

Turning for the Prevention and Management of Pressure Ulcers: OHTAC Recommendation

Ontario Health Technology Advisory Committee

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Conflict of Interest Statement

All authors in the Evidence Development and Standards branch at Health Quality Ontario are impartial. There are no competing interests or conflicts of interest to declare.

About Health Quality Ontario

Health Quality Ontario (HQO) is an arms-length agency of the Ontario government. It is a partner and leader in transforming Ontario's health care system so that it can deliver a better experience of care, better outcomes for Ontarians, and better value for money.

Health Quality Ontario strives to promote health care that is supported by the best available scientific evidence. The Evidence Development and Standards branch works with advisory panels, clinical experts, developers of health technologies, scientific collaborators, and field evaluation partners to provide evidence about the effectiveness and cost-effectiveness of health interventions in Ontario.

To conduct its systematic reviews of health interventions, the Evidence Development and Standards branch examines the available scientific literature, making every effort to consider all relevant national and international research. If there is insufficient evidence on the safety, effectiveness, and/or cost-effectiveness of a health intervention, HQO may request that its scientific collaborators conduct economic evaluations and field evaluations related to the reviews. Field evaluation partners are research institutes focused on multicentred clinical trials and economic evaluation, as well as institutes engaged in evaluating the safety and usability of health technologies.

About the Ontario Health Technology Advisory Committee

The Ontario Health Technology Advisory Committee (OHTAC) is a standing advisory subcommittee of the Board of Directors of Health Quality Ontario. Based on the evidence provided by Evidence Development and Standards and its partners, OHTAC makes recommendations about the uptake, diffusion, distribution, or removal of health interventions within the provincial health system. When making its recommendations, OHTAC applies a unique decision-determinants framework that takes into account overall clinical benefit, value for money, societal and ethical considerations, and the economic and organizational feasibility of the health care intervention in Ontario.

Publishing Health Quality Ontario Research

When the evidence development process is nearly completed, draft reviews, reports, and OHTAC recommendations are posted on HQO's website for 21 days for public and professional comment. For more information, please visit: <http://www.hqontario.ca/evidence/evidence-process/evidence-review-process/professional-and-public-engagement-and-consultation>.

Once finalized and approved by the Board of Directors of Health Quality Ontario, the research is published as part of the *Ontario Health Technology Assessment Series*, which is indexed in MEDLINE/PubMed, Excerpta Medica/Embase, and the Centre for Reviews and Dissemination database. Corresponding OHTAC recommendations and associated reports are also published on the HQO website. Visit <http://www.hqontario.ca> for more information.

When sufficient data are available, OHTAC tracks the ongoing use of select interventions it has previously reviewed, compiling data by time period and region. The results are published in the Ontario Health Technology Maps Project Report.

Disclaimer

This report was prepared by the Evidence Development and Standards branch at Health Quality Ontario or one of its research partners for the Ontario Health Technology Advisory Committee and was developed from analysis, interpretation, and comparison of scientific research. It also incorporates, when available, Ontario data and information provided by experts and applicants to HQO. The analysis may not have captured every relevant publication and relevant scientific findings may have been reported since the development of this recommendation. This report may be superseded by an updated publication on the same topic. Please check the Health Quality Ontario website for a list of all publications: <http://www.hqontario.ca/evidence/publications-and-ohtac-recommendations>.

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Background

HQO commissioned the Toronto Health Economic and Technology Assessment (THETA) Collaborative to undertake a field evaluation¹ in order to determine the optimal frequency of turning nursing home residents with mobility limitations who were cared for on high-density foam mattresses for the purpose of preventing pressure ulcers (PrUs). (1) Participants stratified by 2 levels of risk according to the Braden Scale for Predicting Pressure Sore Risk[®] (hereafter Braden Scale) were compared as follows:

- Moderate-risk (Braden Scale Score 13–14) participants randomly assigned to turning at 2-hour compared with 3- or 4-hour intervals
- High-risk (Braden Scale Score 10–12) participants randomly assigned to turning at 2-hour compared with 3- or 4-hour intervals

¹ In the absence of adequate evidence on the safety, efficacy, effectiveness, clinical utility, or cost-effectiveness of health interventions, OHTAC may initiate a field evaluation. Field evaluations evaluate health interventions in clinical settings in real time to reduce uncertainty in estimates of effect and to find out how interventions work in Ontario. They allow patients to access interventions during the evaluation process (known as coverage with evidence development) and provide decision-makers with Ontario-specific evidence before making comprehensive funding commitments.

Conclusions

- Residents of high-performing nursing facilities who are at moderate or high risk of PrUs according to the Braden Scale may be turned at 3- or 4-hour intervals if they are cared for on high-density foam mattresses.
- Clinicians should follow best practice guidelines and be observant of skin changes, modifying turning frequency if skin changes are observed. These findings, reported similarly from subjects in 3 countries, have important implications for improving quality of life by permitting residents to sleep for longer intervals.
- In a broader sense, these findings will likely influence first public policy and regulations regarding the frequency of turning for preventing PrUs and second reallocation of staff time spent repositioning every 2 hours to activities that improve residents' quality of life, such as increased assistance at mealtime, with mobilization, with toileting, and for social engagement.

Decision Determinants

OHTAC has developed a decision-making framework that consists of 7 guiding principles for decision making and a decision determinants tool. When making a decision, OHTAC considers 4 explicit main criteria: overall clinical benefit, consistency with expected societal and ethical values, value for money, and feasibility of adoption into the health system. For more information on the decision-making framework, please refer to the *Decision Determinants Guidance* document available at: <http://www.hqontario.ca/evidence/evidence-process/evidence-review-process/decision-making-framework>.

Appendix 1 provides a summary of the decision determinants for this recommendation.

Based on the decision determinants criteria, OHTAC weighted in favour of turning residents for the prevention and management of pressure ulcers. Turning every 3 or 4 hours, as opposed to the current Ontario standard of turning every 2 hours, will confer cost savings to the health system. The greater interval between turnings will also likely improve quality of life for residents and reduce work-related injury risk for staff.

OHTAC Recommendations

- For prevention of pressure ulcers in acute care, OHTAC recommends that a high-density foam² mattress should be provided to all persons receiving acute care.
- For prevention of pressure ulcers in the operating room, a high-quality support surface (foam or gel) should be used during surgical procedures longer than 90 minutes. Strong evidence exists for using a gel pad for this population.
- For prevention of pressure ulcers in long-term care, a high-density foam mattress should be provided to all residents in long-term care facilities.
- The Community Care Access Centre (CCAC) should use the Braden Scale or Pressure Ulcer Risk Score to assess a client's risk for developing a pressure ulcer.
- Where risk is identified, a high-density foam mattress should be used to prevent development of pressure ulcers in a community care setting.
- For prevention of pressure ulcers in the emergency department, OHTAC recommends using a high-density foam mattress for all persons accessing emergency department care.
- Given new evidence presented to OHTAC in June 2012 and results of a study supported by OHTAC, it is recommended that persons with Braden scores of 10 or greater using a high-density foam mattress be turned a minimum of every 4 hours. Individuals with Braden scores of less than 10 should continue to be repositioned every 2 hours.

² Strong evidence exists for viscoelastic foam, contoured foam, and layer foam designed to be comfortable and to redistribute pressure over a large contact area

Appendices

Appendix 1: Decision Determinants

Evaluation of the 4 explicit criteria (overall clinical benefit, consistency with societal and ethical values, value for money, and feasibility of adoption into health system) for turning for the prevention and management of pressure ulcers are reported in the Decision Determinants table (Table A1).

Table A1: Decision Determinants for Turning for the Prevention and Management of Pressure Ulcers

Decision Criteria	Subcriteria	Decision Determinants Considerations
Overall clinical benefit How likely is the health technology/intervention to result in high, moderate, or low overall benefit?	Effectiveness How effective is the health technology/intervention likely to be (taking into account any variability)?	<ul style="list-style-type: none"> In residents at moderate risk of PrUs who were assigned to the 3-hour turning frequency group, no ulcers developed. Some residents allocated to the 2- and 4- hour turning interval groups developed ulcers: 2.86% and 3.54%, respectively. The difference between the groups was not statistically significant ($P = 0.68$): <p>Turning at 3- and 4-hour intervals is no worse than turning every 2 hours.</p> <ul style="list-style-type: none"> Turning resulted in no significant difference between high-risk residents allocated to 2-, 3-, or 4-hour turning intervals ($P = 0.9$). <p>Differences in length of stay (short vs. long) resulted in no significant difference in PrU development among residents randomly allocated to the 3 turning intervals</p>
	Safety How safe is the health technology/intervention likely to be?	<ul style="list-style-type: none"> Residents at risk for decreased quality of life from repeated awakenings at night Staff at risk of injury Facilities at risk for loss of workforce <p>Increasing the interval between turns (where appropriate) when high-density foam mattresses are used can improve residents' quality of life and can mitigate injury risks for staff</p>
	Burden of illness What is the likely size of the burden of illness pertaining to this health technology/intervention?	<ul style="list-style-type: none"> Approximately 33% of residents in Ontario nursing facilities are at moderate or high risk of developing PrUs. Incidence of PrUs in the THETA field study was low (2.02%) among the moderate- and high-risk participants allocated to 3 turning intervals. <p>This incidence rate among residents in this study is consistent with that of low-risk, long-stay residents (2%) in United States nursing facilities.</p>
	Need How large is the need for this health technology/intervention?	<ul style="list-style-type: none"> The most basic strategy recommended by physicians and nurses to prevent PrUs is the practice of turning or repositioning residents at 2-hour intervals. Turning every 2 hours, 12 times per day, 365 days per year, results in 4,380 turning episodes per year and draws significantly from nursing facility resources. <p>Appropriate intervals for turning for prevention and management of PrUs could improve patients' safety</p>

Decision Criteria	Subcriteria	Decision Determinants Considerations
<p>Consistency with expected societal and ethical values^a</p> <p>How likely is adoption of the health technology/intervention to be congruent with societal and ethical values?</p>	<p>Societal values</p> <p>How likely is the adoption of the health technology/intervention to be congruent with expected societal values?</p> <p>Ethical values</p> <p>How likely is the adoption of the health technology/intervention to be congruent with expected ethical values?</p>	<p>and quality of life.</p> <p>From a quality-of-life perspective, the reduced frequency of turning required for moderate-risk residents could allow them to sleep for longer intervals.</p> <p>Uncertain</p>
<p>Value for money</p> <p>How efficient is the health technology likely to be?</p>	<p>Economic evaluation</p> <p>How efficient is the health technology/intervention likely to be?</p>	<p>Highly efficient: This intervention might not reduce PrU incidence, but it will almost certainly reduce resource consumption.</p>
<p>Feasibility of adoption into health system</p> <p>How feasible is it to adopt the health technology/intervention into the Ontario health care system?</p>	<p>Economic feasibility</p> <p>How economically feasible is the health technology/intervention?</p> <p>Organizational feasibility</p> <p>How organizationally feasible is it to implement the health technology/intervention?</p>	<ul style="list-style-type: none"> • For a typical facility with 123 residents, 41 (33%) of whom are at moderate or high risk of developing PrUs, the total economic benefit is estimated to be \$453 or \$686 per day for 3-hour or 4-hour repositioning, equivalent to \$165,321 or \$250,453 per year, respectively. • For Ontario as a whole, assuming that 77,933 persons reside at 634 long-term care facilities, 25,927 (33%) of whom are at moderate or high risk of developing PrUs, the total economic benefits of switching to 3-hour or 4-hour repositioning are estimated to be \$286,420 or \$433,913 per day, equivalent to \$104.5 million or \$158.4 million per year, respectively.

Abbreviations: PrUs, pressure ulcers; THETA, Toronto Health Economics and Technology Assessment Collaborative.

^aThe anticipated or assumed common ethical and societal values held in regard to the target condition, target population, or treatment options. Unless there is evidence from scientific sources to corroborate the true nature of the ethical and societal values, the expected values are considered.

References

- (1) Bergstrom N, Horn SD, Rapp MP, Stern A, Barrett R, Watkiss M, et al. Preventing pressure ulcers: a multisite randomized controlled trial in nursing homes. *Ont Health Technol Assess Ser* [Internet]. 2014 October;14(11):1-32. Available from: <http://www.hqontario.ca/evidence/publications-and-ohtac-recommendations/ontario-health-technology-assessment-series/turn-multisite-trial>

Health Quality Ontario
130 Bloor Street West, 10th Floor
Toronto, Ontario
M5S 1N5
Tel: 416-323-6868
Toll Free: 1-866-623-6868
Fax: 416-323-9261
Email: EvidenceInfo@hqontario.ca
www.hqontario.ca

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