Registered Nurses' Association of Ontario
Pressure injuries management: Risk assessment, prevention and treatment, Fourth Edition
November 2024

Best practice guideline development methods

This document presents an overview of the RNAO guideline development process and methods. RNAO is unwavering in its commitment that every best practice guideline (BPG) be based on the best available evidence. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) method has been implemented to provide a rigorous framework and meet international standards for guideline development. RNAO also aims to meet international reporting standards for clinical practice guidelines, including the standards outlined in the Appraisal of Guidelines for Research and Evaluation (AGREE II) Instrument and the Reporting Items for practice Guidelines in HealThcare (RIGHT) statement (1,2).

Scoping the best practice guideline

The scope defines what an RNAO BPG will and will not cover (see **Purpose and Scope** in the full BPG). To determine the purpose and scope of this particular BPG, the RNAO best practice guideline development and research team conducted the following steps:

1. **A review of previous BPGs.** The RNAO BPGs *Risk Assessment and Prevention of Pressure Ulcers* and *Assessment & Management of Pressure Injuries for the Interprofessional Team* were reviewed (3,4).

2. **An environmental scan of guidelines**. Two guideline development methodologists searched an established list of websites for guidelines and other relevant content published between January 2016 and August 2021. The purpose of the guideline search was to gain an understanding of existing guidelines on pressure injuries in order to identify opportunities to develop the purpose and scope of this BPG. The resulting list was compiled based on knowledge of evidence-based practice websites and recommendations from the literature. RNAO expert panel members were asked to suggest additional guidelines (see the **Preferred Reporting Items for Systematic Reviews and Meta-Analyses** (PRISMA) diagram online). A PRISMA diagram is a diagram that depicts the flow of information throughout the different phases of a systematic review. It maps the number of articles identified, included and excluded (5). For more detailed information, please see the search strategy for existing guidelines, including the list of websites searched and the inclusion criteria used.

   The guidelines were reviewed for content, applicability to nursing scope of practice, accessibility and quality. The two guideline development methodologists appraised two international guidelines using the AGREE II tool (1). Guidelines with an overall score of six or seven (on a 7-point Likert scale) were considered high quality.

   The following guidelines were appraised as indicated:

   - Haesler E, editor. Prevention and treatment of pressure ulcers/injuries: clinical practice guideline: the international guideline. 3rd edition. Prague: Epuap, European Pressure Ulcer Advisory Panel; 2019. Available from: https://internationalguideline.com/2019
     - Score: 7 out of 7.

- This guideline was used as a supporting resource for this BPG and to support the good practice statements.

- Norton L, Parslow N, Johnson D, et al. Best practice recommendations for the prevention and management of pressure injuries. [Internet] Wounds Canada; 2018. Available from: https://www.woundscanada.ca/docman/wc-institute/institute-library/bprs/2188-wc-bpr-prevention-and-management-of-pressure-injuries-1532r3e-final/file
  - Score: 3 out of 7.
  - This guideline was used as supporting resource for this BPG.

3. **An environmental scan of standards.** Two guideline development methodologists also searched for standards published within Canada between January 2016 and August 2021 to gain an understanding of existing standards on pressure injuries and to identify their scope. The standards were reviewed for content, applicability to nursing scope of practice and accessibility. The standards were not quality appraised.

   The following standards were reviewed as indicated:

   - Health Quality Ontario (HQO). Pressure injuries, care for patients in all settings. [Internet]. Toronto, ON: HQO; 2017. Available from: https://www.hqontario.ca/Portals/0/documents/evidence/quality-standards/qs-pressure-injuries-clinical-guide-en.pdf
     - This standard was used as a supporting resource for this BPG.

4. **Key informant interviews.** 26 interviews were conducted virtually with experts in the field to understand the needs of nurses, members of the interprofessional team and persons with lived experience in regards to pressure injuries.

5. **Discussion groups were convened**. Four virtual sessions were convened to understand the needs of nurses, nursing students, members of the interprofessional health team and persons with lived experience as it pertains to pressure injury prevention, assessment and management.

Assembly of the expert panel

RNAO aims for diversity in membership of an expert panel; this is in alignment with its Organizational Statement on Diversity and Inclusivity, which is part of the RNAO Mission and Values (6). RNAO also aims for persons impacted by BPG recommendations, especially persons with lived experience and families, to be included as expert panel members.

There are numerous ways in which RNAO finds and selects members of an expert panel. These include the following:

- searching the literature for researchers in the topic area;
- soliciting recommendations from key informant interviews;
- drawing from established professional networks, such as RNAO Interest Groups, the Best Practice Champions Network® and Best Practice Spotlight Organizations® (BPSOs®); and
- contacting other nursing and health provider associations, topic-relevant technical associations or organizations, and advocacy bodies.

For this BPG, the RNAO best practice guideline development and research team assembled a panel of experts from nursing practice, research, education and policy, as well as members of the interprofessional team and a caregiver with lived experience. The expert panel represented a range of sectors and practice areas (see the **RNAO Best Practice Guideline Expert Panel** in the full BPG).

The expert panel engaged in the following activities:

- developed and approved the purpose and scope of this BPG
- determined the recommendation questions and outcomes to be addressed in this BPG
- participated in a development process to finalize recommendation statements
- provided feedback on the draft of this BPG
- participated in the development of evaluation indicators
- identified appropriate external reviewers to review the draft guideline prior to publication

In addition to the above, the expert panel co-chairs also participated in the following activities:

- engaged in meetings as needed with the RNAO guideline development team
- facilitated expert panel meetings
- provided in-depth guidance on clinical and/or research issues
- moderated consensus processes

Declaration of conflict of interest

In the context of RNAO best practice guideline development, the term "conflict of interest" (COI) refers to situations in which an RNAO staff member or expert panel member's financial, professional, intellectual, personal, organizational or other relationships may compromise their ability to conduct panel work independently. Declarations of COI that might be construed as constituting a perceived and/or actual conflict were made by all members of the RNAO expert panel prior to their participation in guideline development work using a standard form. Expert panel members also updated their COI at the orientation meeting, the recommendation build meetings and prior to guideline publication. Any COI declared by an expert panel member was reviewed by the RNAO best practice guideline development and research team and expert panel co-chairs. No limiting conflicts were identified by members of the expert panel. See "Declarations of Conflicts of Interest Summary" under the "methodology documents" tab of the BPG webpage.

Identifying priority recommendation questions and outcomes

RNAO systematic review questions are developed in accordance with the PICO format (population, intervention, comparison and outcomes).

In November 2022, the RNAO best practice guideline development and research team and the expert panel convened virtually three times to determine the priority recommendation questions and outcomes for this BPG. The three meetings included an orientation meeting and two planning meetings. A comprehensive list of recommendation questions that the BPG could potentially address was developed at the meetings. This list was informed by:

- the environmental scan of guidelines
- key informant interviews and discussion groups
- expert panel discussion during the planning meetings

This list of potential recommendation questions was sent to the expert panel in a confidential online survey after the expert panel had an opportunity to discuss the recommendation areas during the first planning meeting. Expert panel members were asked to rank order the recommendation questions from highest to lowest priority. The results were presented to the expert panel during the second planning meeting. The top six recommendation questions were deemed to be the final recommendation questions.

Following the rank ordering—and in alignment with GRADE methods for assessing and presenting the evidence—outcomes were identified and prioritized per recommendation question. A comprehensive list of outcomes per recommendation question was developed, informed by a review of the literature, key informant interviews, discussion groups and expert panel discussion. Outcomes were chosen based on what was considered important to people for decision-making.

The expert panel was sent a confidential online survey to rate the relative importance of each outcome per recommendation question. The RNAO guideline development and research team then reviewed the results and calculated the top three to five most critical and important outcomes per recommendation question. The expert panel was provided an update via email regarding the final list of outcomes prioritized for each recommendation question.

The six recommendation questions and their respective PICO research questions are presented below.

Recommendation question #1: Should the use of health technologies be recommended or not for early detection and assessment of pressure injuries?

> **PICO research question #1**
> **Population:** Persons living with or at risk of developing pressure injuries
> **Intervention:** Health technologies used for early detection and assessment of pressure injuries
> **Comparison:** Standard care
> **Outcomes:** Incidence rate of pressure injury, accuracy of predicting pressure injury development, pressure injury precursor signs and symptoms, health provider compliance with use of health technology, person/caregiver satisfaction

*For recommendation question 1, the outcomes "health provider compliance with use of health technology" and "person/caregiver satisfaction" were not found in the literature.

Recommendation question #2: Should a specific repositioning frequency be recommended over another frequency for persons with pressure injuries or those at risk of developing them?

> **PICO research question #2**
> **Population:** Persons living with or at risk of developing pressure injuries
> **Intervention:** Any repositioning frequency
> **Comparison:** Any other repositioning frequency
> **Outcomes:** Prevalence or incidence rate of pressure injury, pressure injury healing rate, worsening of pressure injury, pressure injury precursor signs and symptoms, person/caregiver satisfaction

*For recommendation question 2, the outcomes "pressure injury healing rate", "worsening of pressure injury" and "person/caregiver satisfaction" were not found in the literature.

Recommendation question #3: Should preventative care bundles be recommended or not for the prevention of pressure injuries?

PICO research question #3
Population: Persons at risk of developing pressure injuries
Intervention: Use of preventive care bundles (any number of interventions bundled together)
Comparison: Use of one intervention alone
Outcomes: Prevalence or incidence rate of pressure injury, pressure injury precursor signs and symptoms, health provider compliance with care bundle, adverse events, person/caregiver satisfaction

*For recommendation question 3, the outcome "adverse events" was not found in the literature.

Recommendation question #4: Should the use of prophylactic dressings be recommended or not for the prevention of pressure injuries?

PICO research question #4
Population: Persons at risk of developing pressure injuries
Intervention: Use of prophylactic dressings
Comparison: No use of prophylactic dressings
Outcomes: Incidence rate of pressure injury, pressure injury precursor signs and symptoms, pain, quality of life, person/caregiver satisfaction

Recommendation question #5: Should the use of health technologies be recommended or not for the treatment of pressure injuries?

PICO research question #5
Population: Persons with pressure injuries
Intervention: Health technologies used for treatment of pressure injuries
Comparison: Standard care
Outcomes: Healing rate of existing pressure injury, worsening pressure injury, health provider compliance with use of health technology, person/caregiver satisfaction, pain

*For recommendation question 5, the outcomes "health provider compliance with technology" and "person/caregiver satisfaction" were not found in the literature.

Recommendation question #6: Should the use of powered support surfaces (active or reactive) for the prevention and management of pressure injuries be recommended or not?

PICO research question #6
Population: Persons living with or at risk of developing pressure injuries
Intervention: Powered support surfaces
Comparison: Non-powered support surfaces
Outcomes: Prevalence or incidence rate of pressure injury, healing rate of existing pressure injury, worsening pressure injury, pressure injury precursor signs and symptoms, pain

Developing good practice statements

The RNAO best practice guideline development and research team developed five good practice statements to capture the need for health providers to 1) implement an interprofessional approach, 2) communicate and collaborate in a culturally safe and inclusive manner, 3) use a systematic approach for assessment, 4) implement an individualized approach to repositioning and 5) select an appropriate support surface for people at risk of and living with pressure injuries. The good practice statements were further refined in consultation with the expert panel co-chairs. Good practice statements are actionable statements that should be done in practice and the benefits of the action clearly outweigh the harms (7). Consensus was reached through discussion with the panel on each of the following five questions:

1. Is collecting and summarizing the evidence a poor use of time and energy? (Yes/No)
2. Is the message necessary to communicate? (Yes/No)
3. Would implementing the action result in large benefits and very small harms? (Yes/No)
4. Is there a clear rationale for the action? (Yes/No)
5. Is the statement clear and actionable? (Yes/No)

Through discussion, the expert panel determined that each of the five criteria had been met, so these areas became good practice statements.

Systematic retrieval of the evidence

Strong and conditional recommendations are based on a comprehensive and systematic review of the literature.

For this BPG, a search strategy was developed by RNAO's best practice guideline development and research team and a health sciences librarian for each of the aforementioned PICO research questions. A search for relevant research studies published in English between January 2018 and January-March 2023 was applied to the following databases: Cumulative Index to Nursing and Allied Health (CINAHL), MEDLINE, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Embase, Emcare and APA PsycInfo. The systematic reviews were also registered in PROSPERO (CRD42023437862).

Expert panel members were asked to review their personal libraries for key studies not found through the above search strategies. Detailed information on the search strategy for the systematic reviews, including the inclusion and exclusion criteria and search terms, can be found in supplementary materials under the "methodology documents" tab of the BPG webpage.

Systematic review search dates were limited to the last 5 years in order to capture the most up-to-date evidence. All study designs were included in the search. The inclusion of systematic reviews was prioritized, and individual randomized controlled trials and non-randomized controlled trials were used to supplement outcomes not reported in the systematic review. In cases where there were multiple systematic reviews based on the same body of evidence, only the highest quality review was included as assessed using the ROBIS tool (8). In a case of two high-quality reviews, the most recent one was selected.

All studies were independently assessed for relevance and eligibility by two guideline development methodologists based on the inclusion and exclusion criteria. Any disagreements were resolved through consensus.

All included studies were independently assessed for risk of bias by study design using validated and reliable tools. Randomized controlled trials were assessed using the Risk of Bias 2.0 tool (9), non-

randomized controlled trials were assessed using the ROBINS-I tool (10) and systematic reviews were assessed using the ROBIS tool (8). The two guideline development methodologists reached consensus on all scores through discussion.

For data extraction, the included studies were divided equally between the guideline development methodologists who each extracted information from their assigned studies; each reviewed the other's work for accuracy.

In June 2024 the health science librarian conducted an update search for relevant systematic reviews published in English between January-March 2023 and June 2024 that answered recommendations questions 1-6. The search was applied to the following databases: CINAHL, Cochrane and MEDLINE. Results from four studies were incorporated into the discussions of evidence for **Recommendations 3.0, 4.0 and 5.0**. See PRISMA diagrams online for studies included in the update search.

Determining certainty of evidence

The certainty of quantitative evidence (i.e., the extent to which one can be confident that an estimate of an effect is true) is determined using GRADE methods (11). First, the certainty of the evidence is rated for each prioritized outcome across studies (i.e., for a body of evidence) per recommendation (11). This process begins with the study design and then requires an examination of five domains—risks of bias, inconsistency, imprecision, indirectness and publication bias—to potentially downgrade the certainty of evidence for each outcome. For example, a body of quantitative evidence for one priority outcome may begin with high certainty, but due to serious limitations in one or more of the five GRADE criteria, it will be rated down by one or two level (11). See **Table 1** for a definition of each of these certainty criteria.

Table 1: GRADE certainty criteria

Certainty criteria	Definition
Risk of bias	Limitations in the study design and execution that may bias study results. Valid and reliable quality appraisal tools are used to assess the risk of bias. First, risk of bias is examined for each individual study and then examined across all studies per defined outcome.
Inconsistency	Unexplained differences (heterogeneity) of results across studies. Inconsistency is assessed by exploring the magnitude of difference, and possible explanations in the direction and size of effects reported across studies for a defined outcome.
Indirectness	Variability between the research and review question and context within which the recommendations would be applied (applicability). Four sources of indirectness which assessed: • differences in population • differences in interventions • differences in outcomes measured • differences in comparators.
Imprecision	The degree of uncertainty around the estimate of effect. This is usually related to sample size and number of events. Studies are examined for sample size, number of events and confidence intervals.
Publication bias	Selective publication of studies based on study results. If publication bias is strongly suspected, downgrading is considered.

Source: Adapted with permission from: Schünemann H, Brozek J, Guyatt G, Oxman A , editors. Handbook for grading the quality of evidence and the strength of recommendations using the GRADE approach [Internet]. [place unknown: publisher unknown]; 2013 Oct. Available from: https://gdt.gradepro.org/app/handbook/handbook.html#h.svwngs6pm0f2.

Following the initial consideration for downgrading the certainty of quantitative evidence, three factors are assessed that can potentially enable rating up the certainty of evidence for non-randomized studies:

1. **Large magnitude of effect**: If the body of evidence has not been downgraded for any criteria other than risk of bias and a large estimate of the magnitude of intervention effect is present, there is consideration for rating up.
2. **Dose–response gradient**: If the body of evidence has not been downgraded for any criteria other than risk of bias and a dose–response gradient is present, there is consideration for rating up.
3. **Effect of plausible confounding**: If the body of evidence has not been downgraded for any criteria other than risk of bias and all residual confounders would result in an underestimation of treatment effect, there is consideration for rating up (11).

GRADE categorizes the overall certainty of evidence as high, moderate, low or very low. See **Table 2** for the definitions of these categories.

For this BPG, the five GRADE quality criteria for potentially downgrading quantitative evidence—and the three GRADE quality criteria for potentially rating up evidence—were independently assessed by the two guideline development methodologists. Any disagreements were resolved through consensus. An overall certainty of evidence per recommendation was assigned based on these assessments. The certainty of evidence assigned to each recommendation was based on the certainty of prioritized outcomes in the studies that informed the recommendation.

Table 2: Certainty of evidence

Overall certainty of evidence	Definition
High	We are very confident that the true effect lies close to that of the estimate of the effect.
Moderate	We are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low	Our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very low	We have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

Source: Reprinted with permission from: Schünemann H, Brozek J, Guyatt G, Oxman A., editors. Handbook for grading the quality of evidence and the strength of recommendations using the GRADE approach [Internet]. [place unknown: publisher unknown]; 2013 Oct [cited 2018 Aug 31]. Table 5.1, Quality of evidence grades. Available from: https://gdt.gradepro.org/app/handbook/handbook.html#h.9rdbelsnu4iy

Formulating recommendations

Summarizing the evidence

The guideline development methodologists analyzed all studies pertaining to each research question and drafted recommendations that answer the research questions accordingly. For each draft recommendation, the two guideline development methodologists constructed GRADE evidence profiles. GRADE evidence profiles are used to present decisions on determining the certainty and/or confidence of evidence, and to present general information about the body of research evidence, including key statistical or narrative results (11).

The evidence profiles for the body of quantitative studies presented the decisions made by the two guideline development methodologists on the five key GRADE certainty criteria for downgrading the population included in the studies, the countries where the studies were conducted, the key results and the transparent judgments about the certainty underlying the evidence for each outcome (11). The evidence profiles for studies presented the relative importance of outcomes as determined by the expert panel through a confidential online vote using a 9-point Likert scale that ranged from 1 (less important) to 9 (most important). For this BPG, meta-analyses were not performed as existing meta-analyses from systematic reviews were used.

For more detail, please see the GRADE evidence profiles for each recommendation, organized per outcome under the "methodology documents" tab of the BPG webpage.

Evidence-to-decision frameworks

Evidence-to-Decision (EtD) frameworks outline proposed recommendations and summarize all necessary factors and considerations based on available evidence and expert panel judgements for formulating the recommendation statements. EtD frameworks are used to help ensure that all important factors (i.e., certainty or confidence of the evidence, benefits/harms, values and preferences, and health equity) required to formulate recommendation statements are considered by the expert panel (11). Both quantitative and qualitative evidence are incorporated into the frameworks. The guideline development methodologists draft the EtD frameworks with available evidence from the systematic reviews.

For this BPG, the EtD frameworks included the following areas of consideration for each drafted recommendation statement (see **Table 3**):

- background information on the magnitude of the problem
  - includes the PICO question and general context related to the research question
- the balance of benefits and harms of an intervention
- certainty of the evidence
- values and preferences
- health equity

Decision making: determining the direction and strength of recommendations

Expert panel members are provided with the EtD frameworks to review prior to the recommendation build meetings to determine the direction (i.e., a recommendation for or against an intervention) and the strength (i.e., strong or conditional) of a BPG's recommendations. Expert panel members are also given access to the complete evidence profiles and full-text articles.

The expert panel co-chairs and the two guideline development methodologists facilitated the meeting to allow for adequate discussion for each proposed recommendation.

The decision on the direction and strength of each recommendation statement was determined by discussion of the judgements made for each of the factors in the EtD frameworks and a consensus-

building process facilitated by the co-chairs and the RNAO guideline development and research team (12). Since the recommendations are explicitly linked to the body of evidence, agreement was reached (12). In determining the strength of a recommendation statement, the following was considered: (see **Table 3**):

- the balance of benefits and harms of an intervention
- certainty of the evidence
- values and preferences
- health equity

If the expert panel deemed there was insufficient evidence to develop a recommendation (i.e., limited number of studies, and/or very low certainty evidence), they also had the option not to proceed with a recommendation.

Table 3: Key considerations for determining the strength of recommendations

Factor	Definition	Sources
Benefits and harms	Potential desirable and undesirable outcomes reported in the literature when the recommended practice or intervention is used. "The larger the difference between the desirable and undesirable effects, the higher the likelihood that a strong recommendation is warranted. The narrower the gradient, the higher the likelihood that a conditional recommendation is warranted" (13).	Includes research exclusively from the systematic review.
Certainty of evidence	The extent of confidence that the estimates of an effect are adequate to support a recommendation. The extent of confidence that a review finding is a reasonable representation of the phenomenon of interest (14). Recommendations are made with different levels of certainty; the higher the certainty, the higher the likelihood that a strong recommendation is warranted (13).	Includes research exclusively from the systematic review.
Values and preferences	The relative importance or worth of the health outcomes of following a particular clinical action from a person-centred perspective. "The more values and preferences vary or the greater the uncertainty in values and preferences, the higher the likelihood that a conditional recommendation is warranted" (13).	Includes evidence from the systematic review (when available) and other sources, such as insights from the expert panel. During the systematic review screening process, if studies did not directly answer the research question (i.e., they did not discuss the outcomes of interest) but were relevant to preferences for the intervention from a person-centred

		perspective, those studies were also included in this section.
Health equity	Represents the potential impact of the recommended practice or intervention on health outcomes or health quality across different populations. The greater the potential for increasing health inequity, the higher the likelihood that a conditional recommendation is warranted (15).	Includes evidence from the systematic review (when available) and other sources, such as insights from the expert panel.

Source*:* Adapted by the RNAO expert panel with permission from: Schünemann H, Brozek J, Guyatt G, Oxman A , editors. Handbook for grading the quality of evidence and the strength of recommendations using the GRADE approach [Internet]. [place unknown: publisher unknown]; 2013. Available from: https://gdt.gradepro.org/app/handbook/handbook.html#h.svwngs6pm0f2

Supporting resources and appendices

Content for the supporting resources and appendices was submitted throughout the guideline development process by expert panel members and external reviewers. The two guideline development methodologists reviewed the content based on the following six criteria:

1. **Relevance:** Supporting resources and appendices should be related to the subject of the BPG or recommendation. In other words, the resource or appendix should be suitable and appropriate in relation to the purpose and scope of the BPG or the specific recommendation(s).

2. **Timeliness:** Resources should be timely and current. Resources should be published within the last 10 years or in line with current evidence.

3. **Credibility:** When assessing credibility, the trustworthiness and expertise of the source material's author or authoring organization is considered. Potential biases are also assessed, such as the presence of advertising or the affiliation of the authors with a private company selling health-care products.

4. **Quality:** This criterion assesses the accuracy of the information and the degree to which the source is evidence-informed. The assessment of quality is in relation to the subject of the resource. For example, if a tool is being suggested, is that tool reliable and/or valid?

5. **Accessibility:** This criterion considers whether the resource is freely available and accessible online.

6. **Engagement of persons with lived experience:** This criterion considers whether the resource was created or co-created in collaboration with or by persons with lived experience.

Drafting the guideline

The guideline development methodologists wrote the draft of this BPG. The expert panel reviewed the draft and provided written feedback. The BPG then proceeded to obtain external reviews.

Quality assurance

RNAO staff carry out quality assurance of the guideline, including reviews of the evidence profiles, evidence-to-decision frameworks and drafts of the BPG. The associate director of guideline development

is responsible for ensuring that the guideline is produced in accordance with the RNAO BPG development handbook, methods outlined in the BPG, GRADE methods, and international guideline standards such as AGREE II and the RIGHT reporting standards (1,2,11). One senior manager and the associate director review the evidence profiles, evidence-to-decision frameworks and BPG drafts to ensure adherence to the established methodology. An external review of an early draft of the BPG along with the evidence profiles is conducted to ensure adherence to GRADE methodology.

External review

As part of the guideline development process, RNAO is committed to obtaining feedback from: (a) nurses and members of the interprofessional team from a wide range of practice settings and roles; b) persons with lived experience; and (c) knowledgeable educators and administrators, throughout Canada and around the world.

External reviewers for RNAO BPGs are identified in two ways. First, external reviewers are recruited through a public call issued on the RNAO website. Second, individuals and organizations with expertise in the guideline topic area are identified by the RNAO best practice guideline development and research team and the expert panel, and they are directly invited to participate in the review.

External reviewers are individuals with subject matter expertise in the guideline topic or those who may be affected by its implementation. Reviewers may be nurses, members of the interprofessional team, nurse executives, administrators, research experts, educators, nursing students, or persons with lived experience and their family members. External reviewers are asked to declare any actual or potential conflict of interest. See "Declarations of Conflicts of Interest Summary" under the "methodology documents" tab of the BPG webpage.

Reviewers are asked to read a full draft of the BPG and participate in its review prior to its publication. External review feedback is submitted online by completing a survey questionnaire.

The external reviewers are asked the following questions about each good practice statement:

- Is this statement clear?
- Do you agree with this statement?
- Is there a clear and explicit rationale to support this good practice statement?

The external reviewers are asked the following questions about each recommendation:

- Is this recommendation clear?
- Do you agree with this recommendation?
- Is there a clear and explicit rationale to support this recommendation?

In addition, the external reviewers are asked:

- Are appendices appropriate and are there any gaps?
- Is the proposed title clear and appropriate?
- Do you have any additional comments/suggestions about the background section and guiding principles of the guideline?
- Do you have any additional comments/ suggestions about the glossary of terms?

Survey submissions are compiled and feedback is summarized by the RNAO best practice guideline development and research team. The RNAO best practice guideline research and development team reviews the feedback received, consults the expert panel where necessary, and modifies the BPG content.

For this BPG, the external review process was completed between June 13, 2024 and June 27, 2024. External reviewers with diverse perspectives provided feedback (see **External reviewers** in the full BPG online).

Limitations

Due to feasibility, the systematic review search was limited to the last five year which may have led to some relevant evidence not being included. The RNAO team conducted six systematic reviews which informed seven recommendations. The guideline could have had more breadth in clinical topics if additional systematic reviews were feasible. Additionally, the expert panel did include one caregiver representative but did not include any persons with direct lived experience.

Procedure for updating the guideline

The RNAO commits to updating all BPGs, as follows:

1. Each BPG will be reviewed by the RNAO every five years following publication of the previous edition.
2. Whether it is a new BPG topic or an update an existing BPG, careful consideration needs to be made regarding selection of the BPG for development. For new editions, an assessment of the uptake of the existing BPG is conducted, such as asking:
    - Is this a mandatory guideline that BPSOs need to implement?
    - How many BPSOs are actively implementing this BPG?
    - How many times has the BPG been downloaded?
3. Further, an assessment of existing, recent and/or in-production high quality guidelines of the same topic by other organizations is completed. If the uptake of a BPG is high and there are no existing high quality BPGs on the same topic, this may indicate a higher priority for the next edition to be completed. However, if the uptake is low and/or there is another high-quality guideline on the same topic, the BPG may be retired.
4. New BPG topics are determined by a set of criteria to guide the systematic assessment of a selected list of suggested topics and feedback from a range of external reviewers, partners or others impacted by the topic area. Any group or individual may propose a BPG topic to RNAO through a variety of methods such as the following:
    - Suggest a guideline topic on the RNAO website;
    - writing to RNAO's CEO or director/associate directors of the International Affairs and Best Practice Guidelines (IABPG) Centre;
    - a rapid review or environmental scan (i.e., scoping search for trends, hot topics, practice concerns);
    - a survey requesting that individuals rank identified topics on a five-point Likert scale; and
    - report sources (e.g., coroner's inquest, government or related agency).
5. RNAO selects topics for BPG development annually. All topics submitted are identified, and priority topics are chosen based on the following systematic assessment criteria:
    - key priority areas identified by the Government of Ontario, request from major public health agency, Coroner's inquest;
    - within the scope of nursing practice (RN, NP, RPN/LPN), and applicable in a range of practice settings;
    - based on a multidisciplinary approach;
    - builds on previously developed BPGs or general topic areas;
    - potential for partnerships in BPG development with other agencies;

- perceived need for the guideline, as identified by those submitting a topic for consideration;
- evidence to support the guideline recommendations is available; and
- no other high-quality guideline exists on the topic area.

6. Upon reviewing all submissions based on the above criteria, the results are shared with the BPG guideline development and research team, the Director of the IABPG Centre, and the CEO of RNAO, who reports the selected topics to Government of Ontario.

References

1. Brouwers M, Kho E, Browman G, et al. AGREE II: advancing guideline development, reporting and evaluation in health care. CMAJ. 2010;182(18):E839-42.

2. Chen Y, Yang K, Marušic A, et al. A Reporting Tool for Practice Guidelines in Health Care: The RIGHT Statement. Ann Intern Med. 2017 Jan 17;166(2):128.

3. Registered Nurses' Association of Ontario (RNAO). Assessment and Management of Pressure Injuries for the Interprofessional Team. 3rd ed. Toronto (ON): RNAO; 2016.

4. Registered Nurses' Association of Ontario (RNAO). Risk Assessment and Prevention of Pressure Ulcers. Toronto (ON): RNAO; 2002.

5. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Bmj [Internet]. 2021 [cited 2024 May 2];372. Available from: https://www.bmj.com/content/372/bmj.n71.short

6. Registered Nurses' Association of Ontario. About RNAO [Internet]. Available from: https://rnao.ca/about

7. Dewidar O, Lotfi T, Langendam MW et al. Good or best practice statements: proposal for the operationalisation and implementation of GRADE guidance. BMJ Evid-Based Med. 2022 Apr15;bmjebm-2022-111962.

8. Whiting P, Savovica J, Higgins JPT et al. ROBIS: A new tool to assess risk of bias in systematic reviews was developed. J Clin Epidemiol. 2016;69:225–34.

9. The Cochrane Collaboration. RoB 2: A revised Cochrane risk-of-bias tool for randomized trials [Internet]. 2020. Available from: https://methods.cochrane.org/bias/resources/rob-2-revised-cochrane-risk-bias-tool-randomized-trials

10. Sterne J, Hernán M, Reeves B, et al. ROBINS-I: a tool for assessing risk of bias in non-randomized studies of interventions. BMJ. 2016;355:i4919.

11. Schunemann HJ, Brozek J, Guyatt G, Oxman A, editors. Handbook for grading the quality of evidence and the strength of recommendations using the GRADE approach [Internet]. unknown: unknown; 2013. Available from: https://gdt.gradepro.org/app/handbook/handbook.html

12. Scottish Intercollegiate Guidelines Network (SIGN). A guideline developer's handbook [Internet]. 2019. Available from: http://www.sign.ac.uk

13. Guyatt GH, Oxman AD, Kunz R, et al. Going from evidence to recommendations. BMJ. 2008;336(7652):1049–51.

14. Balshem H, Helfand M, Schünemann HJ, et al. GRADE guidelines: 3. Rating the quality of evidence. J Clin Epidemiol. 2011;64(4):401–6.

15. Welch VA, Akl EA, Guyatt GH, et al. GRADE equity guidelines 1: considering health equity in GRADE guideline development: introduction and rationale. J Clin Epidemiol. 2017;90:59–67.