

# Putting Evidence Into Practice: The Process for Evidence-Based Research

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The Oncology Nursing Society (ONS) Putting Evidence Into Practice (PEP®) resources provide easily accessible evidence-based resources on 20 cancer-related topics. Using a team-based approach, the ONS PEP teams search for relevant literature, create comprehensive summaries of empirically tested intervention research, and rank each intervention according to its effectiveness. PEP resources are available to nurses and other clinicians caring for people with cancer and their caregivers online and through multiple print sources. The purpose of this article is to explain the PEP process.

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Nursing societies can maximize the impact of evidence-based practice (EBP) on clinical patient outcomes by publishing resources and guidelines for nurses and other healthcare providers (Malory, 2010). The Oncology Nursing Society (ONS) is committed to improving nurse-sensitive patient outcomes (NSPOs) by providing resources such as the evidence-based Putting Evidence Into Practice (PEP®) resources. NSPOs are the result of nursing actions, must fall within the scope of nursing practice, and are an integral part of nurse-managed care (Given & Sherwood, 2005). However, PEP extends beyond the scope of nursing to include additional knowledge pertinent to oncology nursing care, such as yoga, decongestive therapy, and surgical techniques. The primary goal of PEP is to identify and disseminate the best available scientific evidence to help nurses improve NSPOs. Although the primary audience for PEP is nurses, the intervention recommendations can be beneficial for and implemented by healthcare professionals from other disciplines who care for patients with cancer.

Each PEP resource provides comprehensive evidence summaries and a synthesis of available published literature that is organized and classified according to the effectiveness of individual interventions in specific patient outcomes. The PEP topics are anorexia, anxiety, caregiver strain and burden, chemotherapy-induced nausea and vomiting, cognitive impairment, constipation, depression, diarrhea, dyspnea, fatigue, hot flashes, lymphedema, mucositis, pain, peripheral neuropathy,

prevention of bleeding, prevention of infection, radiodermatitis, skin reactions, and sleep-wake disturbances.

PEP resources are available to clinicians in a variety of formats, including online resources, books, monographs, a pocket guide, and peer-reviewed articles. The purpose of this article is to explain the PEP process, including the selection and training of topic teams, the search process, the summarization of evidence, and the review and classification of evidence.

## Methods

The PEP program is a multifaceted project that involves the coordination of ONS staff as well as volunteer team contributors. Several checkpoints exist during the PEP process to ensure quality and consistency of the final products. The PEP process follows the EBP model of identifying a problem, searching for evidence, critiquing the literature, synthesizing the research, and summarizing the strength of evidence (Eaton & Tipton, 2009) (see Figure 1).

## Topic Teams

PEP topic teams are comprised of volunteer nurse researchers, advanced practice nurses, and staff nurses who have demonstrated experience and interest in a PEP topic. Topic leaders are nurse scientists or advanced practice nurses with demonstrated expertise in the topic through research and/or publications. All volunteers complete the standardized ONS conflict of interest

and confidentiality forms. PEP teams are comprised of members from across the United States as well as Canada, Spain, South Korea, Israel, Pakistan, Saudi Arabia, and United Arab Emirates.

## The Search Process

PEP topic leaders determine topic-specific inclusion and exclusion criteria and search terms in consultation with the ONS library staff. The ONS medical librarian uses medical subject heading (MeSH) search terms to conduct monthly automated literature searches. MeSH terms are a controlled and comprehensive list of vocabulary terms used to index published articles and books in scientific fields. Detailed search results, specific inclusion and exclusion criteria, and search terms can be found in topic articles.

ONS research staff review abstracts against inclusion and exclusion criteria and obtain articles that meet the criteria. Standard databases and sources used include PubMed, CINAHL®, the Cochrane Collaboration, and the National Comprehensive Cancer Network guidelines. Standard inclusion criteria are (a) studies, guidelines, systematic reviews, and meta-analyses involving the use of any intervention in patients with cancer for the outcome or PEP topic of interest; (b) a study sample that includes either adult or pediatric patients with cancer; and (c) measurement and results for the outcome of interest. Exclusion criteria are (a) grey literature or literature that has not formally been published, (b) case studies or case series only, (c) studies not involving patients with cancer, and (d) descriptive studies that do not examine effects of an intervention on the patient outcome of interest. Additional topic-specific inclusion and exclusion criteria are established and identified by the PEP teams.

## Summarizing the Studies

Studies that meet inclusion criteria are summarized by pairs of contributors on a standardized form. The structured form includes information about the purpose of the study, a brief description of the intervention, sample size and characteristics, design, measurement instruments, conclusions, limitations that show risk of bias and threats to validity in design, and implications for nursing practice. Two contributors review each summary to ensure quality. Complete summaries for each study are available to the nurses and general public via the ONS website ([www.ons.org/practice-resources/pep](http://www.ons.org/practice-resources/pep)).

## Classification of Evidence

Web conferences are held with the project team members to categorize the evidence based on summaries completed. Classification considers all previous as well as new evidence for each intervention. Conferences are facilitated by ONS research staff and classification of individual interventions is determined by team consensus.

Teams categorize interventions based on the ONS PEP weight-of-evidence classification schema (Mitchell & Friese, n.d.) (see Figure 2). The schema is intended to be used with existing research-based knowledge on health interventions and is based on previous research (Ciliska, Cullum, & Marks, 2001; Hadorn, Baker, Hodges, & Hicks, 1996; Ropka & Spencer-Cisek, 2001; Rutledge, DePalma, & Cunningham, 2004). PEP teams consider the entire body of evidence rather than a single study for classification, and more weight is given to studies that rank higher in ONS's

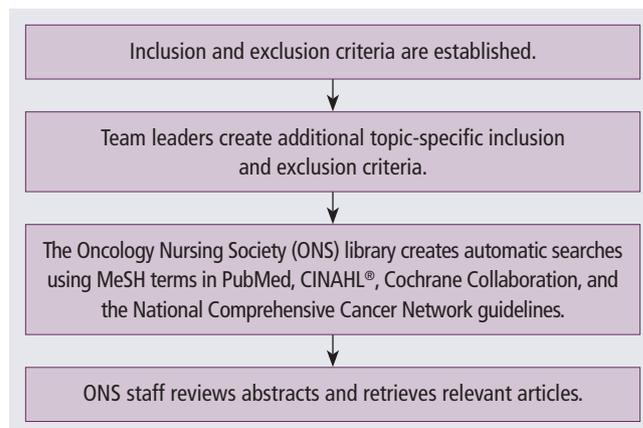


FIGURE 1. Putting Evidence Into Practice Search Process

priority symptom management project categorization. The highest level of evidence, level I, includes quantitative and qualitative systematic reviews; appropriately sized randomized, controlled trials; and well-designed trials with no randomization (Ropka & Spencer-Cisek, 2001). Team members also consider the magnitude of the outcome and the concurrence of the evidence for an intervention prior to assigning a classification. Interventions are classified by team consensus after application of the schema.

The ONS intervention classifications are color coded (green, yellow, and red) to help nurses quickly determine the level of evidence for each intervention. Green color-coded interventions are the highest level of evidence and are labeled recommended for practice or likely to be effective. Yellow color-coded interventions do not have sufficient evidence to support use in the clinical setting and are labeled benefits balanced with harms or effectiveness not established. Red color-coded interventions do not have evidence to support use and are labeled effectiveness unlikely or have been found to be harmful or ineffective and are labeled not recommended for practice. Intervention classifications are updated twice per year.

## Discussion

Nursing societies are uniquely positioned to promote EBP in a variety of ways, including the summary and synthesis of research (Mallory, 2010). Through the rigorous and transparent process outlined in the current article, ONS and PEP generate a sizeable knowledge base to help guide EBP in an oncology setting. PEP is easily accessible to organizations and to individual oncology nurses and can be used to improve the quality of cancer care.

### Implications for Practice

- ▶ Become involved in the Putting Evidence Into Practice (PEP®) process to play a role in the identification and classification of evidence-based interventions.
- ▶ Use online and print PEP materials to become better aware of scientific advances in cancer care.
- ▶ Choose PEP resources to select beneficial interventions that are appropriate for and acceptable to patients.

### Recommended for Practice

Interventions for which effectiveness has been demonstrated by strong evidence from rigorously designed studies, meta-analyses, or systematic reviews, and for which expectation of harms is small compared with the benefits

- Supportive evidence from at least two well-conducted randomized, controlled trials that were performed at more than one institutional site and that included a sample size of at least 100 participants
- Evidence from a meta-analysis or systematic review of research studies that incorporated quality ratings in the analysis and included a total of 100 patients or more in its estimate of effect size and confidence intervals
- Recommendations from a panel of experts that derive from an explicit literature search strategy and include thorough analysis, quality rating, and synthesis of the evidence

### Likely to Be Effective

Interventions for which the evidence is less well established than for those listed under *recommended for practice*

- Supportive evidence from a single, well-conducted, randomized, controlled trial that included fewer than 100 patients or was conducted at one or more institutions
- Evidence from a meta-analysis or systematic review that incorporated quality ratings in the analysis and included fewer than 100 patients or had no estimates of effect size and confidence intervals
- Evidence from a synthetic review of randomized trials that incorporated quality ratings in the analysis
- Guidelines developed largely by consensus or expert opinion rather than primarily based on the evidence and published by a panel of experts that are not supported by synthesis and quality rating of the evidence

### Benefits Balanced With Harm

Interventions for which clinicians and patients should weigh the beneficial and harmful effects according to individual circumstances and priorities

- Supportive evidence from one or more randomized trials, meta-analyses, or systematic reviews but where the intervention may be associated, in certain patient populations, with adverse effects that produce or potentially produce mortality, significant morbidity, functional disability, hospitalization, or excess length of stay

### Effectiveness Not Established

Interventions for which there are currently insufficient data or data of inadequate quality

- Supportive evidence from a well-conducted case-control study
- Supportive evidence from a poorly controlled or uncontrolled study
- Evidence from randomized clinical trials with one or more major or three or more minor methodologic flaws that could invalidate the results
- Evidence from nonexperimental studies with high potential for bias (e.g., case series with comparison to historical controls)
- Evidence from case series or case reports
- Conflicting evidence but where the preponderance of the evidence is in support of the recommendation or meta-analysis showing a trend that did not reach statistical significance

### Effectiveness Unlikely

Interventions for which lack of effectiveness is less well established than for those listed under *not recommended for practice*

- Evidence from a single well-conducted randomized trial with at least 100 participants or conducted at more than one site and which showed no benefit for the intervention
- Evidence from a well-conducted case-control study, a poorly controlled or uncontrolled study, a randomized trial with major methodologic flaws, or an observational study (e.g., case series with historical controls) that showed no benefit and a prominent and unacceptable pattern of adverse events and serious toxicities (Common Terminology Criteria for Adverse Events [CTCAE] grade III or IV)

### Not Recommended for Practice

Interventions for which ineffectiveness or harmfulness has been demonstrated by clear evidence, or the cost or burden necessary for the intervention exceeds anticipated benefit

- Evidence from two or more well-conducted randomized trials with at least 100 participants or conducted at more than one site and which showed no benefit for the intervention; excessive costs or burden are expected.
- Evidence from a single well-conducted trial that showed a prominent and unacceptable pattern of adverse events and serious toxicities (CTCAE grade III or IV)
- Evidence from a meta-analysis or systematic review of research studies that incorporated quality ratings in the analysis and included a total of 100 patients or more in its estimate of effect size and confidence intervals with demonstrated lack of benefit or prominent and unacceptable toxicities
- Intervention discouraged from use by a panel of experts in the related subject after conducting a systematic examination, quality rating, and synthesis of the available evidence

## FIGURE 2. Oncology Nursing Society Putting Evidence Into Practice Weight of Evidence Classification Schema

Note. From "Decision Rules for Summative Evaluation of a Body of Evidence," by S.A. Mitchell and C.R. Friese, 2011. Retrieved from <https://www.ons.org/practice-resources/pep/evaluation-process>. Copyright 2011 by the Oncology Nursing Society. Reprinted with permission.

This detailed description of the PEP process provides nurses with assurance of the rigor used to develop the resources.

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