

# **DEVELOPMENT OF ONLINE ASSESSMENTS TO ASSESS EVIDENCE INFORMED HEALTH CARE (EIHC) COMPETENCE**

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## UBC AT A GLANCE

- **65,012** students (Vancouver: **55,887**; Okanagan: **9,125**)
- **16,188** international students from 156 countries
- **13,237** degrees granted in 2017
- **325,000+** alumni in 140 countries
- **16,089** faculty and staff
- **207** companies spun off from UBC research

Conflict of Interest: Martin and Diana Dawes receive funds from GenXys Health Care Systems, one of the UBC spin-out companies. They have also received grant funding from pharma for research projects.



# PROBLEM 1

Variation in the adoption of evidence-based practice due to:

- lack of resources,
- lack of knowledge and skills about appraising research,
- negative perceptions about research,
- lack of time,
- low self-efficacy to perform EHC activities,
- inadequate access to the medical literature, and
- financial barriers

Sadeghi-Bazargani, H., J.S. Tabrizi, and S. Azami-Aghdash, *Barriers to evidence-based medicine: a systematic review*. J Eval Clin Pract, 2014. **20**(6): p. 793-802.



# THE “WICKED PROJECT” WEST COAST INTERPROFESSIONAL CLINICAL KNOWLEDGE EVIDENCE DISSEMINATOR



# INTERVENTIONS USING MULTIPLE METHODS MOST LIKELY TO IMPROVE KNOWLEDGE AND SKILLS

- Online learning with high levels of interactivity provides learners with the ability to
  - take courses at a time and in a place convenient to them,
  - tailor their learning to their own timing, pace and needs
- Virtual patients are a specific type of online learning strategy, designed to represent real-life clinical scenarios.
  - well suited for facilitating the development of clinical reasoning skills
- Integration of media elements such as,
  - videos, images, audio files, comic strips, patient charts.....
- Designed to be used either as stand-alone modules, or to be used in conjunction with the EIHC learning already imbedded into the individual healthcare professional programs



- About This Module
- ▶ What is Evidence Informed Healthcare
  - Section 1: Definitions for Evid...
  - Patient-Centred Care
  - 5 Principles of Patient-Centre...
  - Benefits of Shared Decision M...
  - Shared Decision Making
  - Essential Elements of Shared ...
  - Benefits of Shared Decision M...
  - Informed Consent
- ▶ Definitions - 1
  - Informed Consent - Exceptions
  - Evidence-Based Health Service
- ▼ Section 2: Interactive Scenarios
  - Resources
  - ▶ Scenario 1
  - ▼ Scenario 2
    - Sarah's Chart
    - Evidence
    - Resources
    - Sarah's Consultation - Vi...
    - Online Resources
    - Benefits of Patient-Centr...
    - Shared Decision Making

View Sarah's consultation:



Previous

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Module 5 - Assessing the Application of the Evidence

Elements of EIH



What elements of EIH did you spot? (select multiple elements)

- Asking answerable clinical questions
- Searching for the evidence
- Critically appraising the evidence for its validity and relevance
- Making decisions, by integrating the evidence with clinical expertise and the patient's values
- Evaluating performance as a practitioner of EIH

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SUBMIT

using the Evidence - Module 3 - Appraising the Evidence - ...

Menu

- ▼ Module 3 - Appraising the Evidence
  - Introduction to Evidence Informe...
  - About This Module
  - What is Evidence Informed Health...
  - Module 1 Recap
  - ▶ Module 2 Recap
  - Module 3 - Appraising the Evidence
  - IMRAD Format
  - Critical Appraisal
  - Tools for Critical Appraisal
  - Critically Appraising Research
  - Choosing a Critical Appraisal Tool
  - Appraising the Evidence
  - Using This Module
  - ▶ Scenarios
  - ▶ Summary

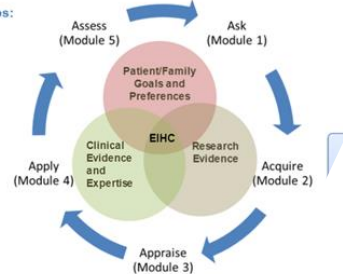
Module 3 - Appraising the Evidence

Resources

What is Evidence Informed Healthcare

EIH traditionally has five steps:

Explore the steps:  
roll over the steps to see further information



Previous

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Type here to search

- Scenarios
- ▶ Questions About the Effects of In...
- ▶ Questions About the Effects of In...
- ▶ Questions About Diagnosis
- ▶ Questions About Diagnosis
- ▶ Questions About Prognosis
- ▶ Questions About Prognosis
- ▶ Evidence About Patients' Experie...
- ▶ Evidence About Patients' Experie...
- ▶ Appraising and Understanding Sy...
- ▶ Appraising and Understanding Sy...
- ▶ Summary

Select a scenario

<b>Questions about the effects of interventions</b>	In adults with a two-year diagnosis of rheumatoid arthritis, are static stretching splints effective in reducing pain and preventing deformities? 1	In people with rheumatoid arthritis, does a dietary plant-derived polysaccharide supplement reduce disease activity? 2
<b>Appraising diagnostic evidence</b>	Among community dwelling elderly patients, which screening tool is an accurate predictor of falls risk? 1	In patients with diabetes, can reduced foot sensation be detected by patients or carers? 2
<b>Appraising prognostic evidence</b>	In patients, seen in primary care, with non-specific chronic low back pain, what is the prognosis? 1	In people with COPD who are smokers, what is the long-term effect on COPD progression and mortality? 2
<b>Appraising qualitative evidence</b>	How do people who have rheumatoid arthritis perceive the in-patient hospital care experience? 1	What are the factors that influence the prescription of intensive combination therapy in patients with early rheumatoid arthritis? 2
<b>Appraising systematic reviews</b>	In adults with musculoskeletal conditions, is aquatic exercise as effective compared to land-based exercise at relieving pain? 1	For adults with rheumatoid arthritis, does treatment with methotrexate increase the risk of lung disease? 2

Previous

Finish Module

## PROBLEM 2

Measuring outcomes of **all** modules.

“ The Fresno test is a performance based measure for use in medical education that assesses a wide range of evidence based medicine skills. Open ended questions are scored with standardised grading rubrics. Calculation skills are assessed by fill in the blank questions.”

- ✓ Ask,
- ✓ Acquire,
- ✓ Analyze,
- Apply,
- Assess



Ramos Kathleen D, Schafer Sean, Tracz Susan M. Validation of the Fresno test of competence in evidence based medicine *BMJ* 2003; 326 :319



# ASSESSMENTS USING MULTIPLE METHODS MOST LIKELY TO IMPROVE KNOWLEDGE AND SKILLS

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# DEVELOPMENT OF WEB-BASED, INTERACTIVE, SIMULATED PROGRAM OF ASSESSMENTS

## Assessment Development

- Objectives set, module storyboard developed, reviewed and modified
- Marking rubrics generated and tested
- Interactive assessments programmed, reviewed and modified

## Recruitment

- Family Practice residents & program directors
- Master of Physical & Occupational Therapy students & instructors
- Experts

## Exposure

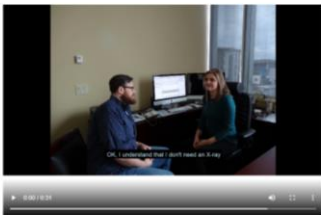
- Access to assessments through online learning management system

## Outcomes

- Validity
- Reliability
- User focus groups/interviews



Watch the video



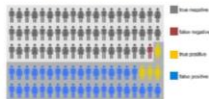
List 3 elements of patient-centered care that were missing from this consultation:

Answer 1:

As agreed with your manager you present this information at the next journal club, and draw the conclusion that regular screening for depression amongst your patient group is not recommended

Question 13: 1 pt

One of the participants in the journal club states that she thinks you should continue to screen because using the PHQ-9 alone would identify 4 in 100 people with depression and the HADS-D would identify a further 9 people with depression. Where's the harm, those 13 people need help!



You bring up from your presentation your Cates plot for the PHQ-9 and what do you reply?

- Can anyone else speak to the harms of screening?
- You can't simply add the results of the two studies together and say that you are detecting 13 people with depression out of 100.
- We don't know that those identified would benefit from treatment.
- We would be treating 17 people for depression who are not depressed, not only is that a waste of resources but could be harmful to them.
- The resources and risks involved in screening for depression in our population outweigh the benefits.

answerable questions.

## Section 1: Knowledge Assessment

Select the best answer to the following set of items. If you do not know an answer, you can guess at the answer or leave the question blank. Please do not search for the answer in an outside source.

Questions 1 and 2 refer to the following scenario: You have formed the following PICOT question: In patients with acute frozen shoulder, would moving the arm into painful range when compared with moving the arm within pain-free range lead to less stiffness after the acute phase?

1. The P in this PICOT question represents:

- Frozen shoulder
- Patients with acute frozen shoulder
- Stiffness
- Acute phase

2. In comparison to a foreground question, a background question formed from the above scenario can be used to search for information about

- Acute frozen shoulder
- The most effective methods for treating acute frozen shoulder
- The progress of individuals with acute frozen shoulder
- The most effective treatments for reducing shoulder stiffness

3. An effective clinical question needs to have all PICOT elements.

- True
- False

4. Identify the I element of PICOT in the following clinical question: In athletes with a goal to improve activity performance, is stretching alone, or in conjunction with strengthening exercises, more effective?

- Athletes

## Section 2: Skills Assessment

Indicate your responses to the questions in the spaces provided below.

11. **Scenario:** You work in a unit caring for people with chronic obstructive pulmonary disease (COPD). You observe that many of your clients continue to smoke despite knowing the links between COPD and smoking. You know that by stopping smoking your clients could slow the decline in their lung function. You have heard that there are both behavioural and pharmaceutical treatments that are available to your clients. You are not sure however which of these smoking cessation programs would be most effective in helping your clients to quit within one year.

Identify the appropriate PICOT elements for the above scenario. If an element is not present, indicate this with n/a.

P =

I =

C =

O =

T =

## VALIDITY AND RELIABILITY - ongoing



Content validity (Learners & Instructors)



Face validity (Experts)



Construct & Criterion validity  
(Fresno/research course scores)



No floor or ceiling



## **FEEDBACK** >300 students/residents completed

Instructors/Program Directors asking to use assessments

- like marking rubrics

- like auto scoring

- approve content

- approve range of scores

- scores per learner are as expected

Learners

- like time for completion of each assessment (mean =12 minutes)

- approve content

Expert

- 1 expert has completed the assessments and feedback



**THE “WICKED PROJECT”**  
**WEST COAST INTERPROFESSIONAL CLINICAL**  
**KNOWLEDGE EVIDENCE DISSEMINATOR**

