

Canada Inforoute Health Santé Inforoute Infoway du Canada THE EVOLUTION OF A NATIONAL ONLINE EDUCATIONAL RESOURCE FOR INFORMATICS



Association of Faculties

of Pharmacy of Canada Association des facultés de pharmacie du Canada Janet Cooper, Marie Rocchi, Harold Lopatka, Lisa Bishop, Sarah Wood, Ivan Nayve



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.



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.



Informatics for Pharmacy Students e-Resource

Completed Completed

5. Digital Information Resources

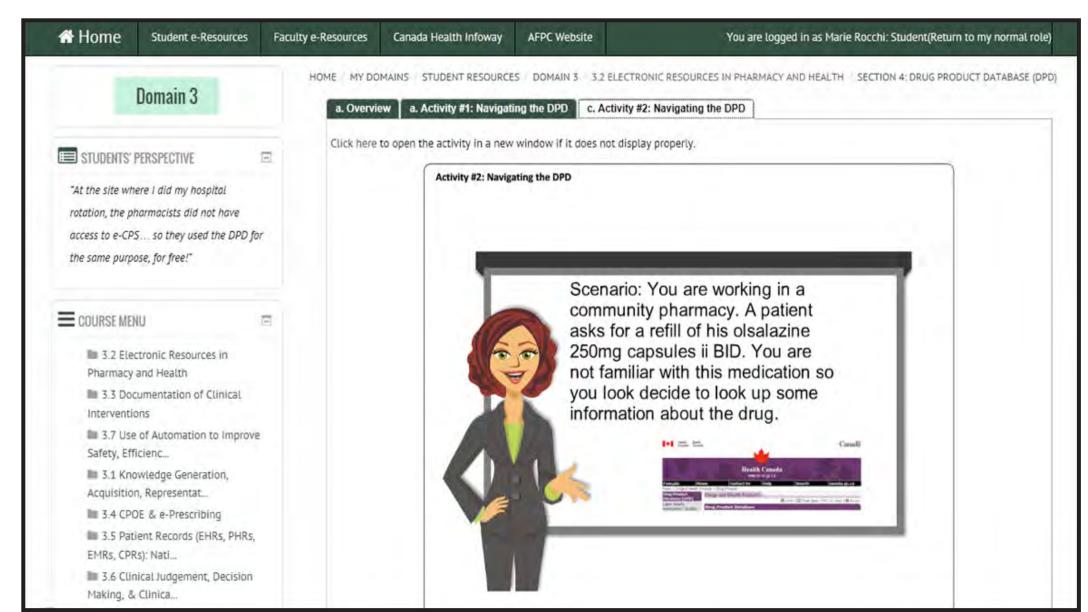
3. Minor Ailments Virtual Patients

✓ Over 5,000 users in 10 Canadian schools

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.

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.



■ COURSE MENU	臣	f. Activity 4: Availabi	lity, Identification, Dosages and More	
3.2 Electronic Resources in Pharmacy and Health 3.3 Documentation of Clinical Interventions			to both the electronic and print copy of the CP activity in a new window if it does not displa	
 3.7 Use of Automation to Im Safety, Efficienc 3.1 Knowledge Generation, Acquisition, Representat 	prove			information in the print CPS to belongs in:
3.4 CPOE & e-Prescribing 3.5 Patient Records (EHRs, P EMRs, CPRs): Nati	HRs,		Yellow Pages	Manufacturers, Health Organization Directory, Poison Control Centres
3.6 Clinical Judgement, Decision Making, & Clinica			Lilac Pages	Therapeutic Guide
STUDENTS' PERSPECTIVE	Ξ		White Pages	Product Monographs
"I find navigating the e-CPS to be mu easier than the print copy. At the top			Grey Pages	Product Identification
each monograph are links that take y its different subheadings. Also the	ou to		Green Pages	Clinical Information
subheadings like "dosage" or "pregna are in red so it stands out, unlike the			Pink Pages	Brand and Generic Name Index

- •"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

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)

Section 1: Introduction - Key Points - Learning Objectives	S
Resource: A Guide to Better Physician Documentation	C)
Section 2: Medical & Health Records	
Virtual Patient: Mr. Smith's Chart	O
Section 3: Legal Considerations	
Fact Sheet: Clinical Documentation	8
Resource: Pharmacists Medical Malpractice Case Study	- 0
Section 4: Note Writing Fundamentals	O
Fraser Health: Health Record Policy	
Section 5: Formats and Style	S
Poll A: Documentation Format in University Program	
Poll B: Documentation Format in Training Site	O
Section 6: Pharmaceutical Care	
Virtual Patient: Document for Terry	O
Section 7: Barriers to Documentation	
Section 8: Practice Cases	₩.
Section 9: Conclusion and References	
Quiz: Clinical Documentation	
Evaluation Survey: Clinical Documentation	
Competency Indicators: Clinical Documentation	
Certificate of Completion: Clinical Documentation	8

Streamlined navigation and layout (arrows for

HOME / MY DOMAINS / STUDENT E-RESOURCES / VERSION 2 / CHAPTER 4: CLINICAL DOCUMENTATION / SECTION 2: MEDICAL & HEALTH RECORDS
Order Sheets
All medications are recorded on the order sheet. Depending on the institution, the order sheet may be called "physician orders", "medication orders", "presc
orders" or another similar name.
The medication orders may be in various formats:
 A written prescription, signed by a prescribing practitioner A verbal order taken by a licenced health care professional (e.g. registered nurse, pharmacist, pharmacy technician depending on jurisdiction) A standard medication order set, signed by the prescribing practitioner
Electronic prescriptions, electronically signed by the prescribing practitioner
Other tests (e.g. labs, diagnostic imaging) may also be recorded in the order section, or there may be a separate area for non-medication-related orders.
As you know from your studies, the practice of pharmacy is evidence based. This allows for a standardized approach to patient care.
Order sets are a way to ensure an evidence based approach is followed. The Institute for Safe Medication Practice (ISMP) has developed some Guidelines for
Order Sets to decrease the likelihood of error.

- Online registration open to all email addresses (no longer restricted to university email addresses
- 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)

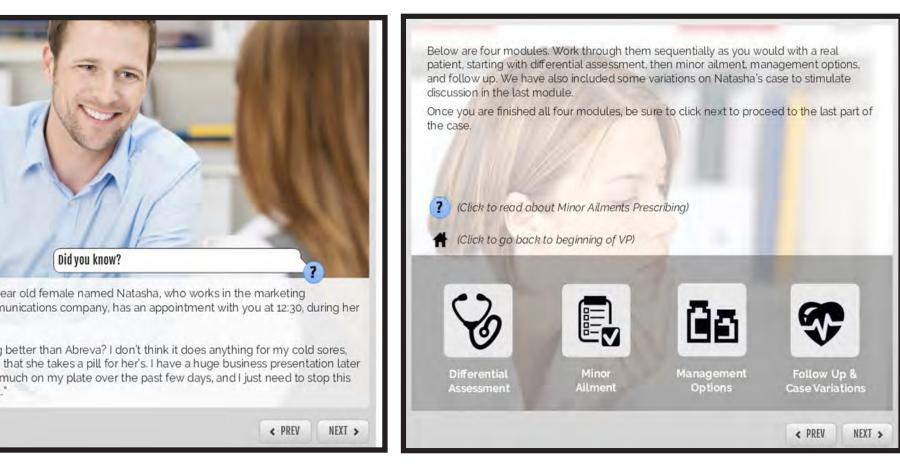
Twelve chapters accessed from one landing page

Chapter 1: Informatics: Key Concepts)
Chapter 2: Digital Patient Records and Systems	1
Chapter 3: Privacy, Security, and Confidentiality	
Chapter 4: Clinical Documentation	
Chapter 5: Digital Pharmacy Information Resources	
Chapter 6: Evidence Based Medicine and Clinical Guidelines	- 1
Chapter 7: Consumer Health Informatics	
Chapter 8: e-Health and Telehealth	
Chapter 9: e-Prescribing	
Chapter 10: Hospital Pharmacy Informatics: CPOE & Discharge Medications	1
Chapter 11: Automation in Medication Distribution	
Chapter 12: Information Management and Technology)

Quizzes and certificates updated + available

☆ Home	Student e-Resources	Faculty e-Resources	Canada Health Infoway AFPC Website	You are logged in as Marie Rocchi (Logo
Q UIZ NAVIGA	TION	HOME MY DOMA	INS STUDENT RESOURCES DOMAIN 4 PRIVACY, SE	CURITY, & CONFIDENTIALITY PRIVACY QUIZ PREVIEW
1 2 3 Finish attempt		Question 1 Not yet answered Marked out of 1.00 Flag question	1. Which of the following is considered personal Select one: a. Home address b. Home e-mail address	information:
Regulatory	ions: Legal, Ethical, Frameworks	3	c. Lab report d. Photo of person e. All of the above	
Confidenti	tion of Legal, Ethical and	Question 2 Not yet answered Marked out of 1.00	Which of the following is a privacy breach? Select one:	
	Domain 4	P Flag question	 b. Looking up the health record of a patie 	patient over your mobile phone on public transit ent when this is not information required to do your job
Q ADMINISTRA	ATION	3	 c. Leaving secured documents containing d. Sharing user IDs and passwords with a 	
O Edit	settings up overrides		e. All of the above	

Ailments)



LIMITATIONS:

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

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:

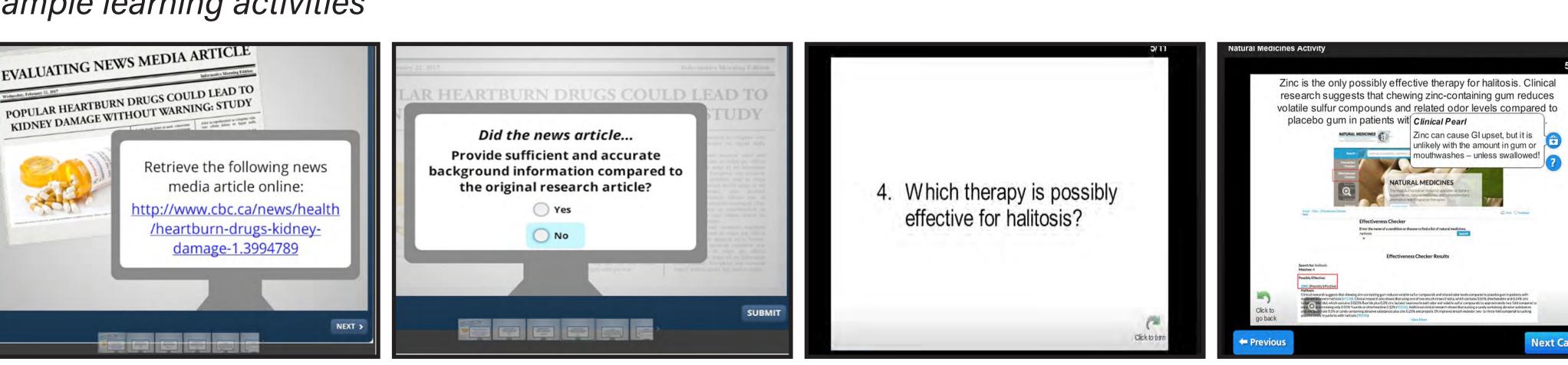
- I. Comprehensiveness
- 2. Accuracy
- 3. Currency/Longevity
- 4. Relevance
- 5. Suitability
- 6. Consistency
- Quality

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).

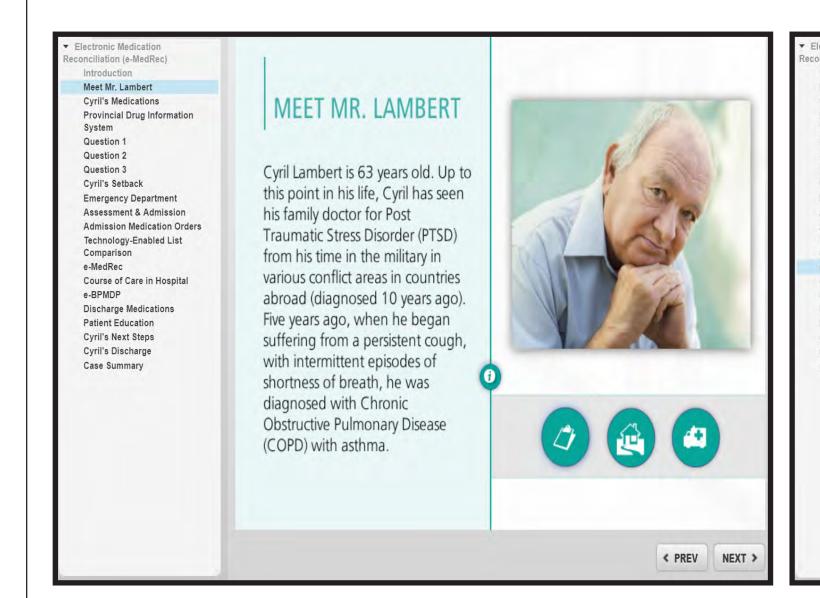
Chapters

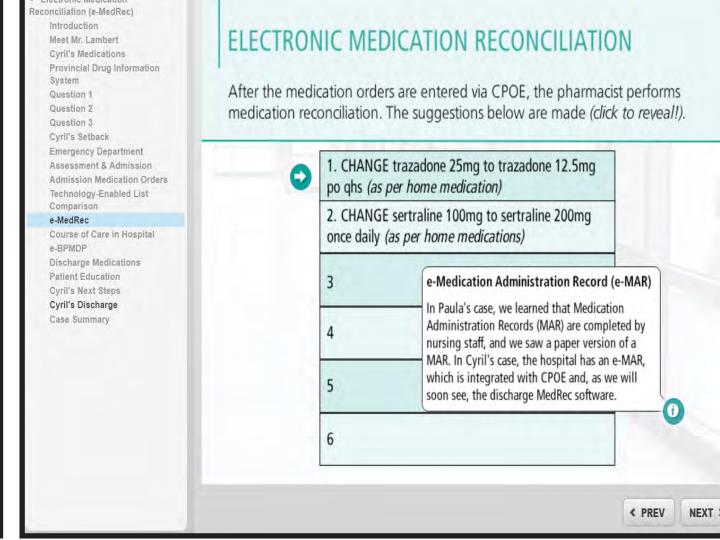
OBJECTIVES: Launch and steward an initiative to expand two chapters with broad appeal and application in the three professions of medicine, nursing and pharmacy: e-Prescribing and e-Medrec.

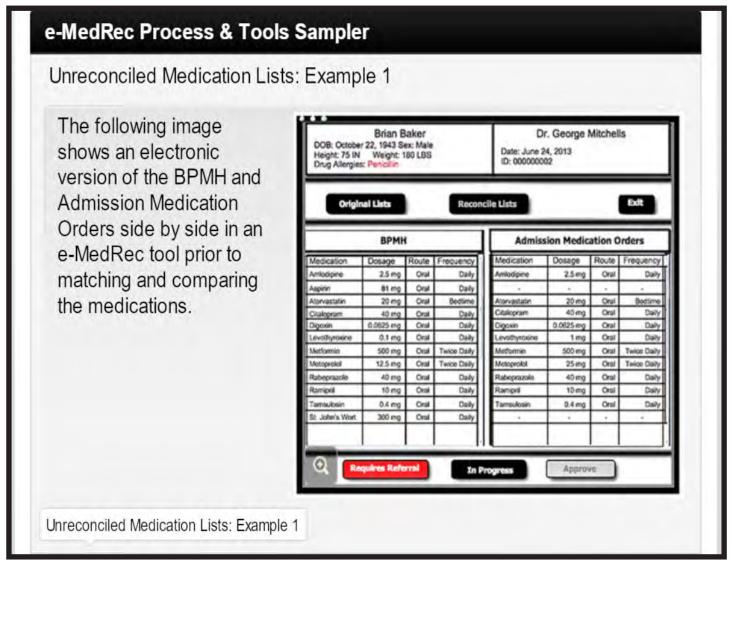


DESIGN APPROACH:

- 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.