

A Summary of Evidence on the Use of Non-pharmacological Measures to Prevent or Mitigate Delirium or Associated Consequences in Hospitalized Populations

Title of Article	Citation	Intervention
<p><b>Efficacy of non-pharmacological interventions to prevent and treat delirium in older patients: A systematic overview. The SENATOR project ONTOP series</b></p>	<p>Abraha et al., (2015). Efficacy of non-pharmacological interventions to prevent and treat delirium in older patients: A systematic overview. The SENATOR project ONTOP series. <i>PLOS ONE</i>, 10(6). <a href="https://doi.org/10.1371/journal.pone.0123090">https://doi.org/10.1371/journal.pone.0123090</a></p>	<p><u>Findings:</u> In older adults multi-component non-pharmacological interventions were effective in the prevention of delirium but for the treatment of delirium the data was inconclusive.</p> <p><u>Interventions:</u> Ear plugs &amp; eye masks, music, pain control, and bright light therapy.</p>
<p><b>Pharmacological and nonpharmacological management of delirium in critically ill patients</b></p>	<p>Hipp, D. M. &amp; Ely, E. W. (2012). Pharmacological and nonpharmacological management of delirium in critically ill patients. <i>Neurotherapeutics</i>, 9(1), 158-175. DOI: <a href="https://doi.org/10.1007/s13311-011-0102-9">10.1007/s13311-011-0102-9</a></p>	<p><u>Findings:</u> Utilizing nonpharmacological interventions as a complement to pharmacological interventions resulted in positive outcomes for the most debilitated patients.</p> <p><u>Interventions:</u> Early mobilization, restraint avoidance, frequent orientation, and promotion of familiarity by encouraging family presence.</p>
<p><b>The Hospital Elder Life</b></p>	<p>Inouye, S. K., Bogardus, S. T., &amp; Baker, D. I. (2000). The Hospital</p>	<p><u>Findings:</u> Hospital Elder Life</p>

<p><b>Program: A model of care to prevent cognitive and functional decline in older hospitalized patients</b></p>	<p>Elder Life Program: A model of care to prevent cognitive and functional decline in older hospitalized patients. <i>Journal of the American Geriatrics Society</i> (Vol. 48).  <a href="https://doi.org/10.1111/j.1532-5415.2000.tb03885.x">https://doi.org/10.1111/j.1532-5415.2000.tb03885.x</a></p>	<p>Program (HELP) was successful in preventing cognitive and functional decline in older at-risk patients.  <u>Interventions:</u> Music, noise reduction, vision devices (glasses), hearing devices, feeding assistance, orientation, and sleep protocols.</p>
<p><b>Music intervention to prevent delirium among older patients admitted to a trauma intensive care unit and a trauma orthopaedic unit</b></p>	<p>Johnson, K., Fleury, J., &amp; McClain, D. (2018). Music intervention to prevent delirium among older patients admitted to a trauma intensive care unit and a trauma orthopaedic unit. <i>Intensive and Critical Care Nursing</i>, 47.  <a href="https://doi.org/10.1016/j.iccn.2018.03.007">https://doi.org/10.1016/j.iccn.2018.03.007</a></p>	<p><u>Findings:</u> Music had an impact in decreasing pathophysiologic stressors that contribute to delirium. Patients remained negative for delirium.   <u>Interventions:</u> Music, mobility aids, calendar, clock in room, reminiscence, reading newspaper, feeding assistance, volunteers, glasses, and hearing aids.</p>
<p><b>Effect of cognitively stimulating activities on symptom management of delirium superimposed on dementia: A randomized controlled trial</b></p>	<p>Kolanowski et al., (2016). Effect of cognitively stimulating activities on symptom management of delirium superimposed on dementia: A randomized controlled trial. <i>Journal of the American Geriatrics Society</i>, 64(12), 2424–2432.  <a href="https://doi.org/10.1111/jgs.14511">https://doi.org/10.1111/jgs.14511</a></p>	<p><u>Findings:</u> Cognitively stimulating activities did not improve delirium but did improve executive function and length of stay.   <u>Interventions:</u> Word searches, puzzles, providing examples of looking at a person’s history, line of work, and interests to</p>

		select patient specific interventions.
<b>COVID-19: ICU delirium management during SARS-CoV-2 pandemic</b>	Kotfis et al., (2020). COVID-19: ICU delirium management during SARS-CoV-2 pandemic. <i>Critical Care</i> , 24 (176). <a href="https://doi.org/10.1186/s13054-020-02882-x">https://doi.org/10.1186/s13054-020-02882-x</a>	<u>Findings:</u> The use of the ABCDEF bundle can provide a framework to achieve “whole person” care to improve patient outcomes  <u>Intervention:</u> ABCDEF bundle
<b>The efficacy of earplugs as a sleep hygiene strategy for reducing delirium in the ICU: A systematic review and meta-analysis</b>	Litton, E., Carnegie, V., Elliott, R., & Webb, S. A. R. (2016). The efficacy of earplugs as a sleep hygiene strategy for reducing delirium in the ICU: A systematic review and meta-analysis. <i>Critical Care Medicine</i> , 44(5), 992–999. <a href="https://doi.org/10.1097/CCM.0000000000001557">https://doi.org/10.1097/CCM.0000000000001557</a>	<u>Findings:</u> The use of earplugs for patients in the ICU alone or as part of a delirium bundle was shown to have a significant risk reduction in delirium  <u>Intervention:</u> Earplugs
<b>A family intervention to reduce delirium in hospitalised ICU patients: A feasibility randomised controlled trial</b>	Mitchell et al. (2017). A family intervention to reduce delirium in hospitalised ICU patients: A feasibility randomised controlled trial. <i>Intensive and Critical Care Nursing</i> , 40. <a href="https://doi.org/10.1016/j.iccn.2017.01.001">https://doi.org/10.1016/j.iccn.2017.01.001</a>	<u>Findings:</u> Nurses did not find any barriers to this intervention and families were seen as an important part of the team and improved the patient outcomes.  <u>Interventions:</u> Education by nursing of family members about nonpharmacological interventions to use when they are visiting. Therapeutic

		engagement by family members included reminiscing and looking at family photos along with orienting the patient to their surroundings and ensuring glasses and hearing aids were in place.
<b>The implementation of a nonpharmacologic protocol to prevent intensive care delirium</b>	Rivosecchi et al. (2016). The implementation of a nonpharmacologic protocol to prevent intensive care delirium. <i>Journal of Critical Care</i> , 31(1), 206–211. <a href="https://doi.org/10.1016/j.jcrc.2015.09.031">https://doi.org/10.1016/j.jcrc.2015.09.031</a>	<u>Findings:</u> Implementation of nonpharmacologic delirium prevention protocol significantly decreased the amount of time patients spent in the medical ICU and was found to have an impact on reducing the risk factors for developing delirium.  <u>Interventions:</u> Opening of blinds, music, calendar use, cognitive stimulation, eye glasses, and hearing devices. Used an acronym M.O.R.E Music, Opening of blinds, Reorientation & cognitive stimulation, Eye and ear protocol
<b>Postoperative delirium: Acute change with long-term implications</b>	Rudolph, J. L. & Marcantonio, E. R. (2011). Postoperative delirium: Acute changes with long-term implications. <i>Anesthesia &amp; Analgesia</i> , 112(5), 1202–1211. doi: <a href="https://doi.org/10.1213/ANE.0b013e3182147f6d">10.1213/ANE.0b013e3182147f6d</a>	<u>Findings:</u> Assessing preoperative delirium risk and implementing standardized treatment protocols are important components of

		<p>optimal care for older patients undergoing surgery.</p> <p><u>Interventions:</u> Cognitive stimulation, orientation (clock and calendar), glasses and hearing aids/amplifiers, early mobilization, avoidance of psychoactive medications, pain management, fluid and electrolyte monitoring, adequate nutrition, and bowel regime.</p>
<p><b>The effects of delirium prevention guidelines on elderly stroke patients</b></p>	<p>Song, J., Lee, M., &amp; Jung, D. (2018). The effects of delirium prevention guidelines on elderly stroke patients. <i>Clinical Nursing Research</i>, 27(8), 967–983.  <a href="https://doi.org/10.1177/1054773817721400">https://doi.org/10.1177/1054773817721400</a></p>	<p><u>Findings:</u> DPGESP guidelines significantly improved the incidence &amp; severity of delirium and length of stay in the experimental group compared to the control group.</p> <p><u>Interventions:</u> Family presence, night sleep masks, eye glasses, hearing devices, large print clocks, calendars, keep blinds up during day to encourage daytime light, and early mobilization</p>
<p><b>Developing a patient-centered virtual reality healthcare</b></p>	<p>Suvajdzic, M. et al. (2019). Developing a patient-centered virtual reality healthcare system to prevent the onset of delirium in</p>	<p><u>Findings:</u> Patients reported improvements in pain</p>

<p><b>system to prevent the onset of delirium in ICU patients</b></p>	<p>ICU patients. 2019 IEEE 7th International Conference on Serious Games and Applications for Health (SeGAH), 1-7, DOI: <a href="https://doi.org/10.1109/SeGAH.2019.8882442">10.1109/SeGAH.2019.8882442</a></p>	<p>management, quality of sleep, and remained CAM-ICU negative during ICU stay</p> <p><u>Intervention:</u> VR glasses, improved sleep quality, and improved pain management.</p>
<p><b>The effect of earplugs during the night on the onset of delirium and sleep perception: A randomized controlled trial in intensive care patients</b></p>	<p>Van Rompaey, B., Elseviers, M. M., Van Drom, W., Fromont, V., &amp; Jorens, P. G. (2012). The effect of earplugs during the night on the onset of delirium and sleep perception: A randomized controlled trial in intensive care patients. <i>Critical Care</i>, 16(73). <a href="https://doi.org/10.1186/cc11330">https://doi.org/10.1186/cc11330</a></p>	<p><u>Findings:</u> Randomized clinical trial with results demonstrating use of earplugs during the night lowered the incidence of delirium in the studied intensive care patients</p> <p><u>Intervention:</u> Earplugs</p>
<p><b>An intervention integrated into daily clinical practice reduces the incidence of delirium during hospitalization in elderly patients</b></p>	<p>Vidán, M. T., Sánchez, E., Alonso, M., Montero, B., Ortiz, J., &amp; Serra, J. A. (2009). An intervention integrated into daily clinical practice reduces the incidence of delirium during hospitalization in elderly patients. <i>Journal of the American Geriatrics Society</i>, 57(11), 2029–2036. <a href="https://doi.org/10.1111/j.1532-5415.2009.02485.x">https://doi.org/10.1111/j.1532-5415.2009.02485.x</a></p>	<p><u>Findings:</u> Multicomponent nonpharmacological interventions were found to reduce incidence of delirium and improve quality of care. Functional decline in the intervention group was 45.5% compared to 56.3% in the usual care group</p> <p><u>Interventions:</u> Mobilization, hydration, and glasses.</p>

<p><b>Providing psychological support to people in intensive care: Development and feasibility study of a nurse-led intervention to prevent acute stress and long-term morbidity</b></p>	<p>Wade et al., (2018). Providing psychological support to people in intensive care: Development and feasibility study of a nurse-led intervention to prevent acute stress and long-term morbidity. <i>BMJ Open</i>, 8(7).  <a href="https://bmjopen.bmj.com/content/bmjopen/8/7/e021083.full.pdf">https://bmjopen.bmj.com/content/bmjopen/8/7/e021083.full.pdf</a></p>	<p><u>Findings:</u> Authors reported the intervention reduced stress in patients that were in the ICU</p> <p><u>Interventions:</u> Development of materials to train/educate staff on how to create a therapeutic environment, to identify patients with acute stress and to deliver support sessions and relaxation and recovery program for them. Included utilization of calming music, relaxation, meditation, nature sounds, self-help book, reflexology, and early Mobilization.</p>
<p><b>Using simulated family presence to decrease agitation in older hospitalized delirious patients: A randomized controlled trial</b></p>	<p>Waszynski, C.M., Milner, K.A., Staff, I., &amp; Molony, S.L. Using simulated family presence to decrease agitation in older hospitalized delirious patients: A randomized controlled trial. (2018). <i>International Journal of Nursing Studies</i>, 77, 154-161.  <a href="https://doi.org/10.1016/j.ijnurstu.2017.09.018">https://doi.org/10.1016/j.ijnurstu.2017.09.018</a></p>	<p><u>Findings:</u> Created family video messages of one minute in length that were shown on a DVD player for hospitalized patients with hyperactive delirium. Patients receiving this intervention less agitated while watching the video and for the immediate period following the intervention compared to those who watched a nature video or no video.</p> <p><u>Intervention:</u> Individualized family videos</p>

## References

- Abraha et al. (2015, June). Efficacy of non-pharmacological interventions to prevent and treat delirium in older patients: A systematic overview. The SENATOR project ONTOP series. *PLOS ONE*, *10*(6). <https://doi.org/10.1371/journal.pone.0123090>
- Aguirre, E. (2010, April). Delirium and hospitalized older adults: A review of nonpharmacologic treatment. *Journal of Continuing Education in Nursing*, *41*(4), 151–152. <https://doi.org/10.3928/00220124-20100326-09>
- Bannon, L., McGaughey, J., Clarke, M., McAuley, D. F., & Blackwood, B. (2018, May). Designing a nurse-delivered delirium bundle: What intensive care unit staff, survivors, and their families think? *Australian Critical Care*, *31*(3), 174–179. <https://doi.org/10.1016/j.aucc.2018.02.007>
- Gorski et al. (2017, January). Nonpharmacological interventions targeted at delirium risk factors, delivered by trained volunteers (medical and psychology students), reduced need for antipsychotic medications and the length of hospital stay in aged patients admitted to an acute internal medicine ward: Pilot study. *BioMed Research International*, vol. 2017. <https://doi.org/10.1155/2017/1297164>
- Hipp, D. M. & Ely, E. W. (2012, January). Pharmacological and nonpharmacological management of delirium in critically ill patients. *Neurotherapeutics*, *9*(1), 158-175. DOI: [10.1007/s13311-011-0102-9](https://doi.org/10.1007/s13311-011-0102-9)
- Inouye, S. K., Bogardus, S. T., & Baker, D. I. (2000, December). The Hospital Elder Life Program: A model of care to prevent cognitive and functional decline in older hospitalized patients. *Journal of the American Geriatrics Society*, *48*(12), 1697-1706. <https://doi.org/10.1111/j.1532-5415.2000.tb03885.x>
- Johnson, K., Fleury, J., & McClain, D. (2018, August). Music intervention to prevent delirium among older patients admitted to a trauma intensive care unit and a trauma orthopaedic unit. *Intensive and Critical Care Nursing*, *47*. <https://doi.org/10.1016/j.iccn.2018.03.007>
- Kolanowski et al. (2016, November). Effect of cognitively stimulating activities on symptom management of delirium superimposed on dementia: A randomized controlled trial. *Journal of the American Geriatrics Society*, *64*(12), 2424–2432. <https://doi.org/10.1111/jgs.14511>



- Kotfis et al. (2020, April). COVID-19: ICU delirium management during SARS-CoV-2 pandemic. *Critical Care*, 24(1), 176. <https://doi.org/10.1186/s13054-020-02882-x>
- Litton, E., Carnegie, V., Elliott, R., & Webb, S. A. R. (2016, May). The efficacy of earplugs as a sleep hygiene strategy for reducing delirium in the ICU: A systematic review and meta-analysis. *Critical Care Medicine*, 44(5), 992–999. <https://doi.org/10.1097/CCM.0000000000001557>
- Maité et al. (2012, July). Impact of ICU diary on psychological distress of patients and relatives. *Critical Care Medicine*, 40(7), 2033–2040. <https://doi.org/10.1097/ccm.0b013e31824e1b43>
- Martinez, F., Tobar, C., & Hill, N. (2015, March). Preventing delirium: Should non-pharmacological, multicomponent interventions be used? A systematic review and meta-analysis of the literature. *Age and Ageing*, 44(2), 196–204. <https://doi.org/10.1093/ageing/afu173>
- Mitchell et al. (2017, June). A family intervention to reduce delirium in hospitalised ICU patients: A feasibility randomised controlled trial. *Intensive and Critical Care Nursing*, 40. <https://doi.org/10.1016/j.iccn.2017.01.001>
- Oldham, M. A., Flanagan, N. M., Khan, A., Boukrina, O., & Marcantonio, E. R. (2017, September). Responding to ten common delirium misconceptions with best evidence: An educational review for clinicians. *Journal of Neuropsychiatry and Clinical Neurosciences*, 30(1), 51–57. <https://doi.org/10.1176/appi.neuropsych.17030065>
- Rivosecchi et al., (2016, February). The implementation of a nonpharmacologic protocol to prevent intensive care delirium. *Journal of Critical Care*, 31(1), 206–211. <https://doi.org/10.1016/j.jcrc.2015.09.031>
- Rudolph, J. L. & Marcantonio, E. R. (2011, May). Postoperative delirium: Acute changes with long-term implications. *Anesthesia & Analgesia*, 112(5), 1202–1211. doi: [10.1213/ANE.0b013e3182147f6d](https://doi.org/10.1213/ANE.0b013e3182147f6d)
- Shin, J. H. (2014, December). Doll therapy: An intervention for nursing home residents with dementia. *Journal of Psychosocial Nursing and Mental Health Services*, 53(1), 13–19. <https://doi.org/10.3928/02793695-20141218-03>
- Smith, C. D. S., & Grami, P. (2017, January). Feasibility and effectiveness of a delirium prevention bundle in critically ill patients. *American Journal of Critical Care*, 26(1). <https://doi.org/10.4037/ajcc2017374>

Song, J., Lee, M., & Jung, D. (2018, November). The effects of delirium prevention guidelines on elderly stroke patients. *Clinical Nursing Research*, 27(8), 967–983. <https://doi.org/10.1177/1054773817721400>

Suvajdzic, M. et al. (2019, August). Developing a patient-centered virtual reality healthcare system to prevent the onset of delirium in ICU patients. 2019 IEEE 7th International Conference on Serious Games and Applications for Health (SeGAH), 1-7, DOI: [10.1109/SeGAH.2019.8882442](https://doi.org/10.1109/SeGAH.2019.8882442)

Van Rompaey, B., Elseviers, M. M., Van Drom, W., Fromont, V., & Jorens, P. G. (2012, May). The effect of earplugs during the night on the onset of delirium and sleep perception: A randomized controlled trial in intensive care patients. *Critical Care (London, England)*, 16(3), R73. <https://doi.org/10.1186/cc11330>

Vidán, M. T., Sánchez, E., Alonso, M., Montero, B., Ortiz, J., & Serra, J. A. (2009). An intervention integrated into daily clinical practice reduces the incidence of delirium during hospitalization in elderly patients. *Journal of the American Geriatrics Society*, 57(11), 2029–2036. <https://doi.org/10.1111/j.1532-5415.2009.02485.x>

Wade et al. (2018). Providing psychological support to people in intensive care: Development and feasibility study of a nurse-led intervention to prevent acute stress and long-term morbidity. *BMJ Open*, 8(7). <https://bmjopen.bmj.com/content/bmjopen/8/7/e021083.full.pdf>

Waszynski, C. M., Milner, K. A., Staff, I., & Molony, S. L. (2018, January). Using simulated family presence to decrease agitation in older hospitalized delirious patients: A randomized controlled trial. *International Journal of Nursing Studies*, 77, 154–161. <https://doi.org/10.1016/j.ijnurstu.2017.09.018>

