

## Introduction

Regardless of discipline, physicians will encounter oncology patients. Despite this, and the rising incidence of cancer, oncology education in the medical undergraduate curriculum is fragmented and discipline specific. As a result, graduating medical students feel unprepared to care for this growing patient population.

To address the significant gaps in oncology training at the undergraduate level, the goals of this project were to develop online learning modules, supplemented by virtual patients, to enhance oncology instruction during undergraduate medical training.

The curricular materials were designed to supplement undergraduate medical studies and also be used by radiation therapy students, oncology nursing students and oncology residents.

## Methods

The Kern 6-step approach to curriculum development was employed:

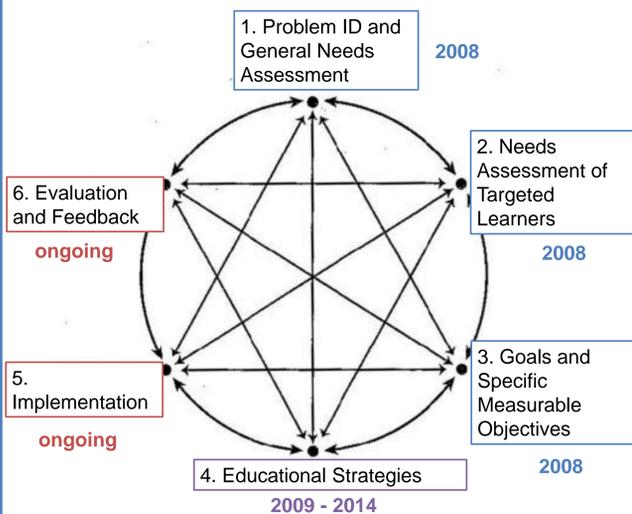


Figure 1: Kern's Approach to Curriculum Development (Adapted from reference 4)

- **2008:** Web-based needs assessment sent to 3rd year UBC medical students regarding adequacy of oncology training during their first year of clerkship.
- **2009-2012:** Development of online resources including:
  - Website with online interactive Virtual Patient cases around cancer patient management
  - Collaboration with the Technology-Enabled Learning Group of the UBC Faculty of Medicine to ensure VP cases aligned with future directions of the faculty.
- **2012-2014:** Expansion and enhancement of online learning resources, developing new modules and evaluation surveys.
  - Construction of new oncology app to allow for students to review learning in clinic

## Results

### Targeted Needs Assessment:

- 53% of third year medical students completed the needs assessment
- 50% of respondents had not interacted with cancer patients during clerkship.
- 62% felt their ability to discuss oncology issues with patients was poor or fair.
- 80% believed that online modules would enhance learning.

### Educational Strategies:

1. Online modules and Virtual Patients:
  - a) Modules
    - Ten web-based learning oncology modules authored by medical students (2008-2014) and peer reviewed
    - Modules hosted on public website: [www.learnoncology.ca/](http://www.learnoncology.ca/)
  - b) Virtual Patients (VP) (Figure 2)
    - Each module has an accompanying branching-logic VP case designed using Articulate software
    - The VPs supplement and consolidate module material in the context of realistic oncology scenarios in which clinical decisions affect patient outcome.
    - VPs are accessible on computer and through an iPad application
  - c) Onconotes App (Figure 3)
    - A "flashcard" question and answer format that students can use to review their oncology knowledge
    - Allows the user to monitor progress with individual statistics and for the administrators to monitor student progress individually or as a group

- The online resources are currently utilized by medical students completing medical and radiation oncology electives, radiation therapy students (BCIT) and nursing students on oncology rotations

### Evaluation and feedback:

- Kirkpatrick's hierarchy of evaluation has been used as an evaluation framework.
- Website: all students have commented that the website provides resources not seen elsewhere and the virtual patients help to consolidate learning.

## Future Directions

- Modules have been submitted MedEdPortal
- Add modules in communication skills and oncology history taking
- Expand use of online modules to all 4 years of UBC medical curriculum
- Collaboration with national initiative to define undergraduate oncology curriculum

## Conclusions

- The gaps in oncology education during the undergraduate medical curriculum can be addressed with flexible learning projects such as online learning modules with integrated interactive virtual patients.
  - The TLEF has allowed for faculty and learners to work side by side; **creating, learning and mentoring** to produce a novel educational product

## References

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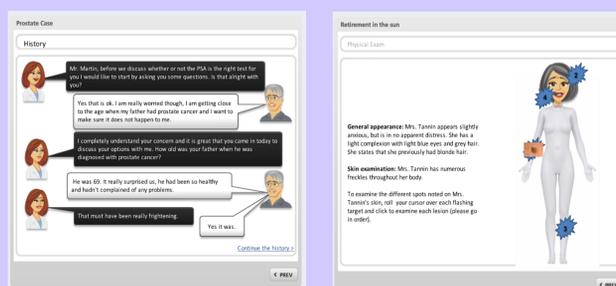


Figure 2 : Screenshots from within one of the VP cases

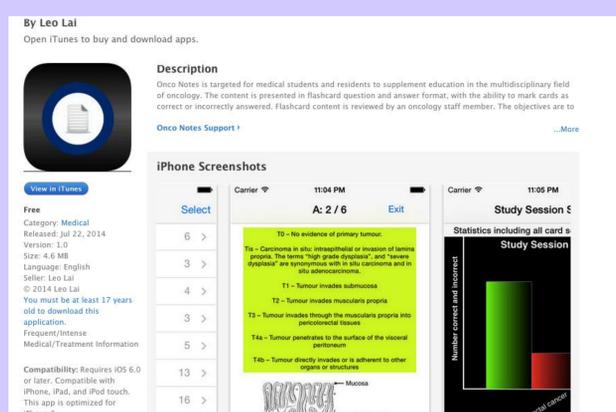


Figure 3 : Screenshots of the onconotes app