Pressure Injuries Prevention: Repositioning and Mobilizing Strategies

Question
What is the best available evidence regarding the effectiveness of repositioning or mobilizing strategies in the prevention of pressure injuries (PIs) in adults, including older adults?

Clinical Bottom Line
Pressure injuries (also called pressure ulcers, pressure sores, bed sores and decubitus ulcers) are areas of localized damage to the skin and underlying tissue usually over bony prominences (eg, hips, heels and elbows) caused by pressure and/or shear forces in these areas for long periods of time. Immobility is a major risk factor for the development of PIs, and are particularly common in older adults who have mobility challenges. Pressure injuries are preventable, and repositioning or mobilizing (ie, turning individuals to a different body position) is important to redistribute or reduce the duration and magnitude of pressure over vulnerable areas of the body. This evidence summary focuses on the effectiveness of repositioning or mobilizing strategies in the prevention of PIs in adults, including older adults, who are immobilized for extended periods of time. Unless otherwise specified, the term adults, refers to adults of any age.

- A systematic review and meta-analysis evaluated the clinical effectiveness of repositioning strategies in preventing PIs in adults and older adults in hospital and residential aged care settings. The majority of included trials investigated different repositioning frequencies and different tilt positions. Based on very low certainty evidence, the review demonstrated that participants receiving 4-hourly repositioning compared with those receiving 6-hourly repositioning had a 27% reduction in PIs. No differences in PIs were found when 2-hour versus 3-hour, 2-hour versus 4-hour and 3-hour versus 4-hour repositioning frequencies were compared (low to very low certainty evidence). When comparing different tilt positions, inclinations of 30° and 90°, showed no differences in the occurrence of PIs (very low certainty evidence). One trial that compared a 2-hour repositioning frequency protocol with a 20° tilt intervention versus standard care showed that participants in the 20° tilt group developed fewer PIs. The authors concluded that despite the lack of robust evidence around repositioning frequency and positioning for PI prevention, the evidence around the etiology of PIs helps to explain the mechanism of action as one strategy to help prevent PIs.

- A systematic review and meta-analysis investigated the effects of different repositioning regimens on the incidence of PIs in at risk adults in any healthcare setting. Meta-analysis results showed that more frequent repositioning and use of a turning team resulted in statistically significant differences in PI incidence, compared to usual care. There was a 25% reduction in the odds of PI development for more frequent repositioning (PI incidence 8% vs 13% for more frequent repositioning versus usual care, respectively). More frequent repositioning was defined in studies as repositioning every 2 hours or 3 hours and usual care was defined as less frequent repositioning every 4-6 hours. There was a 51% reduction in the odds of PI development in favour of using a turning team (PI incidence 11% vs 20% for a turning team versus usual care without a turning team, respectively). The turning team was responsible for repositioning hemodynamically stable adults every two hours around the clock. Both results were based on low certainty evidence. The authors concluded that, based on results of the review, more frequent repositioning and use of a turning team played a critical role in the prevention of PIs; however, due to the uncertainty of the evidence, results should be interpreted with caution.

- A cluster randomized controlled trial (RCT) investigated the effectiveness of three repositioning intervals in preventing PIs in three residential aged care facilities. Each residential aged care facility was assigned a single repositioning interval (2-, 3- or 4-hour) and residential aged care staff were cued to reposition older adults at the assigned intervals. Older adults were using high-density mattresses. During the intervention, Braden Scale scores were assessed weekly to determine the risk of developing PIs. The incidence of new PIs was compared over a 4-week period, across the 3 facilities. Results of the trial showed that no new PIs developed during the intervention regardless of allocation to 2-, 3- or 4-hour repositioning interval. This was despite the overall monthly expected number of PIs across all facilities to be 4.33 based on baseline results for observed PI incidence across all residential aged care sites. The authors concluded that PI incidence is
not compromised by repositioning most older adults at 3- or 4-hour intervals, in the presence of high-density foam mattresses when staff were cued to perform scheduled repositioning.\(^3\) (Level 1)

- A National Institute for Health and Care Excellence (NICE) guideline recommends the following:\(^4\) (Level 1)
  - encourage adults at high risk of developing a PI to change positions frequently, at least every 4 hours.
  - offer repositioning assistance to adults who are unable to reposition themselves, using appropriate equipment if needed.
  - document the required frequency of repositioning.
  - training and education should be received by healthcare professionals who care for adults who are at high risk of developing a PI that includes: repositioning techniques; pressure redistributing devices; and providing information on PI prevention strategies to adults and their family/carers.

- A guide developed by the European Pressure Ulcer Advisory Panel (EPUAP), National Pressure Injury Advisory Panel (NPIAP) and Pan Pacific Pressure Injury Alliance (PPPIA) for repositioning and early mobilization, recommends the following:\(^5\)
  - unless contraindicated, an individualized repositioning plan should be used for all adults with or at risk of PIs. (Level 1)
  - repositioning should occur in such a way that optimal offloading of all bony prominences and maximum redistribution of pressure is achieved. (Level 5)
  - repositioning frequency should be determined with consideration to the adult’s level of activity, mobility and ability to independently reposition. (Level 2)
  - additional considerations when determining repositioning frequency may include adult’s skin and tissue tolerance, general medical condition, overall treatment objectives and comfort and pain. (Level 5)
  - implementing repositioning reminder strategies for use by nursing staff to promote adherence to repositioning regimens. (Level 1)
  - for adults who are unable to reposition themselves, use manual handling techniques and equipment that reduce friction and shear, to relieve or redistribute pressure. (Level 2)
  - consider using continuous bedside pressure mapping as a visual cue to guide repositioning. (Level 5)
  - promote seating out of bed in an appropriate chair or wheelchair for limited periods of time. (Level 1)
  - teach and encourage adults who spend prolonged durations in a seated position to perform pressure relieving maneuvers. (Level 5)
  - implement an early mobilization program that increases activity and mobility as rapidly as tolerated. (Level 5)
  - reposition unstable critically ill adults who can be repositioned using slow, gradual turns to allow time for stabilization of hemodynamic and oxygenation status. (Level 5)
  - initiate frequent small shifts in body position for critically ill adults who are too unstable to maintain a regular repositioning schedule, or to supplement regular repositioning. (Level 5)

### Characteristics of the Evidence

This evidence summary is based on a structured search of the literature and selected evidence-based health care databases. The evidence in this summary comes from:

- A systematic review and meta-analysis that included eight RCTs involving 3,941 adult participants. A total of 2,018 participants were from residential aged care facilities.\(^1\)
- A systematic review and meta-analysis that included 16 studies (10 RCTs, 2 prospective cohort studies, 2 before-and-after studies, 1 descriptive correlational study and 1 pre–post-evaluation).\(^2\)
- A cluster RCT that included 992 participants (n=319, n=323 and n=350 in the 2-, 3- and 4-hour groups, respectively). The majority of participants (n=791) were older adults aged ≥ 65 years of age.\(^3\)
- A NICE guideline that included all stakeholder groups and was supported by systematic reviews and RCTs.\(^4\)
- A guideline developed by the EPUAP, NPIAP and PPPIA that included all stakeholder groups and was supported by systematic reviews and RCTs.\(^5\)

### Best Practice Recommendations

1. Unless contraindicated, an individualized repositioning plan should be used for all adults with or at risk of PIs. (Grade A)
2. Repositioning should ensure that optimal offloading of all bony prominences and maximum redistribution of pressure is achieved. (Grade A)
3. Frequency of repositioning should be determined by the adult’s activity level, mobility and ability to reposition independently, skin and tissue tolerance, general medical condition, overall treatment objectives and comfort and pain. (Grade A)
4. When repositioning adults who are unable to reposition themselves, manual handling techniques and equipment should be used that reduce friction and shear. (Grade A)
5. Unstable critically ill adults should be repositioned using slow, gradual turns to ensure stabilization of hemodynamic and oxygenation status. (Grade B)
6. For critically ill adults who are unable to maintain regular repositioning schedules, frequent small shifts in body position should be initiated. (Grade B)
7. Repositioning reminder strategies should be used by nursing staff to promote adherence to repositioning regimens. (Grade A)
8. The frequency at which repositioning is required should be documented in the medical notes/case notes. (Grade A)
9. If able, adults should be advised to sit out of bed in an appropriate chair or wheelchair for limited periods of time. (Grade A)
10. An early mobilization program should be implemented as rapidly as tolerated to increase activity and mobility. (Grade A)
11. Adults who spend prolonged periods of time in a seated position should receive training on how to perform pressure relieving maneuvers. (Grade B)
12. Healthcare professionals who care for adults who are at high risk of developing a PI should receive training and education that includes: repositioning techniques; pressure redistributing devices; and providing information on PI prevention strategies to adults and their family/carers. (Grade A)

Audit Criteria

1. An individualized repositioning plan is used for an adult with or at risk of a pressure injury, unless contraindicated. [BPR: 1]
2. The frequency of repositioning is determined by the adult’s activity level, mobility and ability to reposition independently, skin and tissue tolerance, general medical condition, overall treatment objectives and comfort and pain. [BPR: 3]
3. For an adult who is unable to reposition them self, manual handling techniques and equipment are used. [BPR: 4]
4. A repositioning reminder strategy is used by nursing staff to promote adherence to the repositioning regimen. [BPR: 7]
5. The frequency at which repositioning is required is documented in medical notes/case notes. [BPR: 8]
6. If able, an adult is advised to sit out of bed for small periods of time. [BPR: 9]
7. An early mobilization program is implemented, as tolerated to increase activity and mobility. [BPR: 10]
8. Healthcare professionals receive training and education on pressure injury repositioning techniques and strategies. [BPR: 12]

References


Supported JBI Recommended Practices

- JBI-RP-249-5-Pressure Injuries Prevention: Repositioning and Mobilizing Strategies

Archived Publication

1. JBI-ES-248-2 (Published at 9 November 2022)
2. JBI-ES-248-1 (Published at 14 December 2020)

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