Evidence-Based Nursing Practice

Day 1: Intro To EBNP

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EBNP for infection prevention & control

- Two day-long workshops designed to help develop skills useful for participating in a journal club, developing P&P's and CQI initiatives

- Focused on real life clinical practice

- Aims to integrate EBNP into your practice

- Course website: www.jgh.ca/en/hslintroebp

Day 1 - Objectives

By the end of the workshop, you will be able to:

1. Describe the seven steps of the EBNP process and how they relate to P&P development and CQI
2. Describe the difference between clinical and nursing practice questions
3. Use PICO to formulate an answerable clinical question or nursing practice question.
4. Apply basic search skills to answer clinical or nursing practice questions using point of care tools and biomedical databases.

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INTRODUCTION TO THE CONCEPT OF EBNP

But first let's take a look at Evidence-based medicine/practice…
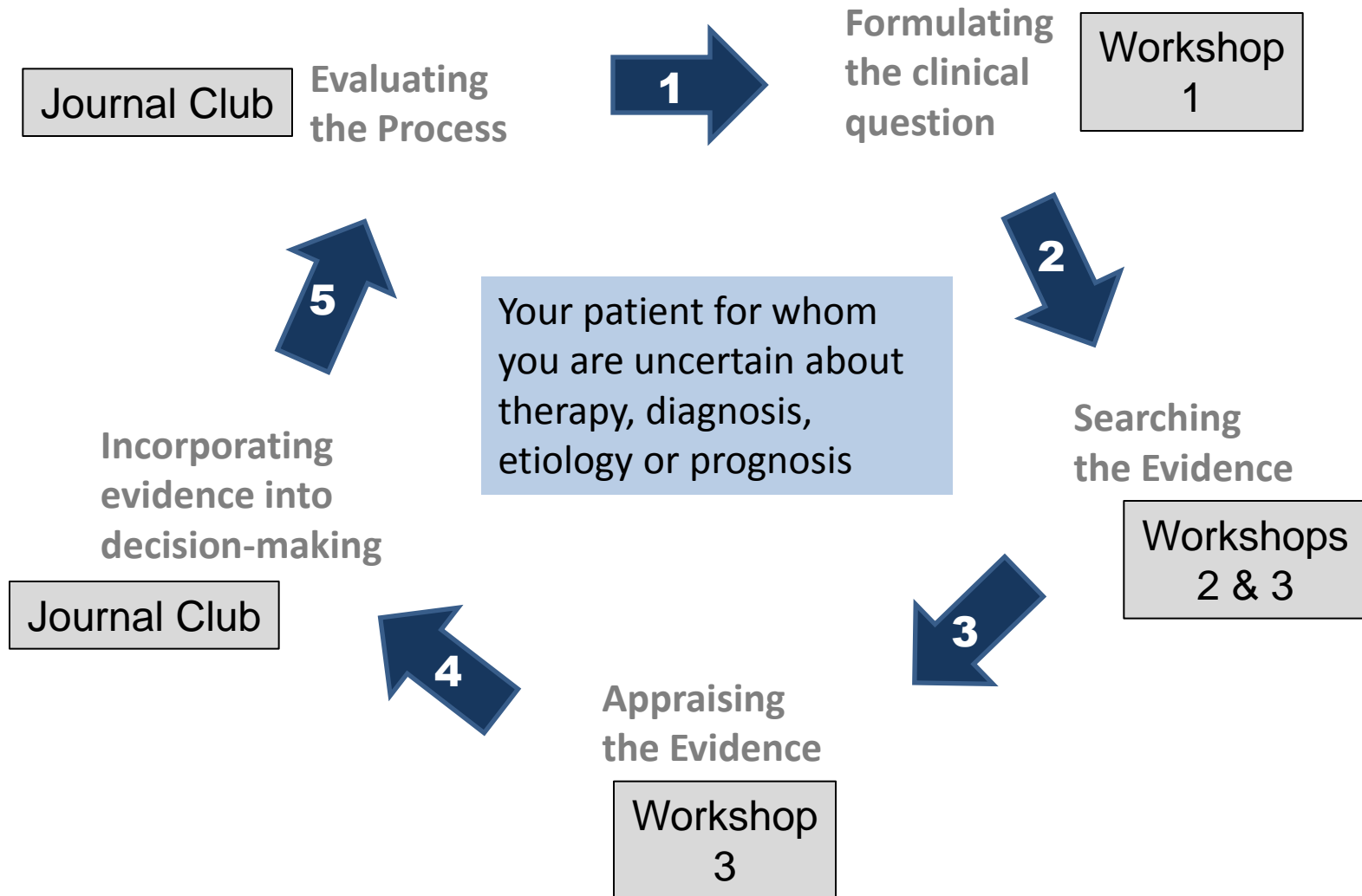
WHAT IS EVIDENCE-BASED MEDICINE/PRACTICE?

- Sackett and colleagues (1996) … defined it as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients" (p. 71). (Kloda 2012)

- A methodology divided into 5 iterative steps to answer clinical questions:

  - Etiology, Diagnosis, Therapy, Prognosis etc.

- EBM is more than just searching for articles: these are also all evidence:
  - books (best for background questions),
  - hospital guidelines/ Policies & Procedures
  - clinical guidelines

WHAT IS EVIDENCE-BASED MEDICINE/PRACTICE? CONT…

- **Clinical judgment is an integral part of the process and so are patient values**

- You are looking for the best evidence *available*

- Sometimes the answer is that there is no evidence (but at least you know for sure)

- EBP uses the same methodology as EBM applied to disciplines other than medical i.e. nursing and allied health

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EBM/P PROCESS: AN ITERATIVE METHODOLOGY

Journal Club

Evaluating
the Process

1

Formulating
the clinical
question

Workshop
1

5

Your patient for whom
you are uncertain about
therapy, diagnosis,
etiology or prognosis

2

Incorporating
evidence into
decision-making

Searching
the Evidence

Journal Club

Workshops
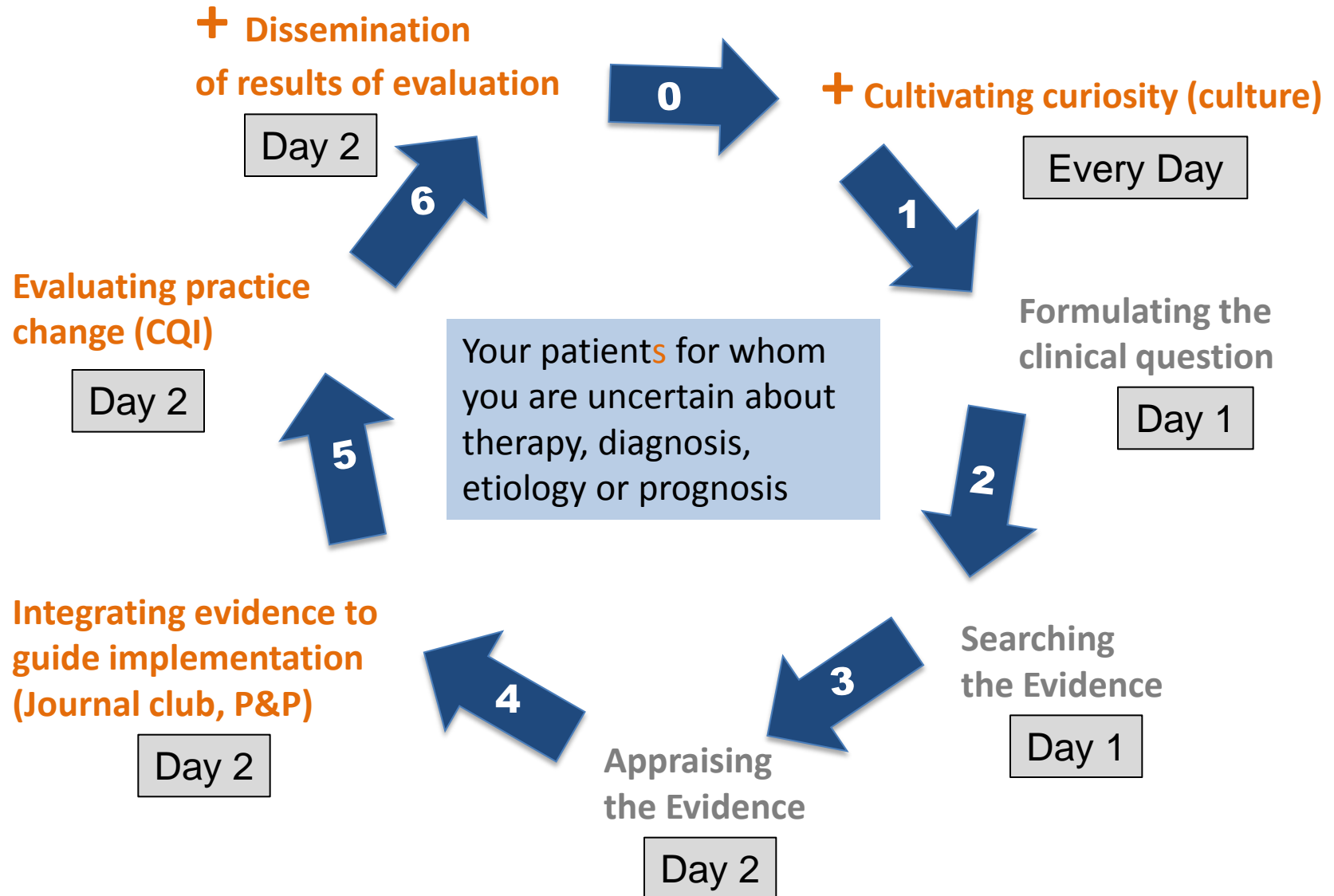2 & 3

4

3

Appraising
the Evidence

Workshop
3

WHAT ARE THE LIMITATIONS?

- EBM was designed to best answer therapy questions in medical practice by individual clinicians

- Not great for qualitative questions

- EBP is more inclusive of other evidence types (qualitative, mixed methods)

- Neither are great for nursing practice- where the development of P&P's and CQI is a big part of the process rather than decisions about individual patients by individual nurses

EBNP SEEKS TO SOLVE SOME OF THESE PROBLEMS

- New <u>7 step model</u> introduced by Melnyk et. al. as part of a mentorship program
  - series of articles published 2009-2011- see course website

- Designed specifically by and for nurses

- CNS/nurse educators trained in EBNP as facilitators

- Nurses integrate evidence into P&P so not reliant on clinical application by each individual

- Added aspect of CQI implementation and change management

- **Provides a framework that has as its goal the measurable improvement of:**
  - Quality & consistency of care
  - Patient outcomes
  - Cost containment

EBNP PROCESS: A METHOD0LOGY + A FRAMEWORK

+ Dissemination
of results of evaluation

Day 2

6

0 →

+ Cultivating curiosity (culture)

Every Day

1

Evaluating practice change (CQI)

Day 2

5

Your patients for whom you are uncertain about therapy, diagnosis, etiology or prognosis

Formulating the clinical question

Day 1

2

Integrating evidence to guide implementation (Journal club, P&P)

Day 2

4

3

Searching the Evidence

Day 1

Appraising the Evidence

Day 2

- Plays role of facilitator
  - Acts as EBNP mentor
  - Acts as champion of change
  - Acts as opinions leader
  - Educates

Schub, 2014

THE FACILITATOR'S ROLE IN AN EBNP PROJECT

- Facilitates steps 1-3 of the 7 EBNP steps

- Develops detailed written implementation plan that includes the following:
  - Members of team (active and supportive roles)
  - Conceptual model
  - Steps & timeline
  - Barriers & facilitators to successful implementation

- IRB approval

- Implementation meetings
  - Piloting change
  - Financials
  - Communication plan
  - Outcome measures

Schub, 2014

THERE ARE 2 TYPES OF QUESTIONS

1. **Clinical questions- are <u>about clinical practice.</u> EBNP is designed to answer these types of questions**

    – **E.g. you will cite these articles in your P&P**

2. **Nursing practice questions- are <u>about the implementation/evaluation process</u> and also about <u>nursing management</u>. You can still use the principles of EBNP to answer these questions**

    – **E.g. You will refer to these articles to help you understand how best to implement CQI, P&Ps etc. or to improve staff retention, or adherence to best practices etc.**

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CLINICAL QUESTIONS- EXAMPLES

1. These are questions that are directly about patient care:

    – how to test for a type of infection
    – how to treat a type of infection
    – how infections are transmitted
    – how infections can be prevented from spreading

THERE ARE SEVERAL TYPES OF CLINICAL QUESTIONS

Type of Question
Diagnosis (test)
Therapy (treatment, prevention)
Etiology/Harm
Prognosis
Economics
Meaning

They can be **foreground** questions or **background** questions- more about this in next slides…

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NURSING PRACTICE QUESTIONS- EXAMPLES

2. These are questions that relate to nursing practice, management or implementation issues or processes- they still ultimately benefit patients but the do not fit under the categories of etiology, diagnosis, therapy, prognosis:

– What would improve teamwork and increase nurses' job satisfaction?
– How to influence change when there is resistance, or just non-adherence, to new P&Ps?
– What are barriers and facilitators to implementing EBNP?

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THERE ARE SEVERAL TYPES OF PRACTICE QUESTIONS

- No current model exists for classifying these types of questions in EBNP but they generally fall under these categories:

    - About CQI
    - About P&P development
    - About change management
    - Implementation science - interventions
    - Implementation of EBNP
    - Other…?

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WHAT IS THE EVIDENCE?

WHAT IS THE EVIDENCE?

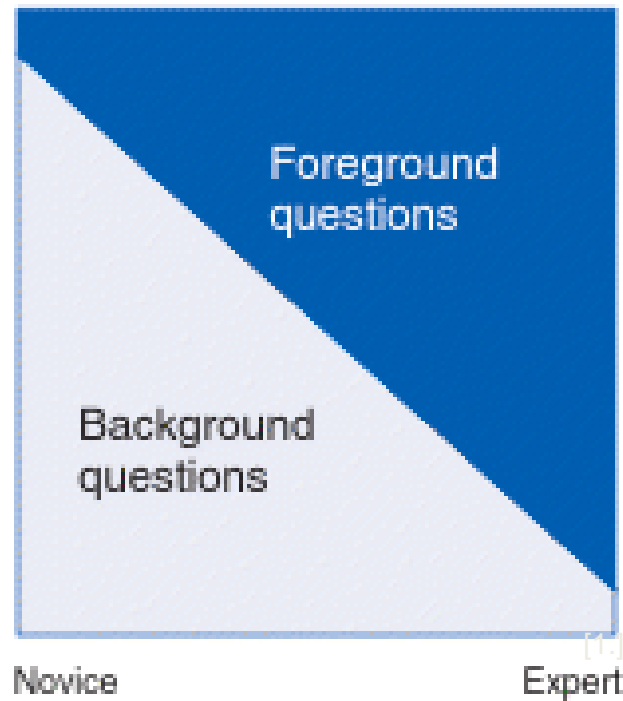See course website for interactive version of this pyramid.
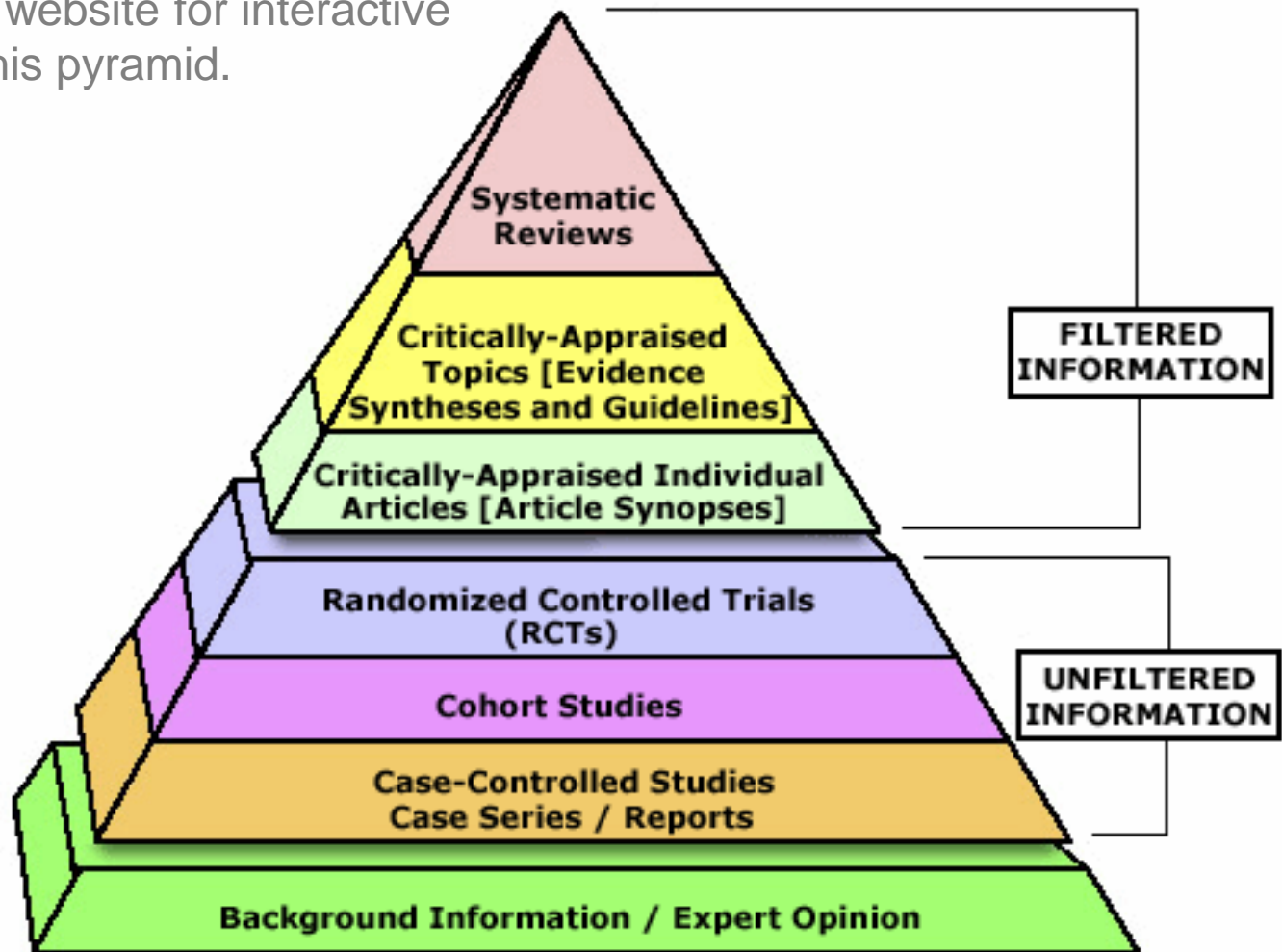
TYPES OF STUDIES

- **Case reports/case studies-** detailed report of a single patient

- **Case series-** track patients with a known exposure (e.g. similar treatment)

- **Case-control studies-** compare patients with a disease or outcome with patients who do not have that disease or outcome- can be prospective or retrospective

- **Cohort studies-** track large numbers of people over a long period of time- can be prospective or retrospective

- **Randomized controlled trials-** measure the effect of a treatment in a controlled setting

- **Systematic reviews-** systematically search the published and unpublished literature to synthesize the evidence with reduced bias

- **Meta-analyses**- when quantitative data is homogenous enough it can be statistically pooled to provide a greater statistical significance- often done with systematic review

To learn more about different study designs see:
http://hsl.lib.umn.edu/biomed/help/understanding-research-study-designs

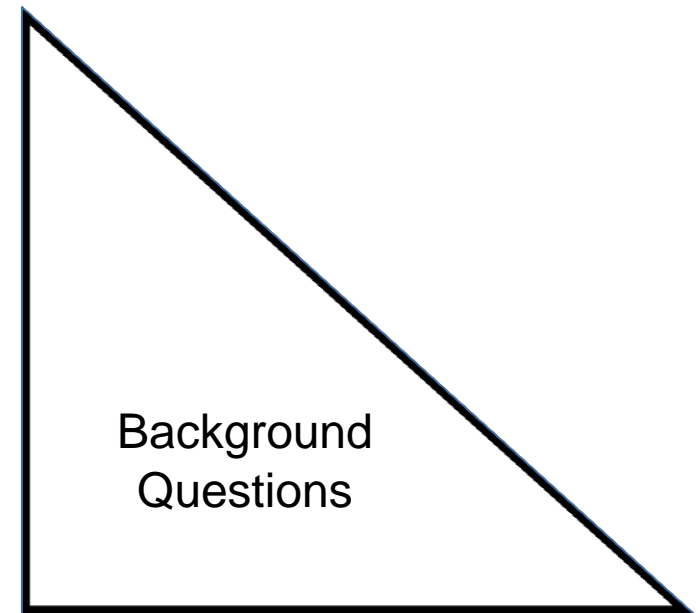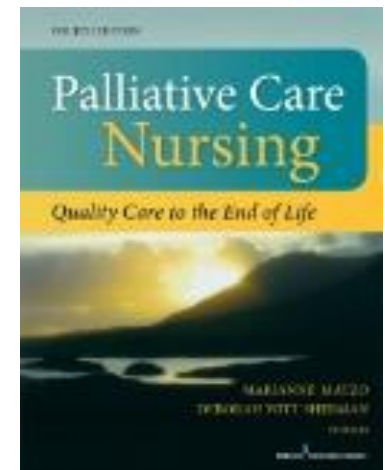Is chlorhexidine is proven to prevent CAUTI more effectively than povidine when inserting foley catheters?

What are foley catheters and how are they inserted?

Foreground questions

Background questions

Novice

Expert

Image: Guyatt et all, 2008

Core Curriculum for **Ambulatory Care Nursing**
Third Edition

DEMENTIA CARE
A Handbook for Long-Term Care **Nursing Staff**

Background Questions
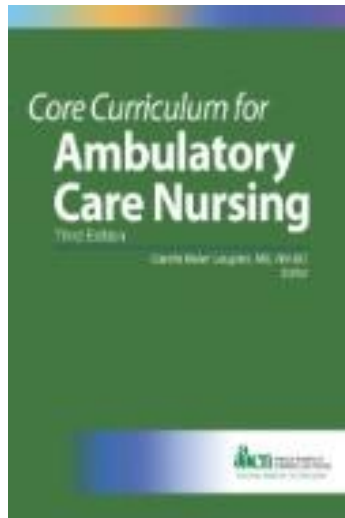
Sources for Background Questions
- **Textbooks**
- **Handbooks**
- **Manuals**
- **etc**

UpToDate®

Compact Clinical Guide to **Mechanical Ventilation**
FOUNDATIONS OF PRACTICE FOR CRITICAL CARE NURSES

Fast Facts for **STROKE CARE NURSING**
An Expert Guide in a Nutshell
Kathy J. Morrison

Palliative Care Nursing
Quality Care to the End of Life
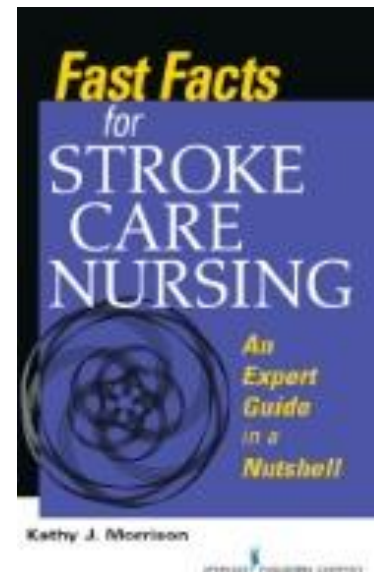
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SOURCES FOR FOREGROUND QUESTIONS
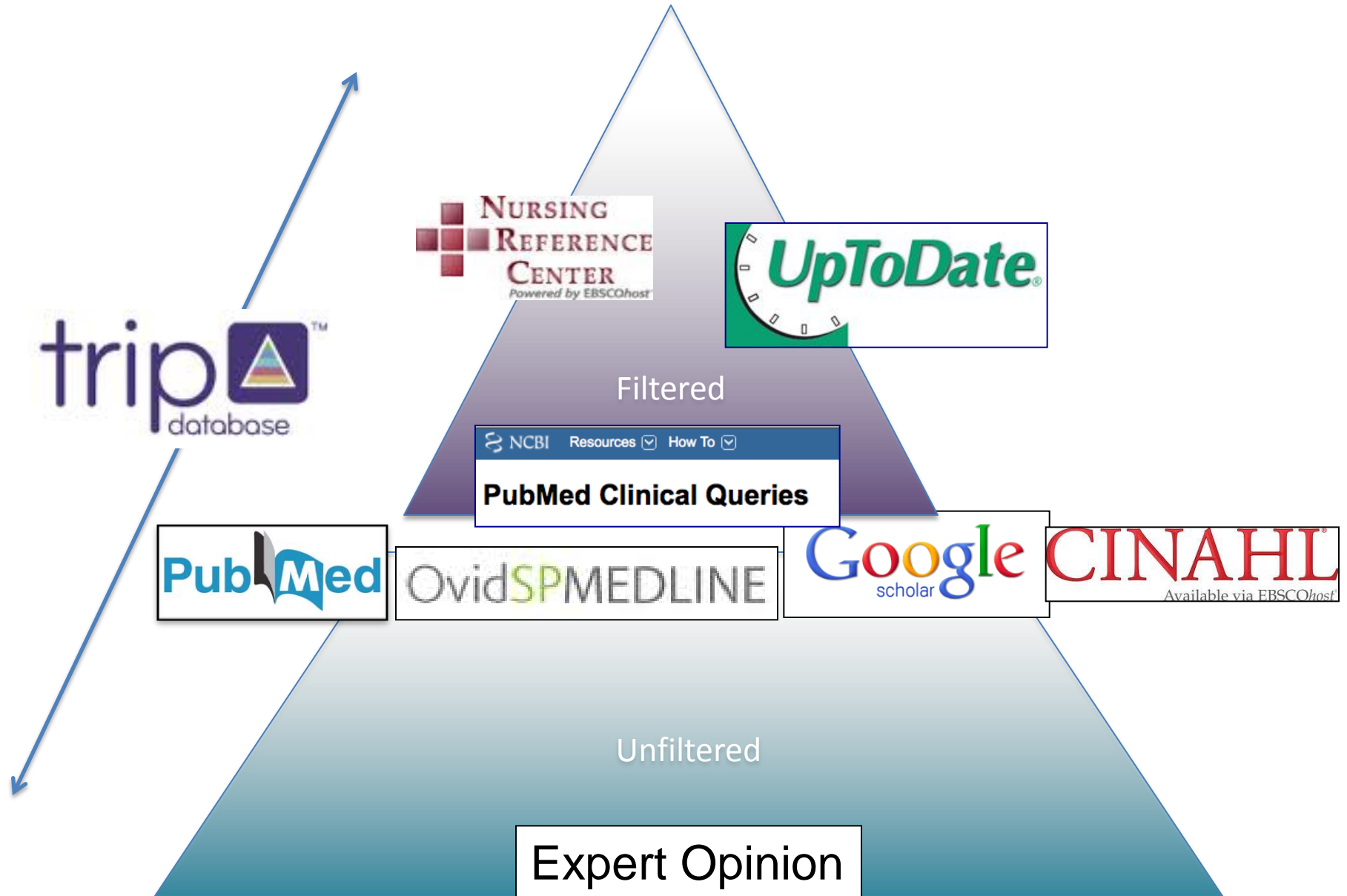
THERE ARE 2 TYPES OF RESOURCES

1. Clinical tools (aka point-of-care tools):
   - Designed to answer clinical questions at point-of-care
   - Synthesized evidence
   - Quick and easy to search
   - Try these first to answer clinical questions

2. Biomedical databases:
   - More powerful, complex searches
   - Find primary studies
   - Use these to answer nursing practice questions and also clinical questions- some have clinical question filters (you'll learn about this in the searching workshops)

CLINICAL QUESTION TYPES & BEST EVIDENCE

Type of Question	Best Evidence
Diagnosis (test)	**Quantitative** Comparison to Gold Standard
Therapy (treatment, prevention)	**Quantitative** Systematic review of RCTs, RCT
Etiology/Harm	**Quantitative** Observational study: cohort or case control
Prognosis	**Quantitative** Observational study: cohort or case control
Economics	**Quantitative** Cost-effectiveness study
Meaning	**Qualitative, mixed methods** Case study, ethnography, grounded theory, phenomenologic approach

PRACTICE QUESTION TYPES & BEST EVIDENCE

- About CQI
- About P&P development
- About change management
- Implementation science
- Implementation of EBNP
- Other…?

- Best evidence: case study, program description, cost-effectiveness study, other?

EXAMPLE FOUND IN CINAHL:

Interventions that promote retention of experienced registered nurses in health care settings: a systematic review

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Interventions that promote retention of experienced registered nurses in health care settings: a systematic review

Aim The aim of this review was to report the effectiveness of strategies for retaining experienced Registered Nurses.

Background Nursing researchers have noted that the projected nursing shortage, if not rectified, is expected to affect healthcare cost, job satisfaction and quality patient care. Retaining experienced nurses would help to mitigate the shortage, [...]ients. [...] the [...]dies [...] and [...] and in-[...]ion results. [...]omote the [...]s highest [...]nform [...]health care [...]ting the [...]ing [...]e.

Major Subjects: Registered Nurses
Expert Nurses
Personnel Retention

Minor Subjects: Human; Systematic Review; Nursing Shortage; Mentorship; Employee
Orientation; Job Satisfaction; Personnel Turnover; CINAHL Database;
Psycinfo; Medline; Embase; Cochrane Library; Teamwork; Leadership;
Nursing Management

SELECT YOUR RESOURCE

TYPE OF EVIDENCE	RESOURCE
Clinical guidelines	Trip database
Systematic reviews	Trip database Cochrane library Pubmed Clinical Queries Cinahl (Nursing & allied health) Google Scholar Ovid-Medline Ovid-Embase (European, pharma) Nursing Reference Centre
Evidence summaries	UpToDate Nursing Reference Centre Dynamed (family medicine)
Individual studies (RCT, Cohort, Case controlled, case study etc.)- non-appraised	Pubmed Clinical Queries Pubmed Cinahl (Nursing & allied health) Google Scholar Ovid-Medline Ovid-Embase (European, pharma) Nursing Reference Centre
Background info	UpToDate Nursing Reference Centre Textbooks (print and online)

INTERACTIVE PYRAMID

- www.jgh.ca/en/hslintroebp

WHAT IS CRITICAL APPRAISAL?

NOT ALL RESEARCH IS CREATED EQUAL

- Even studies at the top of the evidence pyramid (systematic reviews, RCTs) can be poorly done

- Authors can reach conclusions not supported by the data

- Studies can be biased- did the authors do anything to mitigate this?

- You need to assess whether the study is relevant to <u>your patients</u> and <u>your context</u>

WHAT IS CRITICAL APPRAISAL?

- A systematic way of assessing the quality and relevance of a given research article.

- Focus is on the methodology section instead of abstract/conclusion.
  - Is study well conducted/reported?
  - What are the limitations? i.e. small sample size, not randomized etc.
  - Is bias likely?
  - Are the results relevant to your patient/environment?

- Different criteria are used for different study types.

- There are worksheets to help with this.

- You will learn more about this on Day 2.

WHAT IS PRE-APPRAISED EVIDENCE?

- Some evidence has been pre-appraised and assigned a "level of evidence" regardless of where it falls on the "pyramid".

  - Some pre-appraised evidence comes in the form of a synthesis of the evidence- i.e. UpToDate

  - Sometimes a single study is appraised i.e. DARE (critically appraised systematic reviews)

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JUST BECAUSE IT'S FILTERED, DOESN'T MEAN IT'S PRE-APPRAISED

May still need to be appraised by you

Needs to be appraised by you

Systematic Reviews

Critically-Appraised Topics [Evidence Syntheses and Guidelines]

Critically-Appraised Individual Articles [Article Synopses]

Randomized Controlled Trials (RCTs)

Cohort Studies

Case-Controlled Studies Case Series / Reports

Background Information / Expert Opinion

FILTERED INFORMATION

UNFILTERED INFORMATION
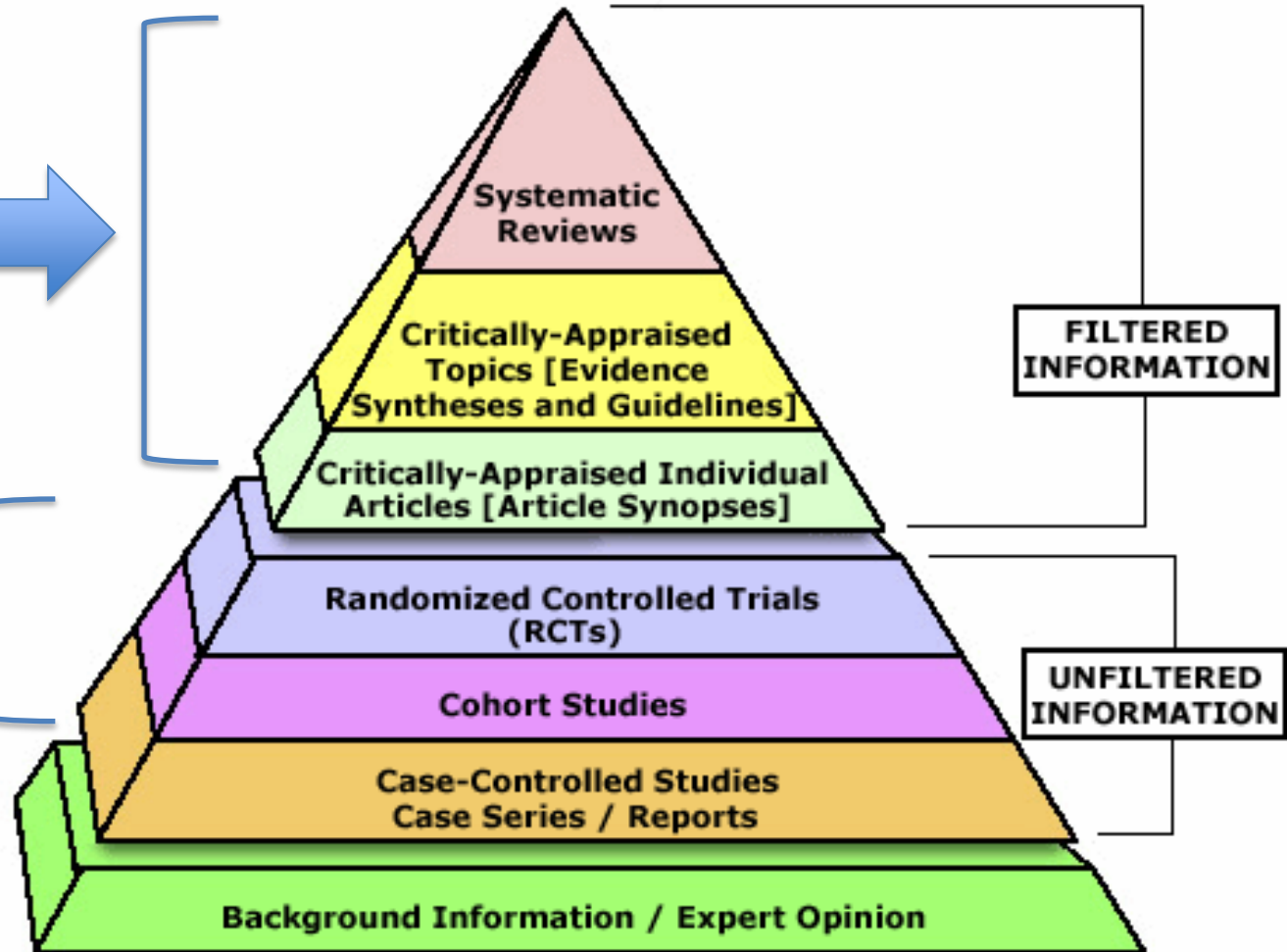
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See course website for interactive version of this pyramid.

ASKING ANSWERABLE QUESTIONS

FORMULATING CLINICAL QUESTIONS

- Clinical scenarios (the story) can be complex and involve many issues surrounding patient care

- Often scenarios can be broken down into more than one question

- Each question can be formulated using PICO to:
    1. **identify key concepts,**
    2. **Identify the type of question and**
    3. **Identify the type of evidence to best answer the question.**

What is a PICO?

P   Patient or Population

I   Intervention or exposure

C   Comparison

O   Outcome

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Each question can be formulated using PICO to:
1. **identify key concepts,**
2. **Identify the type of question and**
3. **Identify the type of evidence to best answer the question.**

1. Why are key concepts important?

- Help you to build your search.

- Can be used as keywords, or to map to subject headings.

- You will learn more about keywords and subject headings later in the workshop…

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Each question can be formulated using PICO to:
1. **identify key concepts,**
2. **Identify the type of question** **and**
3. **Identify the type of evidence to best answer the question.**

2. WHY IS KNOWING THE TYPE OF QUESTION IMPORTANT?

- Helps you select best evidence to answer question
  - would an RCT be the best type of evidence to answer your question? Not always possible to blindly randomize people for ethical or practical reasons…

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Each question can be formulated using PICO to:
1. **identify key concepts,**
2. **Identify the type of question and**
3. **Identify the type of evidence to best answer the question.**

3. WHY IS KNOWING THE TYPE OF EVIDENCE IMPORTANT?

- Helps you select best resource to find best evidence
  - Should you search Pubmed or Cinahl or UpToDate?

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PICO IN CONTEXT

One PICO

there may be

Several PICOs

with different

Outcomes

suggesting different

Formulating one or more PICO(s) from a clinical scenario

helps identify → Key concepts → which translate into

Limits

Text words

Subject headings

helps determine

Type(s) of questions

which helps determine

Type of evidence needed

which helps identify

The best EBM resource to use
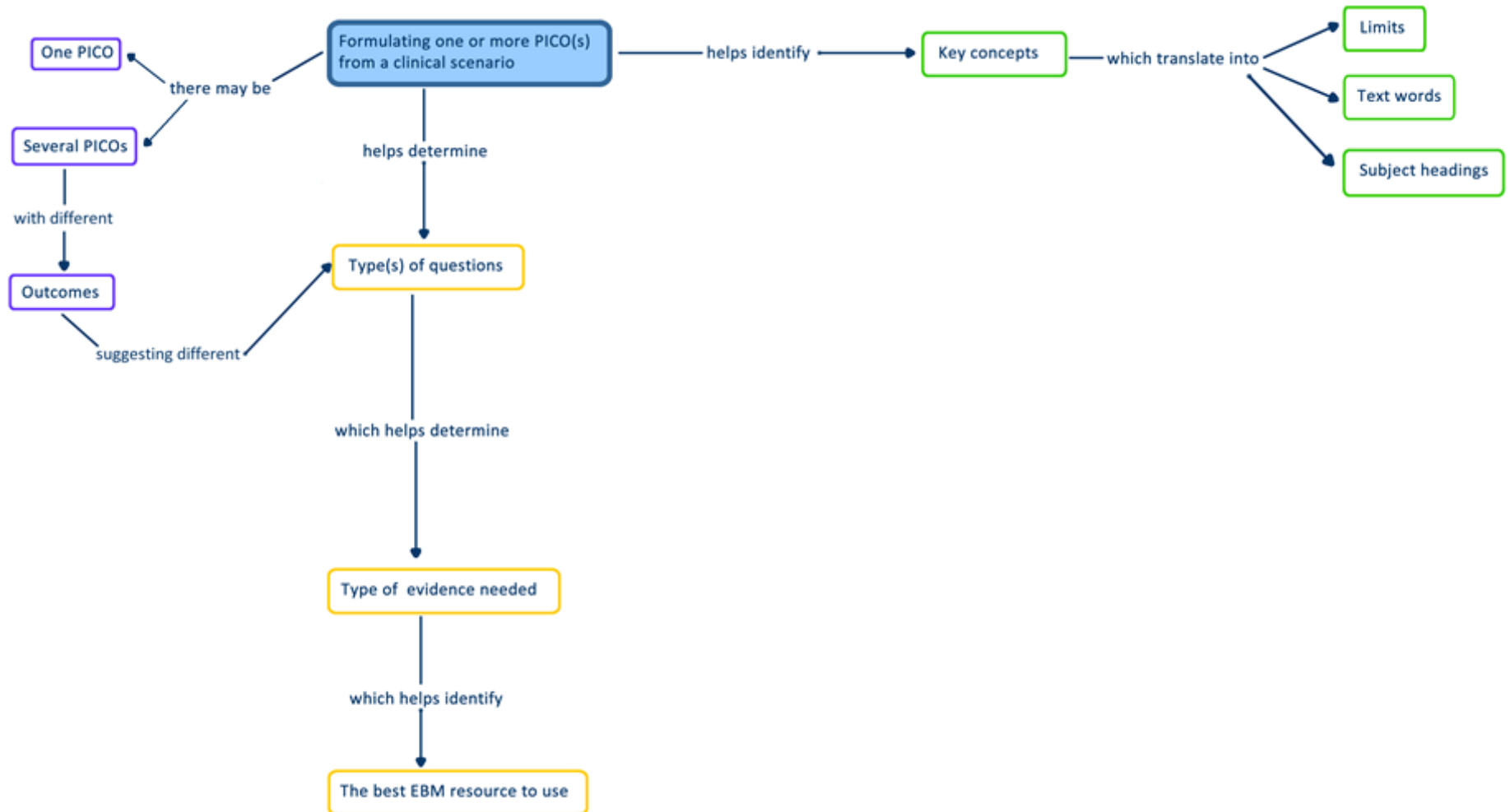
TYPE OF QUESTION -> TYPE OF EVIDENCE

THE BIG PICTURE

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Formulating one or more PICO(s) from a clinical scenario —helps identify→ Key concepts —which translate into→ Limits / Text words / Subject headings

One PICO ←there may be→ Several PICOs
with different → Outcomes
suggesting different

helps determine ↓

Type(s) of questions —can be→

Diagnosis questions —can be→ Differential diagnosis —or→ Diagnostic tests —are best answered with→ Quantitative evidence —preferably→ Systematic review of:
-Prospective studies
-Blind comparison to Gold Standard
-Diagnostic validation studies

Single prospective study / Single Blind comparison to Gold Standard study / Single Diagnostic validation study —or→

which helps determine ↓

Therapy questions —are best answered with→ Quantitative evidence —preferably→ Systematic review of RCTs —or→ Single RCT

Type of evidence needed —for→

Etiology/Harm questions
Prognosis questions —are best answered with→ Quantitative evidence —preferably→ Systematic review of observational studies —or→ Single cohort study —or→ Single case control study

which helps identify ↓

The best EBM resource to use

Cost questions —are best answered with→ Quantitative evidence —preferably→ Systematic review of cost-effectiveness studies —or→ Single cost-effectiveness study

see ↓

Interactive pyramid for selecting resources:
www.jgh.ca/en/hslinteractivepyramid

Quality of life questions —are best answered with→ Qualitative or mixed methods evidence —preferably→ Qualitiative or mixed methodes review —or→

Single case study / Single ethnography study / Single grounded theory study / Single phenomenologic approach study

FORMULATING AN ANSWERABLE CLINICAL QUESTION

P	In patients with…	Patient, Population
I	Does…	1) Therapy 2) Other types of intervention
C	Compared to…	1) Other therapy 2) Other intervention or no intervention 3) Standard of care or no comparison
O	Reduce, increase (patient oriented outcomes)	Positive or negative clinical outcome?

Example scenario

- **Patient information/scenario**

You have been given a new Foley catheter insertion kit, which comes with proviodine for cleaning the patient in order to prevent urinary tract infections. Your old kit used chlorhexidine for cleaning. You remember seeing literature suggesting that chlorhexidine was more effective than proviodine for IV insertions. You wonder which cleaning solution is better for Foley catheter insertion.

- **Question**

When inserting a Foley catheter, is proviodine or chlorhexidine a more effective cleaning solution?

- **PICO elements**

P: Hospitalized patients receiving Foley catheters

I: proviodine cleaning solution

C: chlorhexidine cleaning solution

O: prevention of UTIs

Type of question: Diagnosis
Best evidence: Systematic review of RCTs or RCT
Best Sources: Cinahl, PubMed, UpToDate, TRIP Database, Nursing Reference Centre

ANSWERING NURSING PRACTICE QUESTIONS

- **Reminder:** These are questions that relate to nursing practice, management or implementation issues or processes- they still ultimately benefit patients but the do not fit under the category of etiology, diagnosis, therapy, prognosis.

  - They don't always fit the PICO format but formulating the question, identifying key concepts and determining the type of research to best answer the question is still important.

  - You will more likely find evidence by searching the biomedical databases rather than clinical tools

HANDS ON EXERCISE

HANDS ON

- Today we will work with real clinical scenarios…

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CASE SCENARIO #1

You are working on an acute geriatric unit where many patients are showing agitation as a symptom of dementia. You would like to know what types of activities are especially useful in decreasing agitation and other behavioral and psychological symptoms of dementia.

CASE SCENARIO #2

You are working on a radiation oncology team and would like to standardize skin. The doctors and residents automatically prescribe flamazine cream once a bit of redness occurs (dermatitis). However, you think you remember seeing studies that have demonstrated reduced dermatitis if other skin care products are used prior to radiation, or from the beginning of radiation. You would like to know if flamazine cream is the best medication, and when during treatment it should be used.

REMEMBER TO ASK YOURSELF:

- Is this a single question?

- What are the PICO(s)?

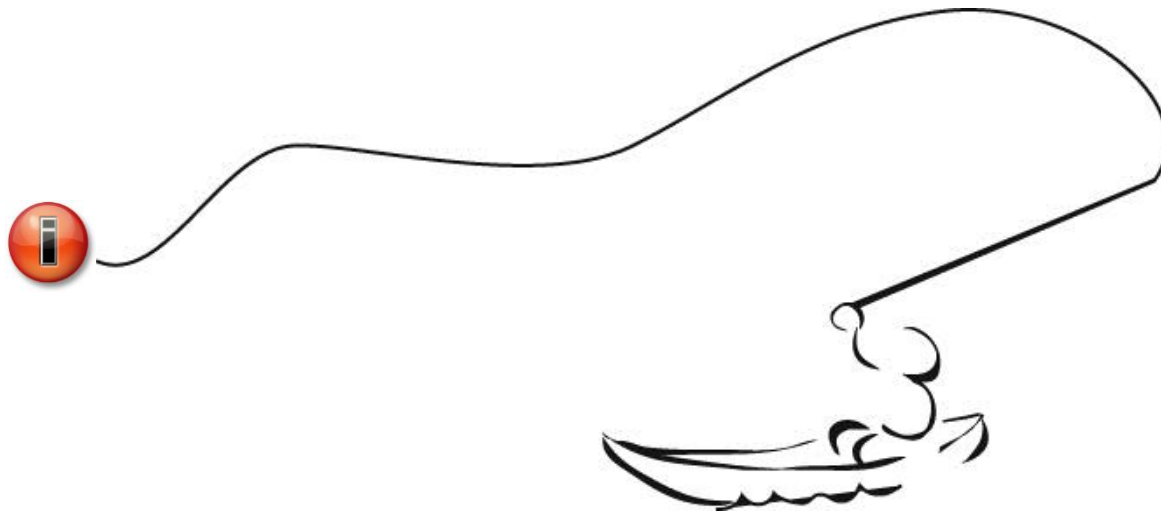- What type of question(s)?

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THANK YOU!