

The Mountain Model for Evidence-Based Practice Quality Improvement (EBPQI) Initiatives



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LEARNING OUTCOMES

1

Describe how the mountain model differs from other evidence-based practice (EBP) and quality improvement (QI) frameworks.

2

Generate a rationale statement for the need to disseminate EBPQI initiatives to shorten the research to practice gap.

3

Develop examples of how you might apply the mountain model in your current role as a nurse.



Tell us about your current role and nursing experience

Poll Questions



Tell us about your experience with evidence searching questions

Poll Question

Introduction

Problem identification is the first step in all EBP models

We identified 2 problems:

1

Frustration with PICO and all its iterations to guide evidence searching

2

Struggle to explain what we saw as a seamless process from research to EBP to QI

Search for Evidence to Find Solutions

1 Frustration with PICO and all its iterations to guide evidence searching



Limited evidence to support its use in nursing

2 Struggle to explain what we saw as a seamless process from research to EBP to QI



No models published to guide this

Opportunity

- ▶ Develop a new evidence searching question for nursing and healthcare partners
- ▶ Develop a EBPQI Model for nurses at all levels

Problems with PICO(T,S) etc.



Developed for research in the field of medicine¹



Works well for therapies (drugs, procedures, tests, etc.)



Using usual care or a placebo as the comparison



Privileges experimental research and medical interventions²

Evidence Hierarchy



Problematic exclusion of minority populations in research



Supports premature bias toward an already-known intervention

Begs the nurse to “compare” one intervention to another³

Problems with PICO(T,S) continued



Nurses have varied interests beyond medical treatments

Management Processes

System of care

Program, policy or protocol effectiveness

Public disaster response



Doesn't always address the need to understand or learn more about the problem itself

But there are other types of PICO questions you say.... Lions and tigers and bears, oh my!

To try to guide the search for evidence over 25 different types of searching questions have been developed²

SPIDER

useful for qualitative or mixed methods research topics focused **on samples rather than populations**

Sample

Phenomenon of interest

Design

Evaluation

Research type

SPICE

useful for qualitative research topics evaluating the outcomes of a **service, project or intervention**

Setting

Perspective

Intervention/Interest/Exposure

Evaluation

ECLIPSE

useful for qualitative research topics investigating the outcomes of a **policy or service**

Expectation

Client Group

Location

Impact

Professionals

Service

Seek to first understand the Problem Generally, and Specifically

GENERAL PROBLEM



Childhood Obesity

**SPECIFIC PROBLEM IN
THE LOCAL CONTEXT**



Percentage of children who are obese in your practice setting

Example

There exists a plethora of research on obesity in children



When this student began working as a nurse practitioner in a pediatric practice focused on holistic health and wellness, she found that the patient population included very few children who were overweight or obese



An EBPQI initiative to improve the problem of childhood obesity was not indicated in the setting



Any efforts to make improvement would be and a waste of valuable health care resources

Solution: An Evidence Searching Question for Nursing – PPCO⁴

PROBLEM



What do you want to address? Become knowledgeable about the problem in general and in your context

POPULATION



Specify the population impacted by the problem

CHANGE



What has been demonstrated by research to address the problem

OUTCOME



What is the observable difference the change makes

SIMPLE!

Example - Situation

A nurse administrator notices that adult patients with cancer who have newly placed ileostomies frequently present in the emergency department with dehydration, leading to readmission



He thinks this must surely be a preventable problem and decides to collect evidence using the PPCO framework

Example PPCO

Element	Description	Example
P - Problem	What is the problem in general (external evidence) and specifically in the local context (internal evidence)?	Dehydration
P - Patient/ Population	Who does the problem impact?	Adult patients with cancer and an ileostomy
C - Change	What has been recommended or done to address the problem? (Practice or process changes)	Changes in practice or processes
O - Outcomes	How are outcomes reported (measured)? (May be the same as the originally noted problem or its components.)	Readmission

Problem - General

He first needs to determine whether this issue (i.e., dehydration) is a general problem (1st P) for this population (i.e., adult patients with cancer and an ileostomy) (2nd P).

He searches the literature using a simple question such as:


“What is the incidence or prevalence of dehydration in adult patients with cancer and an ileostomy?”

He finds that dehydration is indeed a serious issue and the most common reason for readmission

Dehydration can result in numerous consequences for these patients and be a resource burden on the health system.

Problem - Specific

The nurse administrator must next find local or internal evidence (beyond his observations), if possible.



He seeks assistance from admissions personnel, who identify the most common admission diagnosis for patients with cancer and an ileostomy and calculate the rate for the prior six months.



This calculation shows that his observations were accurate— readmission for dehydration is an ongoing problem for the organization,

But is there a solution?

Example PPCO

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External and Internal Evidence

His search through the research reveals that short-term follow-up evaluation for signs and symptoms of dehydration after ileostomy placement and subsequent patient education on self-management, is the best intervention to prevent readmission from dehydration.



He proposes that patients be seen in the clinic by a nurse practitioner 4 to 7 days after ileostomy placement for this assessment and educational intervention.



Now the nurse administrator is ready to present to upper administrators his evidence on the problem and his recommendations for a solution.



Not surprisingly, they are eager to hear his evidence-based ideas for practice change and quality improvement.

Summary



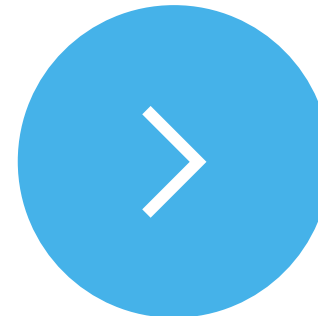
EBPQI initiatives begin with a complete understanding of the clinical problem or issue coupled with knowledge of the local context.



The PPCO question can serve as a practical and accessible starting point for EBPQI evidence searches.



As nurses, we strive in many spaces—community, clinical, and academic, to effect positive changes in health-related systems and the lives of our patients.



How we pursue change also needs to change!

The Bigger Problem – Integrating EBP with QI

- Paradigms of evidence-based practice (EBP) and quality improvement (QI) have evolved exponentially over the past three decades, with increasing calls for congruence⁵⁻⁹
- Given growing complexity of healthcare and related fields, full incorporation of QI principles into EBP initiatives needed
 - Research studies constantly produce new evidence that should inform practice
 - The term “evidence-based” describes using evidence in any way, thus it may fail to capture the central tenets of EBP:

(a) the best available research evidence,

(b) clinical expertise, and

(c) patient and family preferences

- QI is a term originally developed for use in industry
 - evidence used in QI is specific to a local organizational context

Search for Evidence

Two adapted approaches were found that merged specific practice improvement processes with EBP.

1

Levin et al., combined the seven steps of the EBP process with the QI approach of the PDSA cycle, from the model for improvement using the term “evidence-based practice improvement” (EBPI) ¹⁰

2

Halm, et al. integrated the steps of EBP and the LEAN process improvement method ¹¹

Some newer literature uses the term “evidence-based quality improvement” (EBQI) to signify/symbolize the merger of EBP and QI as a process improvement^{12,13}

However, no models encapsulating EBP and QI principles were located

Research, EBP and QI - All are needed¹³⁻¹⁷

Goal for all = high quality patient care

Research

- generate new knowledge
- uses scientific methods
- generalizable

EBP

- Uses best evidence from research, clinician expertise, patient preference

QI

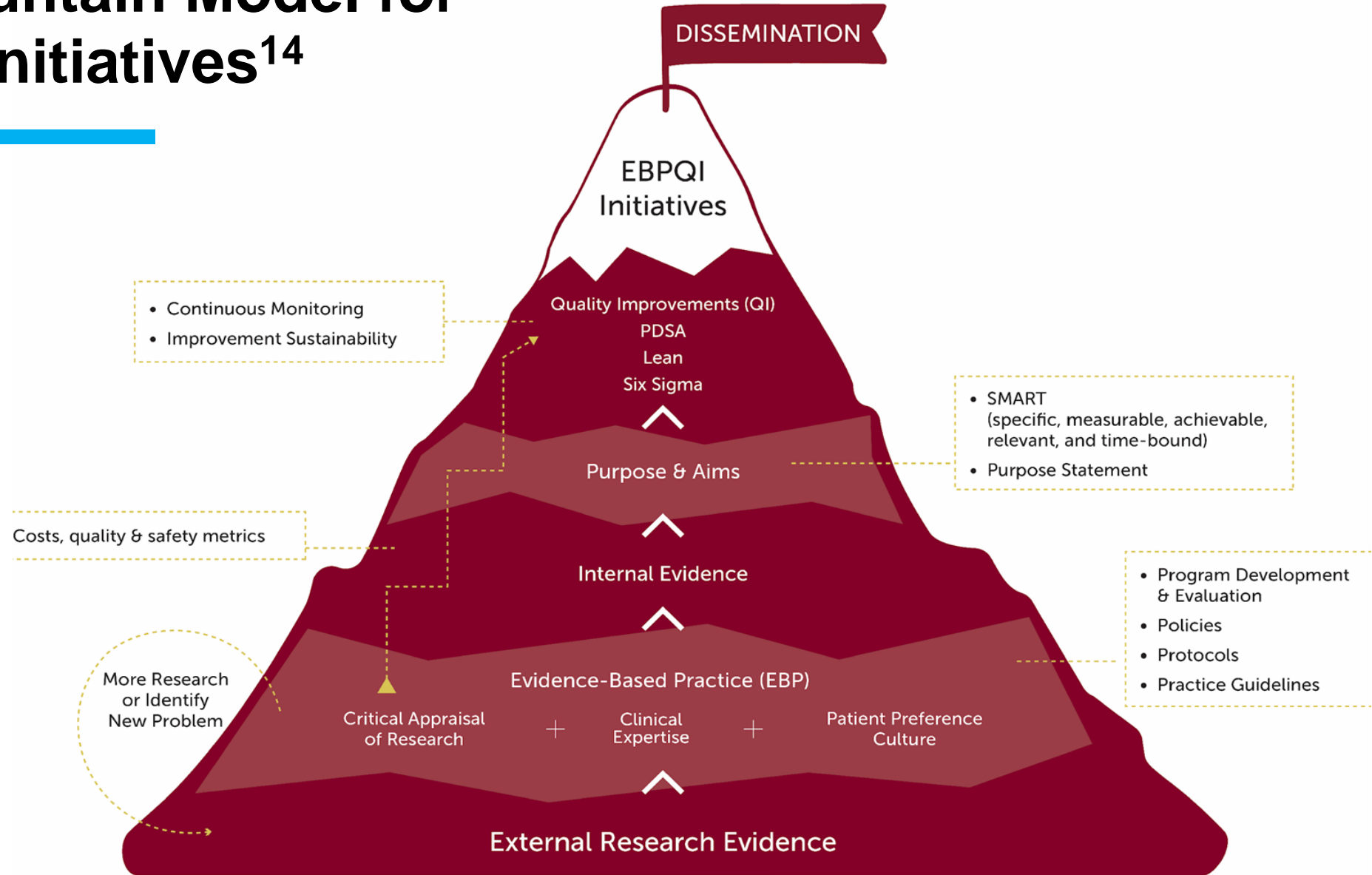
- Improves processes
- Uses improvement methods (e.g., PDSA, LEAN, Six Sigma)
- transferable



Tell us about your experience with EBP and QI models:

Insert audience polling feature

The Mountain Model for EBPQI Initiatives¹⁴



Let's work through an example together...

A nurse who works in the public health department of a rural county just received notice that the only hospital in the county will no longer provide prenatal care or labor and delivery services.



In this sparsely populated but geographically large county, people often have difficulty finding transportation to the hospital.



Now, people will need to travel an additional 75-90 minutes to access obstetrics care at the next closest hospital, and the nurse worries that this hardship will keep many of them from receiving prenatal care.



Because the nurse feels strongly that all pregnant persons should have access to safe, high-quality perinatal and birth services, a feasible solution to address this problem begins with a search of the literature.

PPCO Search Question

Element	Description	Example
P - Problem	What is the problem in general (external evidence) and specifically in the local context (internal evidence)?	Perinatal care services not offered at the county's one OBGYN clinic
P - Patient/ Population	Who does the problem impact?	Child-bearing persons
C - Change	What has been recommended or done to address the problem? (Practice or process changes)	Alternatives to closed OBGYN clinic for delivery of prenatal care
O - Outcomes	How are outcomes reported (measured)? (It may be the same as the originally noted problem or its components.)	Safe perinatal care

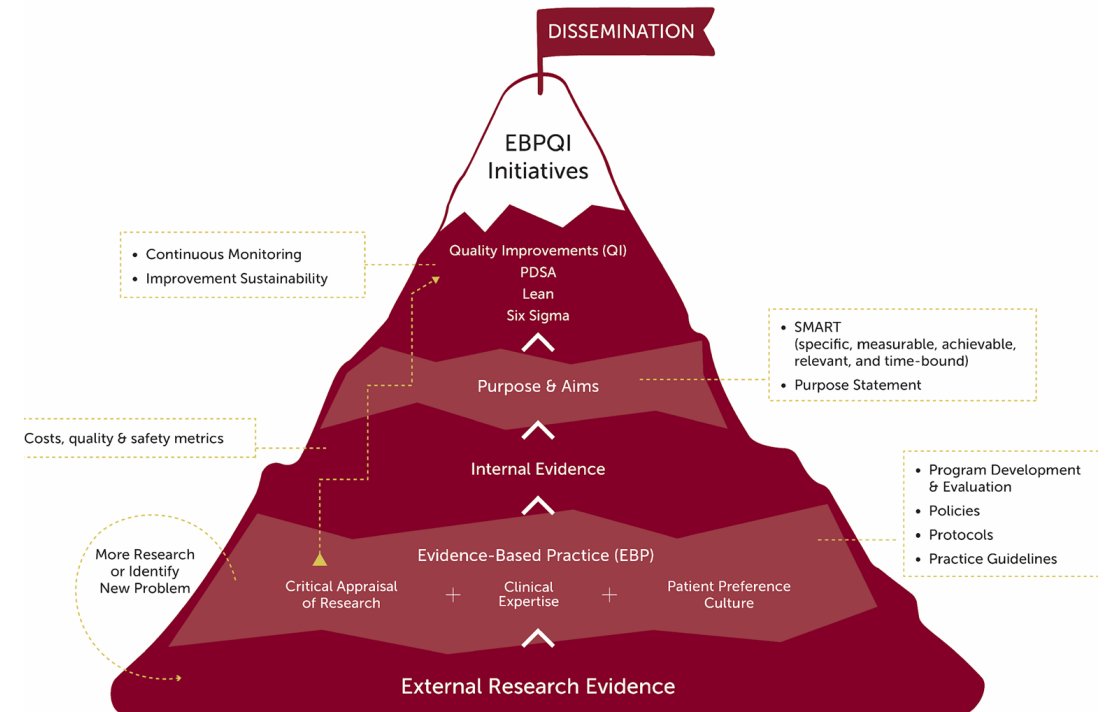
Results - Evidence

The nurse learns that some nurse-led models of care have been successfully used to provide prenatal care, especially in other countries (EBP level).

In the United Kingdom, nurses provide prenatal and postpartum care to patients in their homes, and this service is perceived as extremely valuable by patients.

As the nurse looks for internal evidence that might help (Internal Evidence Level), she finds that the county health department used to provide prenatal and postpartum care to women in their homes, but this service was discontinued years ago when the obstetrics practice opened.

The nurse notes that county infant and maternal death rates were lower when this service was being offered compared to recent statistics.



SMART Aims

1

Eighty percent of pregnant women or birthing persons will enroll in the peripartum home care service (a process or fidelity measure).

2

The county's infant mortality rate will remain the same or improve (an outcome measure).

3

Patients scores of their satisfaction with peripartum home care services will be 4 or above on a 5-point scale (a balancing measure).

Quality Improvement

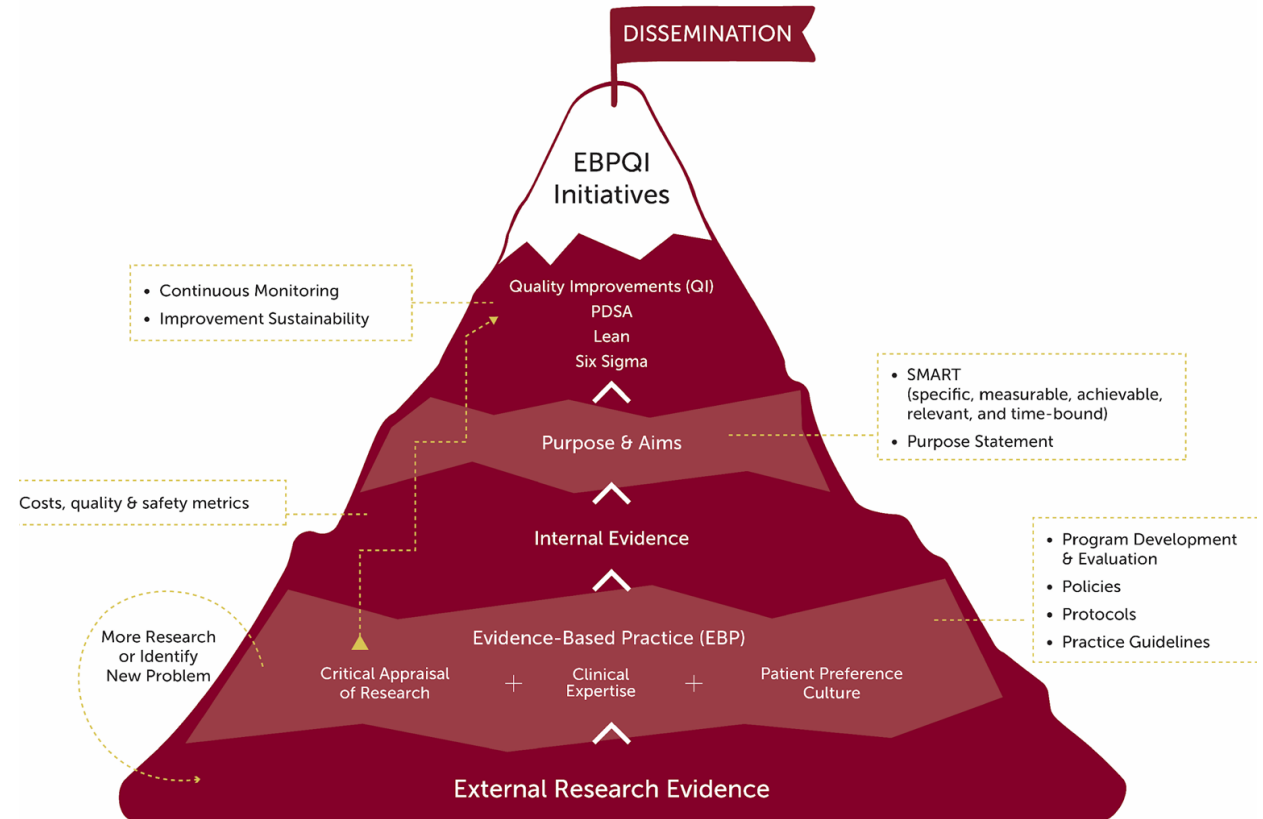
Nurse, Team or Organizational Choice

IHI with PDSA (IHI, 1991)

LEAN (Ohno, 1988)

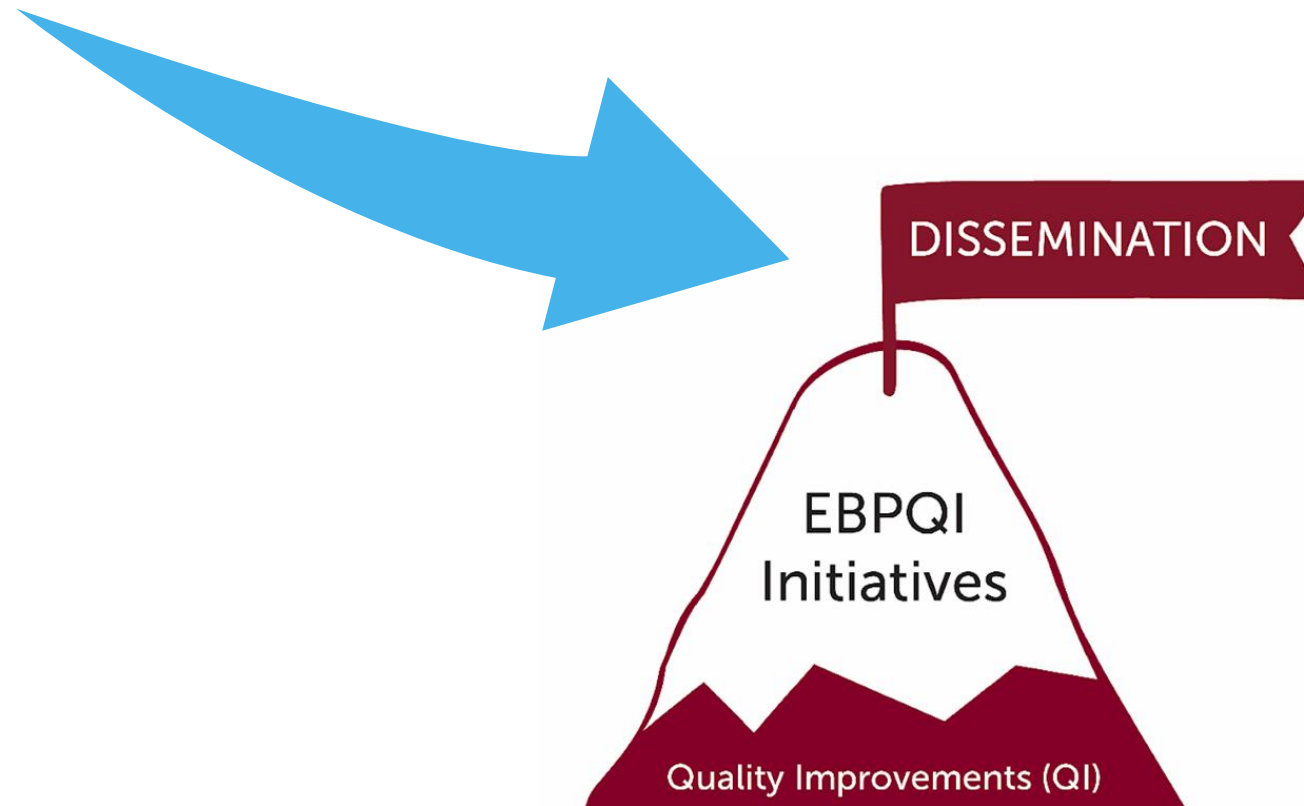
Six Sigma (Smith, 1986)

Implementation Science strategies



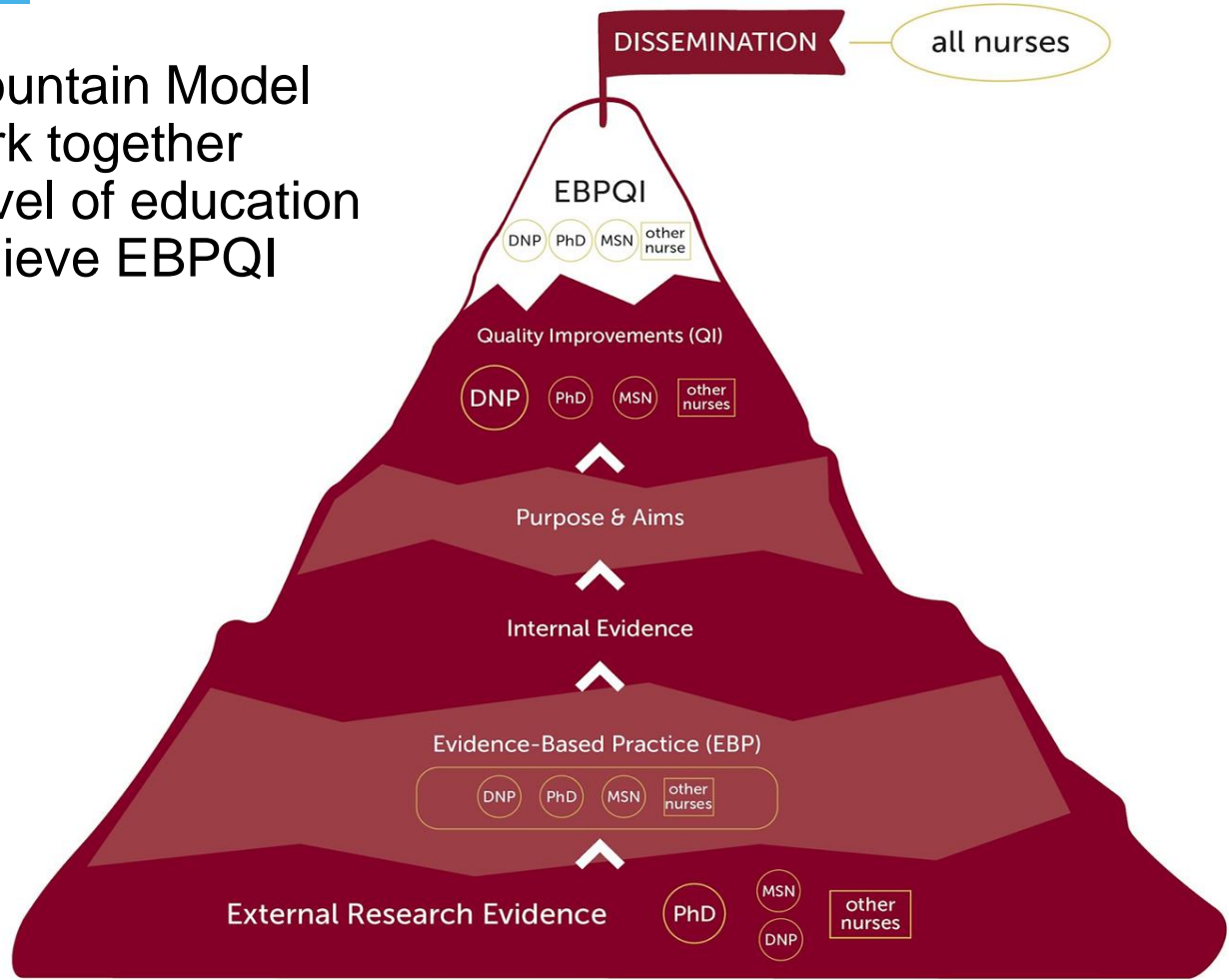
Dissemination

The goal of an EBPQI initiative is to improve health and healthcare, therefore, dissemination is critical (flag on top) so that nurses facing similar situations can transfer project results to their own context.



EBPQI and Nurses' Roles

Each level of the Mountain Model allows nurses to work together according to their level of education and expertise to achieve EBPQI



Larger circle represents a leadership role.

Sustainability of Practice Change

Another aspect of the EBPQI model that eludes the traditional EBP process is sustainability.



EBP models focus on finding, critically appraising, and synthesizing research to develop best practice recommendations to improve a specific problem.



Once this process has been completed, the identified recommendation is combined with the expertise of those involved and the preferences of patients (or other groups) to develop a practice or process change, policy, protocol, or guideline.



All involved are informed and then engaged, with the expectation that when implementation science principles are used, the practice change will occur.

Ideally, it does. But what then?

Sustainability is built in with QI principles

The EBP model ends, and there is no systematic path for continuous monitoring of the intended outcomes.



How will the people and/or organization involved determine whether the practice change was effective and continues to work?

Linking EBP and QI into one model addresses this gap. EBPQI systematically moves from the generation of research to its application in practice and the continued monitoring of the application to ensure the highest quality care.

Knowledge for Generalizability vs. Knowledge for Transferability

- A common critique of EBPQI initiatives is that they are only local, so their results do not produce **generalizable** new knowledge with sufficient rigor to be published in the nursing literature.
- Best nursing practices are always of utmost importance and relevance, and well done EBPQI initiatives produce best practice knowledge that is **transferable** to other similar settings or populations.
- Dissemination of this knowledge can shorten the time from research production to application or practice change
- Sharing EBPQI initiatives can save healthcare resources, allowing organizations to choose interventions with a higher likelihood of success based on published evidence.

Conclusions



Through a blended EBP and QI process with routes to research, the Mountain Model offers a modern approach to practice change which may strengthen practice change initiatives, increase the research-practice connection, and target decreased practice gaps and translation time.



Timely use of the Mountain Model by nurses can clarify the current confusion over what constitutes research, EBP, and QI.



Nurses can visualize where their educational preparation and professional nursing experience best positions them to lead and/or participate in research and EBPQI teams.

We hope you will consider using PPCO and the Mountain Model in your practice AND let us know how it goes!



Questions

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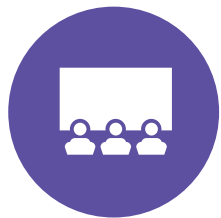
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