem.j.1920-8642.2018.02.004. PubMed PMID: 29576822; PubMed Central PMCID: PMC5847495.
4. Almeida TM, Azevedo LC, Nose PM, Freitas FG, Machado FR. Risk factors for agitation in critically ill patients. *Rev Bras Ter Intensiva*. 2016;28(4):413-9. Epub 2017/01/19. doi: 10.5935/0103-507X.20160074. PubMed PMID: 28099638; PubMed Central PMCID: PMC5225916.
5. Burk RS, Grap MJ, Munro CL, Schubert CM, Sessler CN. Agitation onset, frequency, and associated temporal factors in critically ill adults. *Am J Crit Care*. 2014;23(4):296-304. Epub 2014/07/06. doi: 10.4037/ajcc2014186. PubMed PMID: 24986170; PubMed Central PMCID: PMC4451814.
6. Adams AMN, Chamberlain D, Brun Thorup C, Maiden MJ, Waite C, Dafny HA, et al. Patient agitation in the intensive care unit: a concept analysis. Unpublished manuscript, Flinders University, College of Nursing and Health Sciences. 2025.
7. LeBlanc A, Bourbonnais FF, Harrison D, Tousignant K. The experience of intensive care nurses caring for patients with delirium: A phenomenological study. *Intensive & Critical Care Nursing*. 2018;44:92-8. doi: <http://dx.doi.org/10.1016/j.iccn.2017.09.002>.
8. Hickin SL, White S, Knopp-Sihota J. Delirium in the Intensive Care Unit—A Nursing Refresher. *Canadian Journal of Critical Care Nursing*. 2017;28(2).
9. Whitehouse T, Snelson C, Grounds M, Willson J, Tulloch L, Linhartova L, et al. Intensive care society review of best practice for analgesia and sedation in the critical care. Intensive Care Society, London. 2014.
10. Woods JC, Mion LC, Connor JT, Viray F, Jahan L, Huber C, et al. Severe agitation among ventilated medical intensive care unit patients: frequency, characteristics and outcomes. *Intensive care medicine*. 2004;30(6):1066-72.
11. Jaber S, Chanques G, Altairac C, Sebbane M, Vergne C, Perrigault P-F, et al. A prospective study of agitation in a medical-surgical ICU: incidence, risk factors, and outcomes. *Chest*. 2005;128(4):2749-57.
12. Freeman S, Yorke J, Dark P. Critically ill patients' experience of agitation: A qualitative meta-synthesis. *Nursing in Critical Care*. 2022;27(1):91-105.
13. Boehm LM, Jones AC, Selim AA, Viridun C, Garrard CF, Walden RL, et al. Delirium-related distress in the ICU: A qualitative meta-synthesis of patient and family perspectives and experiences. *International Journal of Nursing Studies*. 2021:104030.
14. Bohart S, Møller AM, Herling SF. Do health care professionals worry about delirium? Relatives' experience of delirium in the intensive care unit: a qualitative interview study. *Intensive and Critical Care Nursing*. 2019;53:84-91.
15. Jensen HI, Gerritsen RT, Koopmans M, Downey L, Engelberg RA, Curtis JR, et al. Satisfaction with quality of ICU care for patients and families: the euroQ2 project. *Critical Care (London, England)*. 2017;21(1):239. doi: <https://doi.org/10.1186/s13054-017-1826-7>. PubMed PMID: 28882192.
16. Lamiani G, Ciconali M, Argentero P, Vegni E. Clinicians' moral distress and family satisfaction in the intensive care unit. *J Health Psychol*. 2020;25(12):1894-904. doi: <https://dx.doi.org/10.1177/1359105318781935>.
17. Adams AMN, Chamberlain D, GrønkJær M, Thorup CB, Conroy T. Caring for patients displaying agitated behaviours in the intensive care unit—A mixed-methods systematic review. *Australian Critical Care*. 2022;35(4):454-65. doi: <https://doi.org/10.1016/j.aucc.2021.05.011>.

18. Devlin JW, Skrobik Y, Gélinas C, Needham DM, Slooter AJ, Pandharipande PP, et al. Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption in adult patients in the ICU. *Critical care medicine*. 2018;46(9):e825-e73.
19. Williamson D, Frenette AJ, Burry LD, Perreault M, Charbonney E, Lamontagne F, et al. Pharmacological interventions for agitated behaviours in patients with traumatic brain injury: a systematic review. *BMJ open*. 2019;9(7):e029604.
20. Daniels LM, Nelson SB, Frank RD, Park JG, editors. Pharmacologic treatment of intensive care unit delirium and the impact on duration of delirium, length of intensive care unit stay, length of hospitalization, and 28-day mortality. *Mayo Clinic Proceedings*; 2018: Elsevier.
21. Strøm T, Martinussen T, Toft P. A protocol of no sedation for critically ill patients receiving mechanical ventilation: a randomised trial. *The Lancet*. 2010;375(9713):475-80.
22. Girard TD, Kress JP, Fuchs BD, Thomason JW, Schweickert WD, Pun BT, et al. Efficacy and safety of a paired sedation and ventilator weaning protocol for mechanically ventilated patients in intensive care (Awakening and Breathing Controlled trial): a randomised controlled trial. *The Lancet*. 2008;371(9607):126-34.
23. Buckley MS, Smithburger PL, Wong A, Fraser GL, Reade MC, Klein-Fedyshin M, et al. Dexmedetomidine for facilitating mechanical ventilation extubation in difficult-to-wean ICU patients: systematic review and meta-analysis of clinical trials. *Journal of Intensive Care Medicine*. 2021;36(8):925-36.
24. Ostuzzi G, Gastaldon C, Papola D, Fagiolini A, Dursun S, Taylor D, et al. Pharmacological treatment of hyperactive delirium in people with COVID-19: rethinking conventional approaches. *Therapeutic Advances in Psychopharmacology*. 2020;10:1-9.
25. Leng M, Zhao Y, Wang Z. Comparative efficacy of non-pharmacological interventions on agitation in people with dementia: a systematic review and Bayesian network meta-analysis. *International Journal of Nursing Studies*. 2020;102:103489.
26. Walsh TS, Kydonaki K, Antonelli J, Stephen J, Lee RJ, Everingham K, et al. Staff education, regular sedation and analgesia quality feedback, and a sedation monitoring technology for improving sedation and analgesia quality for critically ill, mechanically ventilated patients: a cluster randomised trial. *The Lancet Respiratory Medicine*. 2016;4(10):807-17.
27. Elliott D, Aitken LM, Bucknall TK, Seppelt IM, Webb SA, Weisbrodt L, et al. Patient comfort in the intensive care unit: a multicentre, binational point prevalence study of analgesia, sedation and delirium management. *Critical Care and Resuscitation*. 2013;15(3):213-9.
28. Jackson DL, Proudfoot CW, Cann KF, Walsh TS. The incidence of sub-optimal sedation in the ICU: a systematic review. *Critical care*. 2009;13(6).
29. Dos Santos KD, da Costa Martins I, Gonçalves FAF. Characterization of the sedation and analgesia in Intensive Care Unit: an observational study. *Online Brazilian Journal of Nursing*. 2016;15(2):157-66.
30. Shehabi Y, Chan L, Kadiman S, Alias A, Ismail WN, Tan MATI, et al. Sedation depth and long-term mortality in mechanically ventilated critically ill adults: a prospective longitudinal multicentre cohort study. *Intensive care medicine*. 2013;39(5):910-8.
31. Freeman S, Hallett C, McHugh G. Physical restraint: experiences, attitudes and opinions of adult intensive care unit nurses. *Nurs Crit Care*. 2016;21(2):78-87. Epub 2015/07/30. doi: 10.1111/nicc.12197. PubMed PMID: 26219511.
32. Teece A, Baker J, Smith H. Identifying determinants for the application of physical or chemical restraint in the management of psychomotor agitation on the critical care unit. *Journal of clinical nursing*. 2020;29(1-2):5-19.
33. Freeman S, Yorke J, Dark P. Patient agitation and its management in adult critical care: A integrative review and narrative synthesis. *Journal of clinical nursing*. 2018;27(7-8):e1284-e308. doi: <https://dx.doi.org/10.1111/jocn.14258>.
34. Salazar WBP, Israel CMG, Antonio VVR, Sofia SSF, Austreberto IQR. Hyperactive and Hypoactive Delirium: What we know so Far. *International Journal of Medical Science and Clinical Research Studies*. 2023;3(07):1246-9.

35. Grønkjær M, Rasmussen P. International research collaboration in nursing: Experiences from a partnership between two institutions in Australia and Denmark. *Nordisk sygeplejeforskning*. 2020;10(4):305-12.
36. NHMRC. Guidelines for Guidelines Canberra, ACT: Australian Government, National Health and Medical Research Council; [cited 2024 May 2024]. Available from: <https://www.nhmrc.gov.au/guidelinesforguidelines>.
37. Sundhedsstyrelsen. Metodehåndbogen: Model for udarbejdelse af Nationale kliniske retningslinjer Copenhagen, Denmark: Danish Health Authority; 2018 [cited 2024 14th June 2024]. 3rd edition:[Available from: <https://www.sst.dk/da/Udgivelser/2017/Metode-og-NKR>].
38. Guyatt GH, Oxman AD, Vist GE, Kunz R, Falck-Ytter Y, Alonso-Coello P, et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. *Bmj*. 2008;336(7650):924-6.
39. Adams AMN, Chamberlain D, Thorup CB, Grønkjær M, Conroy T. Ethical and feasible stakeholder engagement in guideline development. *Collegian*. 2023;30(1):101-9.
40. Adams A, Chamberlain D, Grønkjær M, Brun Thorup C, Conroy T. Nonpharmacological interventions for agitation in the adult intensive care unit: A systematic review. *Australian Critical Care*. 2022.
41. Adams AMN, Chamberlain D, Brun Thorup C, Rouke S, Conroy T. Preliminary clinical practice guidelines for the nonpharmacological prevention, minimisation and management of agitation in the intensive care unit- a binational modified Delphi study Unpublished manuscript, Flinders University, College of Nursing and Health Sciences. 2025.
42. Aleksovska K, Bassetti CL, Berger T, Carvalho V, Costa J, Deuschl G, et al. Guidelines should be guidelines: Time to leave the terms" consensus" and" position" for other purposes. *European journal of neurology*. 2021.
43. Franco JVA, Arancibia M, Meza N, Madrid E, Kopitowski K. Clinical practice guidelines: concepts, limitations and challenges. *Medwave*. 2020;20(3).
44. University Hospitals of Leicester. Pain Agitation and Delirium (PAD) UHL Critical Care Guideline. University Hospitals of Leicester NHS: University Hospitals of Leicester NHS
2018 Contract No.: 24/08/22.
45. Baldaçara L, Ismael F, Leite V, Pereira LA, Dos Santos RM, Gomes VdP, et al. Brazilian guidelines for the management of psychomotor agitation. Part 1. Non-pharmacological approach. *Brazilian Journal of Psychiatry*. 2018;41:153-67.
46. Garriga M, Pacchiarotti I, Kasper S, Zeller SL, Allen MH, Vazquez G, et al. Assessment and management of agitation in psychiatry: expert consensus. *The world journal of biological psychiatry*. 2016;17(2):86-128.
47. Vieta E, Garriga M, Cardete L, Bernardo M, Lombraña M, Blanch J, et al. Protocol for the management of psychiatric patients with psychomotor agitation. *BMC psychiatry*. 2017;17(1):1-11.
48. Richmond JS, Berlin JS, Fishkind AB, Holloman Jr GH, Zeller SL, Wilson MP, et al. Verbal de-escalation of the agitated patient: consensus statement of the American Association for Emergency Psychiatry Project BETA De-escalation Workgroup. *Western Journal of Emergency Medicine*. 2012;13(1):17.
49. Brouwers MC, Kho ME, Browman GP, Burgers JS, Cluzeau F, Feder G, et al. AGREE II: advancing guideline development, reporting and evaluation in health care. *Cmaj*. 2010;182(18):E839-E42.
50. Luauté J, Plantier D, Wiart L, Tell L. Care management of the agitation or aggressiveness crisis in patients with TBI. Systematic review of the literature and practice recommendations. *Annals of physical and rehabilitation medicine*. 2016;59(1):58-67.
51. Papathanassoglou E, Park T. To put the patient in the best condition: integrating integrative therapies in critical care. *Nursing in Critical Care*. 2016;21(3):123-6.
52. Herguedas AJU. Non-Pharmacological Interventions in Preventive, Rehabilitative and Restorative Medicine. *Alternative Medicine-Update: IntechOpen*; 2020.
53. Abbasinia M, Babaii A, Nadali Z, Pakzaban S, Abbasi M, Shamali M. The effects of a tailored postoperative delirium prevention intervention after coronary artery bypass graft: A randomized controlled trial. *Nursing Practice Today*. 2021;8(3):226-33. doi: <http://dx.doi.org/10.18502/NPT.V8I3.5937>.

54. Guo Y, Sun L, Li L, Jia P, Zhang J, Jiang H, et al. Impact of multicomponent, nonpharmacologic interventions on perioperative cortisol and melatonin levels and postoperative delirium in elderly oral cancer patients. *Archives of gerontology and geriatrics*. 2016;62:112-7. doi: 10.1016/j.archger.2015.10.009. PubMed PMID: CN-01131680.
55. Adams AMN, Chamberlain D, Grønkjær M, Thorup CB, Conroy T. Nonpharmacological interventions for agitation in the adult intensive care unit: A systematic review. *Australian Critical Care*. 2023;36(3):385-400.
56. Adams AMN. Nonpharmacological prevention, minimisation and management of agitation in the adult intensive care unit - development of preliminary Danish and Australian patient-centred clinical practice guidelines [Doctorate]. Adelaide, South Australia: Flinders University; 2023.
57. Gaete Ortega D, Papathanassoglou E, Norris CM. The lived experience of delirium in intensive care unit patients: A meta-ethnography. *Australian Critical Care*. 2020;33(2):193-202. doi: 10.1016/j.aucc.2019.01.003. PubMed Central PMCID: PMC30871853.
58. Donato M, Carini FC, Meschini MJ, Saubidet IL, Goldberg A, Sarubio MG, et al. Consensus for the management of analgesia, sedation and delirium in adults with COVID-19-associated acute respiratory distress syndrome. *Revista Brasileira de Terapia Intensiva*. 2021;33:48-67.
59. Nouri JM, Safaeipour L, Vafadar Z, Moradian ST. The effect of the family presence on anxiety and agitation of patients under mechanical ventilation after open heart surgery: a randomized clinical trial. *Perioperative Medicine*. 2021;10:1-9.
60. Welsch E, Vashisht A, Stutzman SE, Olson DM. Family Presence May Reduce Postoperative Delirium After Spinal Surgery. *Journal of Neuroscience Nursing*. 2023;55(3):97-102.
61. Patel MX, Sethi FN, Barnes TR, Dix R, Dratcu L, Fox B, et al. Joint BAP NAPICU evidence-based consensus guidelines for the clinical management of acute disturbance: De-escalation and rapid tranquillisation. *Journal of Psychiatric Intensive Care*. 2018;14(2):89-132.
62. Aromataris E, Fernandez R, Godfrey C, Holly C, Kahlil H, Tungpunkom P. Summarizing systematic reviews: methodological development, conduct and reporting of an Umbrella review approach. *Int J Evid Based Healthc*. 2015;13(3):132-40.
63. Bilgili S, Balci Akpınar R. The effect of listening to music during continuous positive airway pressure on agitation levels and compliance of intensive care patients with COVID-19: A randomized controlled trial. *Nursing in Critical Care*. 2023.
64. Golino AJ, Leone R, Gollenberg A, Gillam A, Toone K, Samahon Y, et al. Receptive music therapy for patients receiving mechanical ventilation in the intensive care unit. *American Journal of Critical Care*. 2023;32(2):109-15.
65. Cohen-Mansfield J, Dakheel-Ali M, Marx MS, Thein K, Regier NG. Which unmet needs contribute to behavior problems in persons with advanced dementia? *Psychiatry research*. 2015;228(1):59-64.
66. Freeman S, Yorke J, Dark P. The patient and their family's perspectives on agitation and its management in adult critical care: A qualitative study. *Intensive and Critical Care Nursing*. 2022;69:103163.
67. Shapira J. *Managing Emotions: Reasoned Detachment Among Nurses in One Surgical Intensive Care Unit*. Los Angeles, USA: University of California, Los Angeles; 2002.
68. Kajdacsy-Balla Amaral A, Rubinfeld G. Challenges in Implementing Evidence-based Medicine. *Annual Update in Intensive Care and Emergency Medicine 2012*: Springer; 2012. p. 828-36.
69. Lee S-Y, Liu C-Y, Wu T-Y, editors. *The Effects of Pain, Agitation, Delirium, Immobility, and Sleep Disruption Education on Novice Nurses in Adult Intensive Care Units*. Healthcare; 2022: MDPI.
70. Barnes-Daly MA, Phillips G, Ely E. Improving hospital survival and reducing brain dysfunction at seven California community hospitals: implementing PAD guidelines via the ABCDEF bundle in 6,064 patients. *Critical Care Medicine*. 2017;45(2):171-8.
71. Sosnowski K, Lin F, Chaboyer W, Ranse K, Heffernan A, Mitchell M. The effect of the ABCDE/ABCDEF bundle on delirium, functional outcomes, and quality of life in critically ill patients: A systematic review and meta-analysis. *International Journal of Nursing Studies*. 2022:104410.
72. Marra A, Ely EW, Pandharipande PP, Patel MB. The ABCDEF bundle in critical care. *Critical care clinics*. 2017;33(2):225-43.

73. Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, Petticrew M. Developing and evaluating complex interventions: the new Medical Research Council guidance. *Bmj*. 2008;337.
74. Bergström A, Ehrenberg A, Eldh AC, Graham ID, Gustafsson K, Harvey G, et al. The use of the PARIHS framework in implementation research and practice—a citation analysis of the literature. *Implement Sci*. 2020;15:1-51.
75. Pinero de Plaza MA, Yadav L, Kitson A. Co-designing, measuring, and optimizing innovations and solutions within complex adaptive health systems. *Frontiers in Health Services*. 2023;3:1154614.
76. Hasson F, Keeney S. Enhancing rigour in the Delphi technique research. *Technological Forecasting and Social Change*. 2011;78(9):1695-704.
77. Diamond IR, Grant RC, Feldman BM, Pencharz PB, Ling SC, Moore AM, et al. Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of clinical epidemiology*. 2014;67(4):401-9.
78. Jünger S, Payne SA, Brine J, Radbruch L, Brearley SG. Guidance on Conducting and REporting DElphi Studies (CREDES) in palliative care: recommendations based on a methodological systematic review. *Palliative Medicine*. 2017;31(8):684-706.

DRAFT - DO NOT COPY