Canada Health Infoway | Inforoute Santé du Canada

Association of Faculties of Pharmacy of Canada

Association des facultés de pharmacie du Canada

THE EVOLUTION OF A NATIONAL ONLINE EDUCATIONAL RESOURCE FOR INFORMATICS

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OBJECTIVES

To improve the quality of the "Informatics for Pharmacy Students" e-Resource to allow relevant and valid teaching and learning about e-Health in Canadian schools of Pharmacy.

METHODS

Against a backdrop of electronic health records, digital information resources, and expanded scopes of practice, the e-Resource was developed by the Association of Faculties of Pharmacy of Canada with funding by Canada Health Infoway (http://afpc-education.info/moodle/index.php). With the goal of updating and expanding the e-Resource, modifications and reorganization resulted in the release of subsequent versions. Multiple formal internal evaluations helped inform the directions taken to improve the e-Resource. Several other sources informed revisions; faculty case reports on integration and curriculum changes, learning management system analytics, and feedback from student users.

RESULTS

Version 3 was released in August 2017 with significant revisions and additional learning activity development. All chapters were enhanced and updated, with improved navigation and formatting for a streamlined learning experience.

Ten months after the release of Version 1,523 new users had enrolled (with over 4,800 enrolled prior to its launch). User testing revealed little or no technical difficulties and satisfaction with content and platform.

Two chapters were translated into French (Canada's second official language). Approximately 250 students and faculty have accessed the French version.

An interprofessional version has also been launched, intended for use by medical, nursing and pharmacy students. The topics chosen for development were e-MedRec and e-Prescribing.

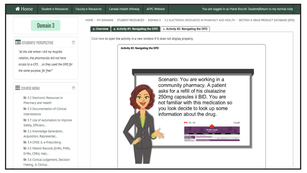
IMPLICATIONS

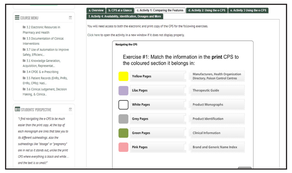
The continuous improvement of the e-Resource has resulted in a robust, stable platform for use in pharmacy education. The lessons learned (participatory design by end-users and faculty, iterative evalation and quality improvement, and the development of engaging interactive learning objects coupled with content validity) can be used by others.

Version 1 — Jan 2014

In 2012, the Association of Faculties of Pharmacy (AFPC) received funding from Canada Health Infoway, as part of its Clinicians in Training Program to develop a national online education program re: optimal use of pharmacy/health information and technology.

RESULTS: Written by a small cadre of pharmacy educators and informaticians, with assistance from 5 pharmacy student award winners, Version 1 of the e-Resource was launched in January 2014.





- "Informatics for Pharmacy Students" is an e-Resource designed to be used by faculty members within their respective courses, and faculties of pharmacy within their programs
- May be completed by students in sections or in its entirety
- Engage pharmacy students in a comprehensive foundational treatment of this area, using media-rich material with innovative learning activities

Domain 1	Concepts and Context in Pharmacy Informatics
Domain 2	Information Management and Technology
Domain 3	Knowledge Management and Technology
Domain 4	Privacy, Security, and Confidentiality
Domain 5	Consumer Health Informatics
Domain 6	Management, Optimization, & Leadership *(in development)*

PILOT PROJECTS EVALUATION:

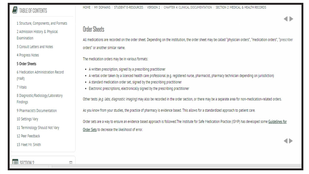
- Students were willing to engage with innovative delivery method(s), forsaking user guides
- Perceived increase of knowledge and skills was greatest in topics not commonly taught in curricula e.g. CPOE, e-Prescribing, with more modest gains in more traditional topics e.g. documentation, privacy and confidentiality
- Accessed from multiple devices, locations, varying days/times

Version 2 — Jun 2016

The e-Resource was used in academic years 2014/2015 and 2015/2016 to varying extents in pharmacy schools. Evaluations were mixed, with navigation challenges cited most frequently. Students expressed a strong preference for interactivity e.g. virtual patients, videos, case examples, and concise content. Based on student and peer leader feedback, the following improvements were made:

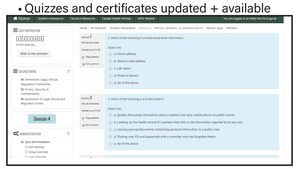
- Traditional book format *(vs. previous tabs display)*

- Streamlined navigation and layout *(arrows for "next")*



- Twelve chapters accessed from one landing page

- Quizzes and certificates updated + available



- 3 new interactive Virtual Patients *(Minor Ailments)*

- Online registration open to all email addresses *(no longer restricted to university email addresses only)*
- Student FAQ and Support Sheet *(e.g. I can't generate my Certificate and it's due now!)*

RESULTS:

- More positive evaluations by students and Peer Leaders
- Easier to maintain *(1 site vs. 10 in Version 1)*

LIMITATIONS:

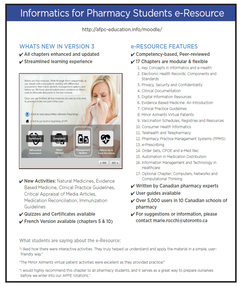
- Detailed analytics by school no longer available
- Capacity: entire class logging on at same time can cause problems with database

Version 3 — Aug 2017

OBJECTIVES: To create the next version of the e-Resource to ensure relevance and content validity, and foster continued / increased teaching of informatics. To translate selected subsections from the new version of the e-Resource into French.

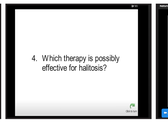
METHOD: Student evaluations from each chapter in Version 2 were analyzed for areas for improvement. A Peer Review process was undertaken. Criteria for evaluation of each Chapter were derived from various sources, and refined for the purposes of this project:

1. Comprehensiveness
2. Accuracy
3. Currency/Longevity
4. Relevance
5. Suitability
6. Consistency
7. Quality
8. Ease of Use
9. Quizzes
10. Modularity
11. Suggestions for Improvement



An online process for peer review (n=28) of 12 existing chapters in version 2 and an Editorial Advisory committee was convened to achieve consensus on modifications.

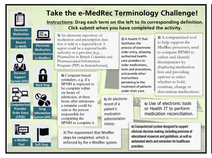
Sample learning activities

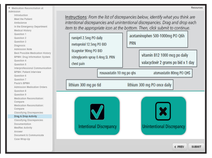


STUDENT EVALUATIONS AND CERTIFICATES: From over 1500 evaluations, students valued real world examples, videos, polls, and virtual patients. The concise chapter approach was preferred. By June 2018, over 2500 Certificates had been generated (highest number were for chapters on Clinical Documentation and Privacy, Security and Confidentiality).

Interprofessional Chapters — Jun 2018

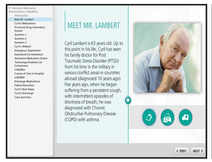
OBJECTIVES: Launch and steward an initiative to expand two chapters with broad appeal and application in the three professions of medicine, nursing and pharmacy: e-Prescribing and e-Medrec.

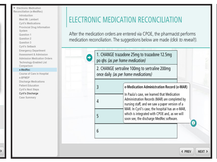


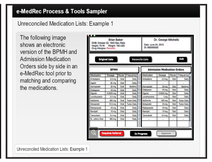


DESIGN APPROACH:

1. A suite of cases for a family moving through transitions in care in the healthcare system
2. Seen by various healthcare professionals including nurse practitioners, registered nurses, pharmacists, pharmacy technicians, family medicine physicians and specialists/consultants, allowing participants to self-identify, and appreciate the roles of others.
3. Can be used in a uniprofessional educational setting, as they will be used to depict various team member contributions, as well as how the complex healthcare system "works".







RESULTS: A working group representing medicine, pharmacy, nursing educators and subject matter experts provided input and reviewed the chapter developed by the instructional design team. Student end-users participated in "time-stamping" the resulting 90 minute Concise Version. User manuals were created. The e-MedRec chapter was launched on June 1, 2018. A second chapter on e-Prescribing will be completed by mid-August 2018. Implementation and evaluation will occur throughout 2018/2019.