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 EIHC activities,
• inadequate access to the medical literature, and
• financial barriers

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
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,
  o Apply,
  o 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

• Online assessments with high levels of interactivity provide learners with the ability to
  • take assessment at a time and in a place convenient to them
• Virtual patients are a specific type of online learning strategy, designed to represent
  real-life clinical scenarios.
  • well suited to assessing 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 assessments, or to be used in conjunction
  with the EIHC assessments already imbedded into the individual healthcare
  professional programs
# 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
Section 1: Knowledge Assessment

Questions 1 and 2 refer to the following scenario: You have been asked to discuss the following PQRST 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 discomfort after the acute phase?

1. The PQRST question represents:
   - Pain
   - Onset
   - Radiation
   - Temporal
   - Quality
   - Patterns

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 causal factors of acute frozen shoulder
   - The onset of acute frozen shoulder
   - The most effective treatments for reducing shoulder pain

3. An effective clinical question needs to have all PQRST elements.
   - True
   - False

4. Identify the elements of PQRST in the following clinical question. In athletes, with a goal to improve activity performance, is stretching alone, or in comparison to strengthening exercises, more effective?
   - Stretches
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
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