

ARTICLE TITLE

Organizational Strategies for Building Capacity in Evidence-Based Oncology Nursing Practice: A Case Report of an Australian Tertiary Cancer Center

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DISCLOSURE STATEMENT

The Authors have nothing to disclose.

KEY WORDS

KEY POINTS

- In spite of many efforts to promote evidence-based practice in the clinical setting, barriers still remain.
- The literature is clear that a supportive infrastructure and environment for evidence generation and utilisation is necessary to inform safe, effective and quality nursing care.
- Using the experience of an Australian tertiary cancer center, this case report discusses four successful organizational strategies including the implementation of the Embedded Scholar: Enabler, Enactor and Engagement (4Es) Model; a 12-week Evidence-Based Practice Program; prioritizing clinically relevant research proposed by clinical staff; and endorsing high quality, evidence-based point-of-care resources such as the Cochrane Database of Systematic Reviews and the Oncology Nursing Society Putting Evidence into Practice.

SYNOPSIS

The ever increasing cancer care demand has posed a challenge for oncology nurses to deliver evidence-based, innovative cancer care. Despite many efforts to promote evidence-based practice, barriers still remain and executives still find it difficult to implement evidence-based practice in an efficient manner. Using the successful experience of an Australian tertiary cancer center as a case report, this paper depicts four effective strategies for facilitating evidence-based practice at the organizational level. These include the implementation of the Embedded Scholar: Enabler, Enactor and Engagement (4Es) Model; a 12-week Evidence-Based Practice Program; prioritizing clinically relevant research proposed by clinical staff; and endorsing high quality, evidence-based point-of-care resources such as the Cochrane Database of Systematic Reviews and the Oncology Nursing Society Putting Evidence into Practice.

Introduction

The demand for cancer care is growing exponentially due to the increasing cancer incidence and the improved efficacy of cancer treatments. According to the World Health Organization International Agency for Research on Cancer, the number of new cancer cases is projected to increase from 14.1 million in 2012 to 21.4 million in 2030 (1). In response to this growing demand and the stringent health economic climate, oncology nurses are expected to deliver more care activities with finite resources. Developing and implementing evidence-based, innovative and cost-effective interventions is key to sustainable cancer care. At an organizational level, demonstrating exemplary integration of evidence-based practice (EBP) and research into care in the clinical setting is one of the key assessment criteria for institutions that seek the Magnet recognition (2).

Although there have been reports of tremendous efforts to promote EBP in oncology nursing (3-7), a number of barriers that impede timely translation of evidence into practice remain (8, 9). These persisting barriers include lack of required EBP knowledge, skills and training; lack of support from support from managers; and lack of opportunity or time to be involved in EBP activities (8, 9). A recent study of 276 American Chief Nurse Executives revealed that although they believe strongly in EBP, up to 44% felt they cannot implement it in a time efficient manner (10). For EBP to sustain, cultures and environments that include EBP resources, mentors and easy to access tools for EBP must be developed (11). To facilitate this, we discuss four successful organizational strategies for building EBP capacity in this paper using a case report of an Australian tertiary cancer center. For each strategy discussed, at least one example of clinical application is provided. The clinical setting of this case report is a cancer center of a tertiary

referral hospital in Queensland, Australia. Each day the center serves approximately 68 inpatients, 200 radiation therapy outpatients, 200 patients attending specialized cancer care clinics and 90 patients attending the day therapy unit. In total, approximately 270 full-time registered nurses provide nursing services to the departments of hematology, bone marrow transplant, medical oncology, radiation oncology and the hemophilia center.

1. Embedded Scholar: Enabler, Enactor and Engagement (4Es) Model

In 2008, the inaugural Nurse Researcher was appointed using an Embedded Scholar Model (12), and was responsible for supporting and facilitating EBP for a team of approximately 270 oncology nurses. The role of the Nurse Researcher and the role evaluation was reported elsewhere (12). Over the past eight years (2008-2016), the model has evolved from the original Embedded Scholar Model into the Embedded Scholar: Enabler, Enactor and Engagement (4Es) Model, where there is a full appreciation of the importance of the whole-system approach at the organizational level.

Cancer Nursing Professorial Precinct

In this paper, the Royal Brisbane and Women's Hospital (RBWH) and Queensland University of Technology Cancer Nursing Professorial Precinct is used as an exemplar to illustrate the 4Es Model (See Fig 1) (13). The success of the 4Es Model requires the commitment of hospital executives, experienced senior researchers, and a number of engagement strategies that aim to overcome the barriers commonly reported to impede EBP. In the 4E's Model, the Nursing Executives, Nursing Leadership Committee, and University Academics act as the enablers. The

Nurse Researchers are responsible for directly enacting the research strategy. The engagement strategies are directly aimed to overcome barriers commonly reported in the clinical setting.

Insert Fig 1

Appropriate guiding principles were essential to the success of this initiative. At the inception of the Precinct, the Nursing Leadership Committee developed eight guiding principles to underpin the activities of the Precinct (See Box 1).

Box 1. Cancer Nursing Professorial Precinct Principles

- Be focused on improving outcomes for people with cancer and their families and carers.
- Conduct work that is informed by key safety and quality standards and priorities.
- Promote the involvement and leadership of nurses at all levels in research and service improvement activities.
- Focus on advancing nursing practices within the service as well as in the practice environment.
- Be inclusive, collaborative and multidisciplinary in its approach.
- Implement effective communication strategies to optimize awareness and engagement of all nurses within the Precinct.
- Incorporate a range of strategies to promote rapid transfer of learning into practice; and
- Promote consumer involvement in its activities.

The 4Es model is a feasible and effective means for building EBP capacity at an organizational level. Key outcomes of the Cancer Nursing Professorial Precinct, include over \$4 million AUD of research competitive funding from a wide range of project grants, fellowships and scholarships; over 60 peer-reviewed articles in cancer care journals; over 70 research-related

conference papers at national and international conferences; and 11 new enrolments into research higher degree studies (four PhD level and seven Master level).

2. A 12-week Evidence-Based Practice Program

A 12-week EBP Program is regularly offered to oncology nurses at the RBWH. This program was originally developed by the Nursing Director (Research) for the hospital. This program has been modified and customized twice to reflect the requirements outlined in the Australian Qualification Framework (14). Students who completed this program can seek advanced standing towards one course of their post-graduate qualifications from the three universities in Queensland Australia. Table 1 outlines the curriculum of the EBP Program. The program is conducted by doctoral or master prepared oncology nurse researchers, who are also experienced Cochrane Collaboration authors and EBP facilitators. The program is free of charge to participants.

Insert Table 1

Prior to enrollment in the EBP program, participants are encouraged to explore a relevant research question with their line-manager and seek approval and support for one paid off-line day (8 hours per week over 12 weeks) to attend the EBP program. Enrolled participants are sent pre-reading materials to aid them in understanding the basics of EBP and knowledge translation in the clinical setting. Participants subsequently participate in the 12-week program. Following completion of the program, all participants are expected to produce a report and a poster for presentation at an international/national conference and their respective clinical areas.

A service-wide uptake of the chlorhexidine-impregnated sponge dressings

In 2012, the RBWH Cancer Nursing Professorial Precinct team published a research translation paper illustrating how a staff nurse who worked at the outpatient therapy unit changed practice based on the findings of a meta-analysis, as an outcome of the 12-week EBP program (15). The research question was: *Is the routine use of chlorhexidine-impregnated sponge dressings effective for reducing catheter-related blood stream infections in cancer patients with Central Venous Access Devices (CVADs)?* As part of the 12 week EBP program, the clinical nurse conducted a systematic review and meta-analysis including data of 5,295 participants from five randomized controlled trials (RCTs). The results strongly favored the routine use of chlorhexidine-impregnated sponge dressings on central catheter entry sites for reducing catheter-related blood stream infections (Odd Ratio [OR]: 0.43, 95%; Confidence Interval [CI]: 0.29, 0.64). After presenting the results to the Nursing Executives, Nurse Managers and nurse clinicians in all clinical areas, the clinical nurse received support to implement the routine use of chlorhexidine-impregnated sponge dressings throughout the entire cancer care center.

3. Prioritizing Clinically Relevant Research Proposed by Clinical Staff

A range of engagement strategies within the 4Es model allow opportunities for clinicians to propose research that is directly relevant to clinical care. The EBP program is limited in that relevant research questions can only be sufficiently answered where there is strong evidence in the literature to inform practice. Where there is insufficient evidence available to answer a specific clinical question, it creates an opportunity for a primary research project to be conducted. The progression from an EBP project to a primary research project is advantageous,

because the participant can use the existing data from the EBP program to inform a research grant application, and potentially be employed as the research assistant responsible for collecting to project data. Such involvement allows the participant to further gain experience in the conduct of clinical research.

Management of treatment related skin-toxicity

Between 2012 and 2014, the Cancer Nursing Professorial Precinct research team conducted two EBP projects (16, 17) that investigated the best intervention for preventing and reducing skin toxicities related to radiation therapy and/or targeted therapies. Despite the number of clinical trials conducted in this area, it is clear that there is no evidence suggesting any topical preparation being superior in comparison to other topical preparation. In 2012, the Nurse Unit Manager (Radiation Oncology) noticed a rapid uptake of a specific skin preparation in patients receiving radiation therapy across Australia. Anecdotal evidence from radiation oncologists, nurses, and patients strongly suggested the efficacy of this skin preparation for preventing and reducing skin toxicities. This particular new preparation began to gain popularity in Australia and some Asian countries, and was considerably more expensive than the other basic moisturisers used in usual care, such as the aqueous cream or Sorbolene (18).

At the request of the Nurse Manager and staff nurses at the Department of Radiation Oncology, the Precinct research team undertook a double-blind RCT comparing the effects of the new preparation versus aqueous cream (usual care) (18). This trial included 174 patients receiving radiation therapy without and without concurrent systemic therapy (n=89 in intervention group; n=85 in the control group), with results indicating that patients receiving the new topical

preparation had significantly more severe skin toxicities at week 7, 8 and 9 of radiation treatment (18). Considering the undesirable outcomes and significantly higher cost compared to usual care, all patients are now advised to avoid using this particular preparation. This exemplar not only demonstrates the process that led to the conduct of a clinically relevant research project, but also the active involvement of management and clinical staff, and a rapid translation of knowledge into practice.

4. Endorsing high quality, evidence-based point-of-care resources

Given lack of time is a well reported barrier that impedes EBP, it is important organizational leaders endorse high quality, evidence-based, point-of-care resources for busy clinicians. Below are some examples of high quality evidence-based resources that can be used at the point of care by oncology nurses.

The Cochrane Database of Systematic Reviews

The Cochrane Collaboration is a not-for profit organization established in 1993 (19). When celebrating the 20th anniversary of the Cochrane Collaboration in 2013, the Cancer Nursing Professorial Precinct research team published an editorial to explain why the Cochrane Database of Systematic Reviews should be the place of choice to obtain evidence in informing care (20). Systematic reviews are considered the highest level of evidence and the standard approach in summarizing health research and influencing healthcare decisions (21). Cochrane systematic reviews, are required to be of a set standard, to include having a clearly stated set of objectives with pre-defined eligibility criteria for studies; an explicit reproducible methodology; a systematic search that attempts to identify all studies that would meet the eligibility criteria; an

assessment of the validity of the findings of the included studies, for example, through the assessment of risk of bias; and a systematic presentation and synthesis of the characteristics of findings of the included study (22). At the end of 2015, over 9,143 systematic reviews or protocols have been published online in the Cochrane Database of Systematic Reviews (19).

It is important to inform oncology nurses that quality of non-Cochrane systematic reviews varies largely (23, 24). In contrast, the Cochrane Collaboration has credibility as its reviews consistently adhere to the strict standards listed above. In addition to the high quality systematic reviews, the Cochrane Collaboration has also developed a number of resources to increase the accessibility of the evidence generated by the Collaboration. The Collaboration creatively has used strategies to reach busy clinicians such as the Evidently Cochrane blog, social media such as Facebook and Twitter, and a number of Cochrane Review Summaries (published in specialty journals such as the *Cancer Nursing: An International Journal for Cancer Care*). All these additional greatly enhanced the accessibility of Cochrane systematic reviews at the point of care.

The Oncology Nursing Society's Putting Evidence into Practice

Institutionalizing EBP requires oncology nurses to be knowledgeable about the available evidence and its usefulness at the bedside or chairside. This should not be difficult given the resources developed by and available to oncology nurses. The Oncology Nursing Society 'Putting Evidence into Practice' (ONS PEP) resources are available in a ready to use format designed to provide evidence-based interventions for oncology patient care.

During the development process, professional librarians assist in the literature search. Panels of advanced practice nurses, staff nurses, and doctorally-prepared nurse researchers, also called ONS PEP topic teams, review the relevant literature, and summarize and synthesize the available evidence in various PEP topic areas. Based on the analysis, the panel formulates a judgment about the body of evidence related to the intervention under consideration. The panel classifies the evidence into one of six *weight of evidence* categories based on: the quality of the data, with more weight assigned to levels of evidence higher in the PRISM categorization (e.g., randomized trials, meta-analyses); the magnitude of the outcome (e.g., effect size, minimal clinically important difference); and the concurrence among the evidence (based on the premise that an investigator has less confidence in findings in which the lines of evidence contradict one another) (see Fig 2). The classification schema does not guide the decision about using a particular intervention for an individual patient. Those decisions should be made by the interdisciplinary team based on key components of EBP (i.e. individual patient characteristics, values, and preferences, consideration of potential benefit and harm, and an assessment of the feasibility of implementing the intervention) within a specific care setting.

Insert Figure 2 about here

The ONS PEP topics focus on patient-centered outcomes, such as symptoms, selected by a survey of ONS members combined with the best available evidence in the topic. The ONS PEP evidence synthesis provides interventions that are effective in preventing or treating the outcome of interest. The ONS PEP resources can be used to plan patient care, patient education, nursing education, quality improvement, and research. The ONS PEP resources can be embedded into

cancer care interventions or incorporated into telephone triage protocols. They could be included in oncology policies and procedures, quality/performance improvement activities, standards of care, and physician order sets. The ONS PEP information can be integrated into orientation, educational programs, nursing grand rounds and journal clubs.

Conclusion

This paper demonstrates the feasibility and effectiveness of several organizational strategies. The 12 week EBP program aims to develop EBP skills among oncology nurses. It can be easily integrated to any cancer center where a master/doctorally prepared nurse researcher with advanced EBP skills can deliver the program. Prioritising clinically relevant research through involving departmental nurse managers and staff nurses is a key strategy that can enable rapid translation of research evidence into care. Another strategy is endorsing high quality EBP resources that can inform oncology nurses of best available evidence at the point of care. For the full potential of these strategies to be realised, it is critical that they are implemented in a systematized approach at an organizational level. In this paper, we illustrate the feasibility and effectiveness the 4Es Model for facilitating EBP at an organizational level. A supportive infrastructure and environment for evidence generation and utilisation is necessary to inform safe, effective and quality nursing care. The authors acknowledged the limitation that this paper uses a single centre experience to depict a feasible model for facilitating EBP, various components of the model can be adapted by other cancer centers according to their context.

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Table 1: The current Royal Brisbane and Women's Hospital 12-week Evidence-Based Practice Program

Week	Content	Number of hours
Pre-workshop	Pre-readings	22 hours
Week 1	Introduction to Evidence-Based Practice Workshop discussion: exploring & developing clinical questions using the PICO format On-line tutorials <ul style="list-style-type: none"> - Cochrane tutorial - PubMed tutorial - Medline tutorial - CINAHL tutorial Practical demonstration on literature searching Begin literature search	8 hours
Week 2	Literature searching Title and abstracts screening, and decide which full articles to retrieve <ul style="list-style-type: none"> - Do they provide an answer to your question or are they just interesting? (Do they include the right population, the intervention of interest, and results about the outcomes of interest?) - Are they the correct study design to answer your question? 	8 hours
Week 3-4	Terminology used in evidence-based health care: understanding the basics Statistics: understanding the basics Literature searching and Critical appraisal <ul style="list-style-type: none"> - Randomized Controlled Trials If relevant to the research questions, below types of research can be included, critically appraised and synthesized <ul style="list-style-type: none"> - Qualitative Studies - Diagnostic Studies - Systematic Reviews - Clinical Guidelines 	8 hours per week
Week 5 – 10	Data extraction, data entry and data synthesis <ul style="list-style-type: none"> - Using standard Cochrane data extraction form and Review Manager* - Interpret Forest Plots and the results table* - Narrative synthesis of data 	8 hours per week
Week 11-12	Prepare a report and recommendations for practice <ul style="list-style-type: none"> - Formulation of implications for practice and future research - Preparation of an A0 poster for conference and local presentations 	8 hours per week

Total: 96 hours

*If applicable

*Note. This curriculum was developed by Professor Joan Webster, Nursing Director Research,
Royal Brisbane and Women's Hospital*

Figure 1. Embedded Scholar: Enabler, Enactor and Engagement (4Es) Model for Achieving Excellence in Evidence-Based Oncology Nursing Practice

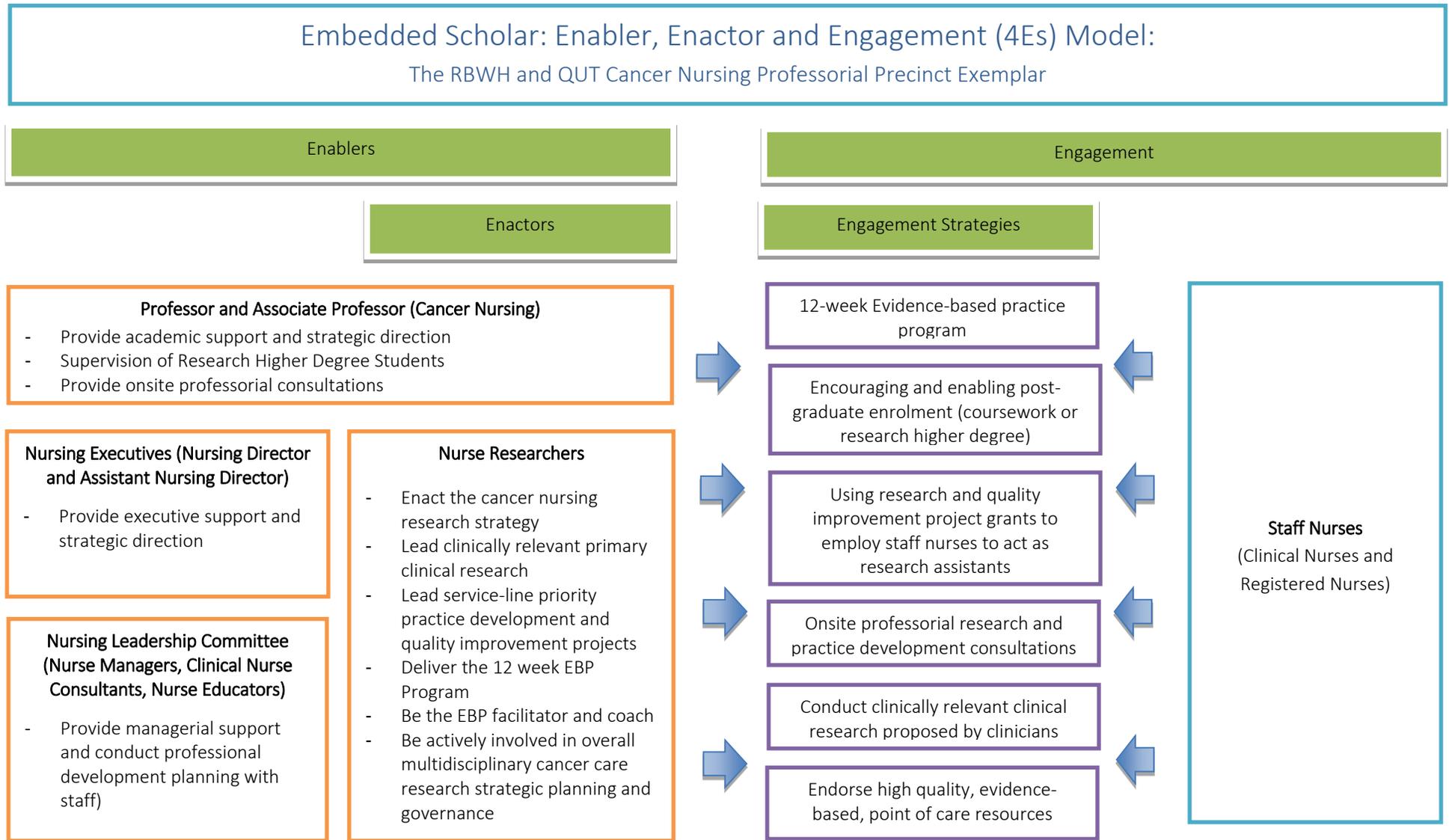


Figure 2 The Oncology Nursing Society Putting Evidence Into Practice

Recommended for Practice

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

Likely to Be Effective

Interventions for which effectiveness has been demonstrated from a single rigorously conducted controlled trial, consistent supportive evidence from well-designed controlled trials using small samples, or guidelines developed from evidence and supported by expert opinion

Benefits Balanced With Harm

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

Effectiveness Not Established

Interventions for which insufficient or conflicting data or data of inadequate quality currently exist, with no clear indication of harm

Effectiveness Unlikely

Interventions for which lack of effectiveness has been demonstrated by negative evidence from a single rigorously conducted controlled trial, consistent negative evidence from well-designed controlled trials using small samples, or guidelines developed from evidence and supported by expert opinion

Not Recommended for Practice

Interventions for which lack of effectiveness or harmfulness has been demonstrated by strong evidence from rigorously conducted studies, meta-analyses, or systematic reviews, or interventions where the costs, burden, or harm associated with the intervention exceed anticipated benefit

Expert Opinion

Low-risk interventions that are consistent with sound clinical practice, suggested by an expert in a peer reviewed publication, and for which limited evidence exists (An expert is an individual who has published peer reviewed material in the domain of interest.)

Note. Permission given by the ONS.

Source: <https://www.ons.org/practice-resources/pep>

Accessed April 1, 2016