



# AFPC

**Association of Faculties of Pharmacy of Canada**

**Pharmacy Educator Peer Leader Network (PEPLN)  
Evaluation Report**

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# I. EXECUTIVE SUMMARY

Through the Canada Health Infoway (Infoway) Faculty Peer Leader Network program the pharmacy educator peer leader network (PEPLN) was established. PEPLN built upon the AFPC structure, processes and outputs achieved through the Clinicians-In-Training and [AFPC Pharmacists-in-training](#) project. The project utilized a local peer-to-peer network to facilitate the integration of the [AFPC Informatics for Pharmacy Students e-Resource](#) and Infoway's consumer e-health priorities into pharmacy curricula across Canada.

The PEPLN project consisted of the following discrete phases.

1. Project Initiation – Phase 1 consisted of establishing the leadership team and initiating project planning.
2. Establish Pharmacy Educator Peer Leader Network / initiation workshop (workshop #1) – This phase included recruiting peer leaders and holding the initiation workshop.
3. Peer Leader Integration Projects – Phase 3 consisted of the peer leaders planning, implementing and evaluating local integration projects. In addition, surveys of peer leaders and faculty colleagues were conducted.
4. PEPLN Knowledge Transfer Workshop (workshop #2) – This phase consisted of three sub-phases: conducting a document analysis; dissemination of peer leader's reports (verbal and written) on local integration projects; and a peer leader / leadership team focus group.
5. Internal Evaluation – Phase 5 consisted of the leadership team's evaluation of PEPLN and review of the revisions for Version 1 of the e-Resource.
6. Additional PEPLN projects – Three informatics education initiatives were added at the mid-point of PEPLN: interprofessional education, pharmacy technician education and pharmacist continuing professional development.

In phase 1, the project leadership team was established: Harold Lopatka (project sponsor), Donna Pipa (project manager), Lisa Bishop (peer leader mentor / coach), Marie Rocchi (e-Resource mentor / coach) and Valerie Leung (Infoway liaison).

The peer leader network was formed in phase 2 with 10 peer leaders: Marion Pearson (British Columbia), Teri Charrois (Alberta), Jeff Taylor (Saskatchewan), Casey Sayre (Manitoba), Kelly Grindrod (Waterloo), Marie Rocchi (Toronto), Gilles Leclerc (Montreal), Martine Lepire (Laval), Kim Sponagle (Dalhousie), and Lisa Bishop (Memorial). Laval and Dalhousie withdrew from the network in December 2014 and February 2015, respectively. Saskatchewan and Manitoba named new peer leaders during phase 3 of the project (Terry Damm – Saskatchewan, Christopher Louizos – Manitoba).

In August 2014, the initiation workshop was held. Ten peer leaders, the project leadership team and other participants were educated by external speakers about mentorship and change management. The peer leadership team provided guidance information about conducting the local integration projects and an orientation to the e-Resource was provided. Peer leaders were able to brainstorm ideas about potential strategies for integrating informatics and the e-Resource into curricula.

In the 3<sup>rd</sup> phase, local integration initiatives were planned, implemented and evaluated at eight universities. The initiatives were conducted over the fall 2014, winter 2015, and spring/summer 2015 terms. Submitted peer leader administrative reports served as the basis for part of the analysis. Data submitted in the reports was similar to that provided in the peer leader integration case reports and these reports were utilized to confirm data and analysis of the peer leader integration case reports submitted in phase 4.

During phase 3 a separate mid-point survey by Canada Health Infoway of peer leaders indicated that the supports / resources provided through PEPLN were useful and that the peer leaders were able to increase the integration of informatics and the e-Resource into the curriculum.

Peer leaders presented the results from their integration projects in phase 4. Thirty-four local integration activities were conducted. The activities were offered to each academic year. Integration activities were most often conducted in pharmacy skills labs. Other types of courses where integration activities occurred were: experiential rotations, pharmacy practice, pharmaceutical sciences, therapeutics, management, health systems and informatics. Non course activities included: faculty / preceptor orientations, a conference, e-technology contest, and development of virtual patients. The most common learning activity was pre-reading for labs or lectures. Other learning activities were: flipped class room, support for assignments, and orientations / demonstrations. All 5 domains were used in the integration activities. Domain 5 (consumer health informatics) and domain 3 (knowledge management and technology) were the most frequently used domains. Only 3 courses used all of the domains. Twenty best practices were identified for e-Resource use within courses, curriculum level changes, engagement outside of courses, and e-Resource content.

In addition, a focus group was conducted by an independent consultant in phase 4 (upon completion of the integration initiatives). The participants were peer leaders, the project leadership group and Infoway observers. Peer leaders identified themes relating to the appropriateness of the peer leader label and role. Peer leaders did not feel sufficiently prepared to enable them to be effective with peers and colleagues. They were motivated by being members of a community of practice. PEPLN was considered an evolving network and crucial to achieve the goal of increasing the integration of informatics and the use of the e-Resource into curricula.

Phase 5 consisted of the project leadership group evaluation of PEPLN and the modifications required to update Version 1 of the e-Resource. Data collected from all phases of the project were reviewed and analyzed. It was concluded that PEPLN was successful in increasing integration of informatics into pharmacy curricula. PEPLN facilitated the implementation of a significant number of integration initiatives in 8/10 of Canadian pharmacy faculties. Over ½ of the students enrolled in pharmacy faculties participated in the integration and used the e-Resource. Overall PEPLN created conditions considered essential to produce a collective impact (i.e. established and maintained a common agenda, backbone infrastructure, mutually reinforcing activities, shared measurement system, and continuous communications). The network provided a valuable experience and a foundation for continued network development and use of the e-Resource.

Also, in phase 5 valuable feedback was obtained about the AFPC Informatics for Pharmacy Students e-Resource. Feedback from student users and faculty peer leaders was reviewed and analyzed using mixed methods. Overall, the feedback illustrated that Version 1 of the e-Resource was a useful and valuable tool for integrating important concepts and principles relating to the use of information and information technology through different types of courses in pharmacy curricula. There were 12 major and 10 minor changes identified for modification of Version 1 to improve access / use, navigation / layout and specific learning / teaching activities. Version 2 of the e-Resource has been developed and will be launched by the end of March 2016.

Six recommendations were made for continued support and development of a pharmacy educators peer leader network (through a special interest group (SIG)) and the e-Resource.

An accompanying document to this report is available upon request. The “AFPC PEPLN evaluation report supplement” includes working papers/reports and other significant documents (e.g., peer leader bios, peer leader and faculty colleague surveys, analyses of peer leader administrative progress reporting, document analysis report, focus group report, report on review of peer leader integration projects, PEPLN newsletters, report on e-Resource revisions, and table of contents for Version 2 of the Informatics for Pharmacy Students e-Resource).

At the mid-point of the project, three initiatives were added to the original plan (interprofessional informatics education, pharmacy technician informatics education and pharmacist continuing professional development on informatics). From the interprofessional initiative students felt there were significant benefits from digital health. Students perceived a significant gap existed in the current teaching of digital health. Respondents were supportive of a digital health curriculum integrated within undergraduate curricula. From the pharmacy technician initiative, students from these training programs found sections of e-Resource useful for learning about informatics within their curricula. Detailed reports about these additional PEPLN initiatives are also included in the AFPC PEPLN evaluation report supplement.

## II. INTRODUCTION

The Association of Faculties of Pharmacy of Canada (AFPC) is the national non-profit organization advocating for the interests of pharmacy education and educators in Canada. There are 10 Canadian faculties / schools of pharmacy located in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia and Newfoundland / Labrador. There are 2 faculties / schools in Ontario and Quebec. Five faculties / schools (Montreal, Laval, Toronto, Waterloo, British Columbia) have transitioned to the entry level Pharm D (Doctor of Pharmacy) as the first professional pharmacy degree. At the time PEPLN was conducted British Columbia had not implemented the entry level Pharm D program. The remaining five faculties / schools (Alberta, Saskatchewan, Manitoba, Dalhousie, Memorial) are graduating pharmacists with a bachelor degree in pharmacy and are in various stages of planning to transition to the entry level Pharm D.

Through the Canada Health Infoway Clinicians-In-Training program, AFPC developed entry-to-practice [health informatics competencies for pharmacists](#) and the AFPC [Informatics for Pharmacy Students e-Resource](#) . Three competencies with (31 competency indicators) were identified and the educational content to support the attainment of these competencies are addressed through the five domains contained in the e-Resource. The e-Resource was officially launched in January 2014. The AFPC e-Resource addresses the Infoway consumer health program educational and clinical practice priorities.

In spring 2014 Canada Health Infoway followed up the Clinicians-in-Training program with The Next Generation – Faculty Peer Leader Network. Through the Infoway Faculty Peer Leader Network program the pharmacy educator peer leader network (PEPLN) was established. PEPLN built upon the AFPC structure, processes and outputs achieved through the Clinicians-In-Training project. The project utilized a peer-to-peer network to facilitate the integration of the AFPC e-Resource into pharmacy curricula with a focus on key objectives related to the Infoway consumer health priorities.

The project goals were as follows.

- Peer Leader Network: Foster leadership in pharmacy informatics by creating an environment that encourages faculty members to assume mentorship and expertise roles in their faculty
- Faculty development: Prepare faculty members for teaching pharmacy informatics competencies

- Continuous Quality Improvement: Motivate faculty members to integrate the pharmacy informatics competencies
- AFPC Special Interest Group in Pharmacy Informatics: Encourage faculty members to conduct research or collaborate in research related to pharmacy informatics

Adding or increasing information about a topic is always a challenge in an established curriculum. The implementation of the entry level Pharm D program does provide an opportunity for a faculty to redesign its curriculum and add new topics such as informatics or e-health. Pharmacy curricula identify the number of hours or credits devoted to subject matter, and include a series of core courses, practicums and interprofessional experiences that support educational outcomes (e.g., [AFPC Educational Outcomes](#) ). The successful completion of courses and experiences from the curriculum allows a student to obtain a first professional pharmacy degree (bachelors or doctor degree). Each faculty has a curriculum committee and/or related body(s) that is responsible for the planning, design, organization and improvement of the curriculum. This committee usually reviews the curriculum on a regular basis, usually before the commencement of each academic term. Teachers review and prepare their course outlines and lessons well in advance of the course. There is a limited window of time plus a lead time for introducing a new topic or increasing learning about a topic. Also, the current curriculum is very crowded with topics to be addressed. Adding new content about one topic means that reductions are required in other topics. The Canadian Council for Accreditation of Pharmacy Programs [accreditation guidelines and standards](#) identify over 35 foundational topics that should be covered in a curriculum (and health informatics is not identified).

The PEPLN project consisted of the following discrete phases.

1. Project Initiation
2. Establish Pharmacy Educator Peer Leader Network / Initiation workshop (workshop #1)
3. Peer Leader Integration Projects
4. PEPLN Knowledge Transfer Workshop
5. Internal Evaluation
6. Additional PEPLN Projects

This report will describe key activities accomplished in each phase of the PEPLN project. The phase 1, 2, 3, 4 and 6 report sections are descriptive about activities conducted. The phase 5 section highlights the evaluative activities conducted and the results from these evaluative activities. Working papers and supporting documents are available for evaluative activities conducted in several phases of this report and this information is included in the AFPC PEPLN evaluation report supplement (e.g., includes peer leader bios, peer leader survey, faculty colleague survey, summary of peer leader progress reporting, document analysis report, focus group report, report on review of peer leader integration projects, PEPLN newsletters, report on e-Resource revisions, and table of contents for Version 2 of the Informatics for Pharmacy Students e-Resource). This supplement is available upon request.

There is limited experience (and evidence) about the best approaches to create, utilize and evaluate a peer-to-peer network to increase the integration of informatics into pharmacy undergraduate curriculum. There are even fewer examples of approaches to integrate topics (e.g., informatics) into curricula on a national scale.

A mixed methods approach was utilized to evaluate the PEPLN project. Data were collected from peer leader case reports, peer leader administrative reports, Moodle Learning Management System analytics, Infoway surveys, document analysis of PEPLN correspondence, and a peer leader focus group.

The remainder of this report is divided into the following sections:

- Phase 1 – Project initiation
- Phase 2 – Establish pharmacy educator peer leader network (PEPLN) / Initiation workshop (workshop #1)
- Phase 3 – Peer leader integration projects
- Phase 4 – PEPLN knowledge transfer workshop (workshop #2)
- Phase 5 – Internal evaluation
- Phase 6 – Additional PEPLN projects
- Recommendations

At the mid-point of the project, three initiatives were added to the original plan. The themes for these projects were related to interprofessional education about e-health, use of the AFPC e-Resource in pharmacy technician education, and use of the e-Resource in pharmacist continuing professional development.

### **III. PHASE 1 - PROJECT INITIATION**

Activities carried out during phase 1 included the following:

- Promoting PEPLN to AFPC stakeholders (AFPC Council of Deans, AFPC Council of Faculties voting members, AFPC Annual Business and Townhall meeting for faculty members).
- Establishing the project leadership team.
- Developing peer leader reporting guidelines and templates relating to integration projects.
- Planning the content and format for the August 2014 PEPLN initiation workshop with faculty peer leaders.

The project sponsor, Harold Lopatka, circulated copies of the project proposal and made presentations to key AFPC stakeholder groups about the project.

The PEPLN leadership team was established. The project sponsor is Harold Lopatka, AFPC Executive Director and Valerie Leung is the Infoway Liaison. The following appointments were made: Donna Pipa as the project manager, Lisa Bishop as the peer leader mentor / coach, and Marie Rocchi as the e-Resource mentor / coach.

The following briefly describes the PEPLN leadership team and their main responsibilities.

- Peer leader mentor / coach – The main responsibility is to liaise directly with individual faculty peer leaders and provide guidance in PEPLN projects. In addition, this position provides leadership in the content and format for the two PEPLN workshops.
- e-Resource mentor / coach – The main responsibility is to liaise with the peer leader mentor / coach and the peer leaders to guide them in the use of the e-Resource and make refinements to the current version of the e-Resource.
- Project manager – The main responsibility is to assist in setting up the PEPLN and group activities and provide briefings and reports to the funder.



The PEPLN leadership team members provided ongoing assistance to the faculty peer leaders and the faculty colleagues throughout the project.

## **IV. PHASE 2 – ESTABLISH PHARMACY EDUCATOR PEER LEADER NETWORK (PEPLN)**

Phase 2 of the project consisted of two sub-phases: PEPLN formation, and staging of the August 2014 peer leader initiation workshop.

### **A. PEPLN Formation**

Faculty peer leaders were recruited from each of the ten pharmacy faculties / schools. This occurred through communications with the Dean from each faculty. The following criteria and expectations were developed for faculty peer leaders.

Peer Leaders – criteria

- Member of a Canadian pharmacy faculty
- Willingness to participate in PEPLN
- Commitment to 2 face-to-face workshops
- Willingness to participate in research and fulfill requirements of the research component
- Willingness to participate in the network
- Willingness to act as a mentor re: the e-Resource to other pharmacy faculty members

Peer Leaders – expectations

- Participate in workshops
- Coordinate and conduct local projects to integrate the e-Resource into the curriculum
- Coach and mentor colleagues via train-the-trainer workshops, one-on-one coaching, etc.
- Comply with project reporting requirements

Initially 10 faculty members were selected through consultation with the Deans (1 from each faculty). The peer leaders selected were as follows:

Marion Pearson – University of British Columbia

Teri Charrois – University of Alberta

Jeff Taylor – University of Saskatchewan

Casey Sayre – University of Manitoba

Kelly Grindrod – University of Waterloo

Marie Rocchi – University of Toronto

Gilles Leclerc – University of Montreal

Martine Lepire – University of Laval

Kim Sponagle – Dalhousie University

Lisa Bishop – Memorial University

Four peer leaders were involved in teaching skill labs courses. Three peer leader had administrative responsibilities and minimal teaching responsibilities. Two peer leaders taught informatics courses. One peer leader taught pharmacy practice courses.

It should be noted that two universities, Laval and Dalhousie withdrew from the project. Laval withdrew in December 2014 because of financial issues and concerns related to provincial budget funding reductions. Dalhousie withdrew in February 2015 because of a lack of resources to conduct the evaluative element of the project. However, it was noted that students at Dalhousie did use portions of the e-Resource despite not officially being part of the network. In addition, there were two additional changes with the peer leaders. Christopher Louizos replaced Casey Sayre for the University of Manitoba. Terry Damm joined the PEPLN team for the 2<sup>nd</sup> workshop representing the University of Saskatchewan.

A brief bio for the initial and additional peer leaders is included in the PEPLN evaluation report supplement.

### **B. August 2014 peer leader initiation workshop**

The 10 faculty peer leaders, PEPLN leadership team, Infoway staff, and a group session facilitator attended the August 22-24, 2014 PEPLN initiation workshop.

Plenary presentations focused on key areas related to the role of a Peer Leader in this project, including:

- Mentoring Relationships – Jim Gavin
- Overview of Infoway and the Consumer Health program – Valerie Leung
- Peer Leader Experience – Lisa Bishop
- Update on e-Resource – Marie Rocchi
- Science of Change Leadership – Sara Ross
- Quality Evaluation – Gilles Leclerc

Small breakout group discussions challenged participants to delve into opportunities and challenges, as well as shared ideas and strategies for integrating the e-Resource and the Infoway consumer health priorities within their pharmacy programs.

Peer leaders were provided with guidance information relating to the project.

Peer leaders were provided with a common case study format for reporting. The following case report outline was provided to peer leaders to report on each integration activity at the conclusion of the project.

#### **Case Study Reporting**

- Abstract of integration – 200 words or less.
- Course related information – course name, course number, credit value, time offered, number of students, instructor.
- Description of integration – brief explanation of approaches and strategies used, e-Resource domains or sub domains addressed, brief explanation of health consumer initiatives addressed.
- Results obtained (based on survey / interview guides) – from student and instructor evaluations, and from other measures.
- Potential best practices – description of teaching / learning best practices.
- Challenges / barriers – description of reasons for successes and non-successes.
- Other – e.g., examples of relevant tools, aides, etc.

Peer leaders were provided the following for guidance on project plans and financial management:

### Project Plans

- Each peer leader should conduct at least 1 integration project in each academic term (fall 2014 and winter 2015, with the exception of Waterloo with a winter and spring/summer semesters)
- Written plan should be submitted to peer leader mentor / coach (Maximum length 4 pages)
- Project leadership team will review plans
- Written project plan should be provided identifying the number of integration projects to be carried out and descriptive information about each individual integration project to be carried out. Descriptive information included: scope of individual project (course type; planned integration strategies; e-Resource domains and consumer health priorities addressed; anticipated challenges / barriers); time frame for individual project (start and completion dates); and budget (staffing, supplies, other eligible expenses).

### Financial

- \$10,000 maximum AFPC contribution to each faculty for all integration projects
- Can be topped up with local funding
- Excel spreadsheet financial report to be completed for payment #3
- Funding will be dispersed in 3 payments: Payment #1 – 50% upon receipt of final written project plan; Payment #2 – 25% upon receipt of mid-term project report (see reporting template); and Payment #3 – 25% upon receipt of final written case report (plus completion of financial report).
- Eligible expenses – research assistant stipends, supplies, expenses for local faculty training sessions (e.g., lunch and learn), knowledge dissemination activities (maximum 15% of total contribution)
- Ineligible expenses – university overhead fee, equipment purchases, renovations

## **V. PHASE 3 - PEER LEADER INTEGRATION PROJECTS**

Phase 3 consisted of the initiation and completion of the peer leader integration projects. During this phase two main activities occurred: peer leader submission of administrative reports and mid-term survey of peer leaders. Peer leaders and faculty members initiated integration projects primarily in the fall 2014 and winter 2015 academic terms.

### **A. Peer leader administrative reports**

Peer leaders submitted written administrative progress reports over the duration of their local integration projects (initial, mid-term and final). The reports were reviewed by the PEPLN leadership team to monitor progress on projects. Data submitted in the reports was similar to that provided in the peer leader integration case reports. Data from the administrative reports were utilized for PEPLN newsletter reports. Data from the reports affirmed that peer leaders followed through on their initial plans. Integration initiatives exceeded the initial targets in terms of faculty and student engagement. The following table summarizes the project targets and actual engagement numbers achieved.

**Table 1 - Type/number of individuals engaged through Engagement/Mentoring activities and Educational sessions/conferences**

Target Group	Mid-Point Target	Mid-point numbers achieved*	Final Target	Final Numbers Achieved**	Total (Mid-point plus Final)
Educators	4	116	10	102	218
Student Assistants	4	7	10	12	19
Students (undergraduate)	100	2387	250	1780	4167
Preceptors	60	3	150	190	193

\* Based on Mid-point reports submitted by Peer Leaders

\*\* Based on Final reports submitted by Peer Leaders

Peer leaders were successful in focusing integration initiatives on both the e-Resource domains and the consumer health priorities. Peer leaders identified similar challenges / barriers e.g., limited opportunities to engage faculty peers and colleagues, lack of student engagement for non-credit activities, and technical e-Resource challenges,

For a more detailed review of peer leader administrative reports please see “AFPC PEPLN Evaluation Report Supplement” (available upon request through AFPC office).

### **B. Mid-term surveys (peer leaders and peer colleagues)**

Two on-line surveys were administered, the first to peer leaders and the other to colleagues of peer leaders. Both surveys were developed by Infoway in consultation with the PEPLN leadership group. The survey questions were designed to collect peer leader and colleague thoughts and ideas about their experience with the pharmacy educator peer leader network.

In the peer leader survey the questions / statements related to peer leader opinions and perceptions about the peer leader role, preparation received, usefulness of PEPLN supports / resources, satisfaction with peer leader role, and overall views about the project. Response frequencies and percentages were determined and the results were tabulated.

Overall peer leaders felt they increased student knowledge about informatics and consumer health priorities. Peer leaders felt adequately prepared through PEPLN and that PEPLN was beneficial to the faculty. They did not feel that knowledge gains about the topics occurred for other faculty members.

The following table summarizes responses to selected peer leader survey questions.

**Table 2 – Summary of peer leader responses to selected survey questions**

Survey question or statement	% of peer leaders who strongly

	<b>agree or agree</b>
PEPLN is beneficial to faculty.	100%
... I believe I have increased integration and adoption of informatics including consumer health into the curriculum.	87%
... I believe I have increased student understanding of consumer health (including e-requests for prescriptions renewals / refills, e-scheduling / booking, e-views, e-visits, remote patient monitoring).	87%
... I am adequately prepared (i.e., have the right tools and resources) to support and mentor colleagues in integrating informatics into the curriculum.	87%
... PEPLN has increased inclusion of pharmacy informatics competencies into the curriculum.	75%
... PEPLN has increased the integration of consumer focused digital health solutions into the pharmacy curriculum.	75%
... I have increased faculty understanding of consumer health (including e-requests for prescriptions renewals / refills, e-scheduling / booking, e-views, e-visits, remote patient monitoring).	38%

The colleague survey questions / statements were about support and guidance received, factors influencing experience, experiences with peer leaders and PEPLN, ratings about engagement approaches with peer leaders, satisfaction with peer leader support and knowledge gained through participation. Response frequencies and percentages were determined and the results were tabulated. The response rate to this survey was very low (n=4). Because of the limited number of responses the results from this survey have not been incorporated into this report.

For a more detailed report on the mid-point peer leader survey please see “AFPC PEPLN Evaluation Report Supplement” (available upon request through AFPC office).

## **VI. PHASE 4 - PEPLN KNOWLEDGE TRANSFER WORKSHOP #2**

Phase 4 activities were as follows:

- Conducting document analysis,
- Conducting knowledge transfer workshop #2,
- Submission of peer leader case / integration reports, and
- Conducting focus group.

## **A. Document analysis**

A document analysis was conducted. The analysis included the following documents: leadership emails, leadership team meeting / workshop notes, faculty proposals, mid-term / final reports and peer leader workspace. The analysis aimed to look for common and disparate themes (e.g., challenges, benefits and synergies; effective, feasible and practical approaches / strategies / scenarios; best practices; and successful and unsuccessful approaches).

Documents were reviewed, coded and analyzed. The overarching categories came from the evaluating questions, which were later divided into subcategories based on the themes that were coded in the documents. Similar themes were grouped into subcategories and categories according to what/who was involved in the integration process. Frequencies were determined for all themes and categories.

The document analysis identified the most common challenge as technical issues related to the e-Resource. A benefit identified was that students improved their grades. Synergies were apparent from the PEPLN team work in developing virtual patients and solving problems. The analysis identified pre-reading for courses as the most common learning strategy and making activities compulsory as the most common integration approach.

For a more detailed report on the document analysis please see “AFPC PEPLN Evaluation Report Supplement” (available upon request through AFPC office).

## **B. Workshop activities**

The knowledge transfer workshop was held June 12-14, 2015. Verbal reports were received from 8 pharmacy faculty / schools and from 1 pharmacy technician training program.

### *Workshop Program:*

Friday:

- Group dinner and networking
- Guest speaker- “*Building and Sustaining Academic Peer Networks*” – Bill McEvily, Rotman School of Management, University of Toronto.

Saturday:

- Canada Health Infoway Update – Valerie Leung
- Peer Leader Reports – Local Integration Projects from the peer leaders
- Group discussion – Sustaining and building upon the network and potential enhancements to the e-Resource

Sunday:

- Focus group discussion – Ken Cor, Facilitator, Director of Assessment, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta

### C. Peer leader integration case reports

Overall, through the network 34 local integration activities were conducted over the fall 2014, winter and spring/summer 2015 terms. The activities were conducted in courses offered to all years (1, 2, 3, and 4). The most frequent type of course for integrations were pharmacy skills labs. Other types of courses where integration activities occurred were: experiential rotations, pharmacy practice, pharmaceutical sciences, therapeutics, management, health systems and informatics. Non course activities included: faculty / preceptor orientations, a conference, e-technology contest, and development of virtual patients. The most common learning activity was pre-reading for labs or lectures. Other learning activities were: flipped class room, support for assignments, and orientations / demonstrations. All 5 domains were used in the integration activities. Domain 5 (consumer health informatics) and domain 3 (knowledge management and technology) were the most frequently used domains. Only 3 courses used all of the domains, with two courses using the majority of the content from the five domains.

The peer leader mentor / coach summarized each faculty peer leader reported integration activity into a table with the following data elements identified for each integration initiative: course or activity, semester and year of study, types of activities, sections of e-Resource used, required or optional, evaluation method used, number of individuals evaluated, and results of evaluation. The initiatives were grouped by faculties / schools. The following tables illustrate for each faculty the data elements for each integration project course or activity, year of students, semester, domain(s) used, theme, number of students or faculty, and type of learning activity for each of the integration activities.

**Table 3 – Summary of faculty integration activities**

<b>Table 3.1 Memorial University</b>			
	<b>Activity #1</b>	<b>Activity #2</b>	<b>Activity #3</b>
<b>Course or activity</b>	Experiential rotation	Practice course	Pharmacy skills lab
<b>Year of students</b>	2 & 4	1	1, 3, 4
<b>Semester</b>	Spring	Winter	Fall & Winter
<b>Domains used</b>	4	1 & 5	Domain 3
<b>Theme</b>	Privacy/security	EHRs	Documentation
<b>#students or faculty</b>	119 students	40 students	120 students
<b>Type of activity</b>	Certificate required	Flipped classroom	Pre-lab reading
	<b>Activity #4</b>	<b>Activity #5</b>	<b>Activity #6</b>
<b>Course or activity</b>	Pharmacy skills lab	Health Promotion course	Faculty/staff meeting
<b>Year of students</b>	3, 4	3	n/a
<b>Semester</b>	Winter	Fall	Winter
<b>Domains used</b>	3	3	All
<b>Theme</b>	Electronic resources	Websites	Demo & seek feedback
<b>#students or faculty</b>	80 students	40 students	12 faculty
<b>Type of activity</b>	Pre-lab reading	Supplement to assignment	Presentation & discussion

**Table 3.2 University of Montreal**

	<b>Activity #1</b>	<b>Activity #2</b>	<b>Activity #3</b>
<b>Course or activity</b>	Management course	Pharmacy skills lab	Experiential rotation
<b>Year of students</b>	3	1	4
<b>Semester</b>	Winter	Winter	Fall & Winter
<b>Domains used</b>	All	5	All
<b>Theme</b>	Management	Websites	Technology & pharmaceutical care
<b>#students or faculty</b>	189	192	2 students
<b>Type of activity</b>	Post-lecture reading		EHR for med rec & e-Pharmacy survey
	<b>Activity #4</b>		
<b>Course or activity</b>	Conference		
<b>Year of student</b>	All		
<b>Semester</b>	Winter		
<b>Domains used</b>	All		
<b>Theme</b>	e-Pharmacy conference		
<b>#students or faculty</b>	70 students, 10 pharmacists/faculty		
<b>Type of activity</b>	Conference		

**Table 3.3 University of Toronto**

	<b>Activity #1</b>	<b>Activity #2</b>	<b>Activity #3</b>
<b>Course or activity</b>	Experiential rotation	Pharmacy skills lab	Health Systems course
<b>Year of students</b>	3	2	3
<b>Semester</b>	Spring	Winter	Fall
<b>Domains used</b>	3	3	1 & 3
<b>Theme</b>	Electronic resources	Documentation	e-Health, e-Prescribing
<b>#students or faculty</b>	240	240	240
<b>Type of activity</b>	Complete module	Assignment	Pre-lecture readings
	<b>Activity #4</b>	<b>Activity #5</b>	<b>Activity #6</b>
<b>Course or activity</b>	Informatics course	Virtual Patient development	Education Theory & Practice course (PharmD for Pharmacists)
<b>Year of students</b>	1	n/a	Post-BSc
<b>Semester</b>	Fall	n/a	n/a
<b>Domains used</b>	All	3	Domains 4 and 5
<b>Theme of activity</b>	Informatics	Minor ailments	Instructional design
<b>#students or faculty</b>	240	6	45
<b>Type of activity</b>	Flipped classroom	Content development	Review of content
	<b>Activity #7</b>	<b>Activity #8</b>	



<b>Course or activity</b>	Preceptor workshop	Demonstration to Office of Experiential Education	
<b>Year of students</b>	n/a	n/a	
<b>Semester</b>	n/a	n/a	
<b>Domains used</b>	All	Domain 4	
<b>Theme of activity</b>	Experiential learning	Experiential learning	
<b>#students or faculty</b>	11 faculty, preceptors	6 faculty; 3 staff	
<b>Type of activity</b>	Demo & feedback	Demo & feedback	

**Table 3.4 University of Waterloo**

	<b>Activity #1</b>	<b>Activity #2</b>	
<b>Course or activity</b>	Pharmaceutical sciences course	Informatics course	
<b>Year of students</b>	3	1	
<b>Semester</b>	Winter	Spring	
<b>Domains used</b>	5	All	
<b>Theme</b>			
<b>#students or faculty</b>	120 students	120 students	
<b>Type of activity</b>	Pre-lecture reading	Flipped classroom	

**Table 3.5 University of Manitoba**

	<b>Activity #1</b>	<b>Activity #2</b>	<b>Activity #3</b>
<b>Course or activity</b>	Pharmacy skills lab	Pharmacy skills lab	Pharmacy Skills lab
<b>Year of students</b>	1	2	2
<b>Semester</b>	Fall & Winter	Fall & Winter	Winter
<b>Domains used</b>	3	3	3
<b>Theme</b>	Electronic resources	Electronic resources	Electronic resources, documentation
<b>#students or faculty</b>	55 students	54	6
<b>Type of activity</b>	Pre-lab reading	Pre-lecture/Pre-lab	Review domain 3 for feedback
	<b>Activity #4</b>		
<b>Course or activity</b>	Faculty engagement		
<b>Year of students</b>	n/a		
<b>Semester</b>	Fall & Winter		
<b>Domains used</b>	All		
<b>Theme</b>	Feedback		
<b>#students or faculty</b>	8 skills faculty		
<b>Type of activity</b>	Demo & discussion		

**Table 3.6 University of Saskatchewan**

	<b>Activity #1</b>	<b>Activity #2</b>	

<b>Course or activity</b>	e-Technology Contest	Virtual Patient development	
<b>Year of students</b>	All	n/a	
<b>Semester</b>	Winter	n/a	
<b>Domains used</b>	5	3	
<b>Theme</b>	eTechnology	Minor ailments	
<b>#students or faculty</b>	13 students	1 faculty	
<b>Type of activity</b>	Contest	Content development	

**Table 3.7 University of Alberta**

	<b>Activity #1</b>	<b>Activity #2</b>	<b>Activity #3</b>
<b>Course or activity</b>	Pharmacy Skills lab	Pharmacy Skills lab	Experiential rotation
<b>Year of students</b>	1	2	2
<b>Semester</b>	Fall	Fall	Spring
<b>Domains used</b>	3	3, 5	3
<b>Theme</b>	Electronic resources	Documentation, consumer health	Medical chart
<b>#students or faculty</b>	131 students	127 students	127 students
<b>Type of activity</b>	Pre-lab reading	Pre-lab reading	Pre-assignment reading
	<b>Activity #4</b>		
<b>Course or activity</b>	Pharmacy Skills lab		
<b>Year of students</b>	3		
<b>Semester</b>	Winter		
<b>Domains used</b>	All		
<b>Theme</b>	Care plan development		
<b>#students or faculty</b>	126 students		
<b>Type of activity</b>	Pre-reading for assignment		

**Table 3.8 University of British Columbia**

	<b>Activity #1</b>	<b>Activity #2</b>	<b>Activity #3</b>
<b>Course or activity</b>	Practice course	Therapeutics course	Management course
<b>Year of students</b>	1	2	4
<b>Semester</b>	Fall	Fall	Fall & Winter
<b>Domains used</b>	1	1, 2	5
<b>Theme</b>	e-Health	Health informatics	e-Health
<b>#students or faculty</b>	224 students	221 students	34
<b>Type of activity</b>	Pre-lecture reading	Pre-lecture readings	Support for business plan project

For a more detailed report on the faculty integration initiatives please see “AFPC PEPLN Evaluation Report Supplement” (available upon request through AFPC office).

## Best Practices Identified

There were numerous best practices identified from the peer leader case reports and the peer leader mid-point and final administrative reports. The best practices were compiled and categorized into four categories: use within courses, changes at the curriculum level, engagement outside of courses, and e-Resource content.

- Use within courses:
  - The content of the e-Resource can be used to support the teaching of an informatics course using a flipped classroom model.
  - Provide students with time in lieu of class time to complete a module, but reinforce main concepts in the classroom.
  - Use of components of the e-Resource as required pre-lecture/lab work. Reinforce key concepts in class or as a lab activity helped to ensure students have a basic grasp of the material.
  - Make completion mandatory (e.g. completion of full domain to obtain certificate) or include evaluation questions on the exam – this emphasizes the importance of the material.
  - Inform students ahead of time about the technical requirements to access the e-Resource to help prevent frustration by the students (e.g., tablets may not display the virtual patients).
  - The e-Resource is effective when specific assignments are used to reinforce concepts already taught.
  - It is more effective when activities within the e-Resource are linked to other objectives in the course.
  
- Curriculum level changes
  - Presenting at the curriculum committee level is good way to make the e-Resource a priority and brainstorm on areas to incorporate pharmacy informatics in the curriculum.
  - Having receptive faculty members and continued exposure is important to maintain awareness and foster adoption.
  - Collaboration with colleagues with pre-existing interest in health informatics was felt to be beneficial.
  - Outlining where the e-Resource is used across the curriculum (i.e. curriculum mapping) helps to determine the informatics competencies have been covered off in the curriculum.
  - The Pharmacy Skills lab stream of the program was felt to be a good place to integrate the e-Resource.
  - An elective clerkship is an innovative approach to promote the use of information and communication technologies within pharmacy students.
  - The proposed Pharm D curriculum may better embed the e-Resource into the curriculum.
  - Successful integration requires familiarity with the curriculum and content of the e-Resource. Establishing an integration team helped with the success of the project.
  
- Engagement outside of courses
  - Access by preceptors to the e-Resource was felt to be helpful to the role of the preceptor. The development of a Preceptor Guide was suggested.
  - An e-Pharmacy conference was effective at engaging pharmacy students and bringing awareness to the use of technology.
  - The e-Health Challenge was an innovative way to integrate the consumer health priorities amongst the students.

- e-Resource content
  - The addition of three new virtual patients was felt to strengthen the e-Resource by emphasizing minor ailments prescribing and consumer health informatics.
  - Adaptation of the e-Resource using student and faculty feedback is an important factor in keeping the e-Resource relevant.

#### D. **Focus group**

A 90-minute semi-structured group interview approach was employed to generate information about PEPLN member experience. An interview script was developed containing a set of pre-determined questions for each of the 4 areas of experience examined guided the focus group discussion. When discussion warranted further clarification or additional exploration, the interviewer adapted the script to include additional questions or prompts. The entire focus group was transcribed verbatim.

Various members of the PEPLN team including peer leaders and informatics pharmacy educators from different universities taking part in the program, PEPLN peer mentors, and the PEPLN administration attended the focus group. Representatives of Canada Health Infoway also attended the focus group but in a strictly observational role. An external evaluator ran the interview.

A semi-structured interview protocol served as a basis to guide the focus group discussion. The first area of the tool was designed to reflect on the beginning of the project to generate information about the peer leaders' initial expectations about how being a part of the peer leader network would support them to integrate the informatics tool into their local contexts.

The second part of the interview was designed to generate information about how the peer leader network supported the networking goal to create an environment that encouraged faculty members to assume mentorship and expertise roles within their institutions. The third part of the interview was designed to generate information about how the PEPLN helped to overcome the project's pre identified list of expected barriers including: *institutional, individual, and pedagogical barriers*. Finally, the last part of the interview was conducted with just the peer leaders and pharmacy educators from the different universities and was designed to generate information about how peer mentors supported peer leaders in their efforts to integrate the informatics e-Resource into their curriculums.

Overall focus group results provided views relating to initial expectations, networking goals, expected barriers, and peer mentors. For the focus group section about initial expectations, participants provided opinions about the themes: peer-leader-label, role of peer leaders, and being a part of the network. The following categories were used to group themes identified in the section about networking goals: support (includes the e-Resource, community of practice, local peers); challenges (includes evolving network, type of network, time); and needs (includes sharing and network session). Finally, themes were identified relating to expected barriers and peer mentors. The following table summarizes the major themes that emerged for each section of the focus group session.

**Table 4 – Major themes for each section of the PEPLN focus group interview**

<b>Initial Expectations</b>	
Peer-leader-label	Peer leaders felt uncomfortable with the label and rarely used it to refer to themselves in their local contexts. There was a sense it was counterproductive and did not have the same meaning as in a clinical context.
Role	Opinions varied about the role peer leaders were expected to take on. Roles were expected to vary by context and could include identifying faculty to take on integration efforts, being responsible for actual integration, and being an informatics theme coordinator.
Being a part of the network	Being a part of a network was viewed as the only way to achieve widespread integration of the e-Resource tool and e-health competencies.
<b>Networking Goals</b>	
<b>Supports</b>	
The e-Resource	The e-Resource was viewed as a major support for achieving the goal of generating education tools and providing peer support for integration. It, along with the various components (e.g. the faculty guide), was also cited as supporting readiness and generating awareness.
Community of practice	Participants explained that being a part of a network of individuals with a common interest and goal was motivating and supported the ability to create educational material, provide peer support, and achieve a state of readiness.
Local peers	“Local peers” were cited as being crucial to enabling ability to build awareness and achieve a state of readiness. Local peers were listed as paid students, administrative staff, fellow informatics or skills educators, and enthusiastic administrators responsible for overseeing the curriculum.
<b>Challenges</b>	
Evolving network	Acknowledged that the network is in an early stage of development and is still learning what processes and resources are needed to best to support peer leaders in varying contexts.
Type of Network	Merits of evolving to a more social approach to network growth were discussed. The formal hierarchical approach was identified as necessary to gain initial traction. A more social approach via the creation of a Special Interest Group (SIG) that was not explicitly linked to the e-Resource was suggested as the next logical step in growing the network.
Time	Challenges associated with the timing of the project launch, lack of time in peer leaders’ schedules, and too short of a time period for the project in general made it difficult to be ready and raise awareness about the tool.
<b>Needs</b>	
Sharing	General feeling the network did not support peer leader ability to link with colleagues to support and mentor them. Mechanisms are needed to facilitate sharing of resources and experiences. Participants want more interaction amongst one another to be able to learn from each other’s experiences as well as to leverage each other’s efforts.
Network session	The network session was identified as being crucial going forward to support ability to link with and support and mentor local peers. The session was identified as being something that should be introduced earlier.

<b>Expected Barriers</b>	
	Support from Deans, presence of the network and the e-Resource were identified as supporting the ability of peer leaders to overcome expected barriers.
<b>Peer Mentors</b>	
	Peer mentors were described as effective at providing technical support, content support, and encouragement but less effective at supporting ability to develop local networks and develop strategies for integration.

For a more detailed report on the PEPLN focus group please see “AFPC PEPLN Evaluation Report Supplement” (available upon request through AFPC office).

## VII. PHASE 5 – INTERNAL EVALUATION

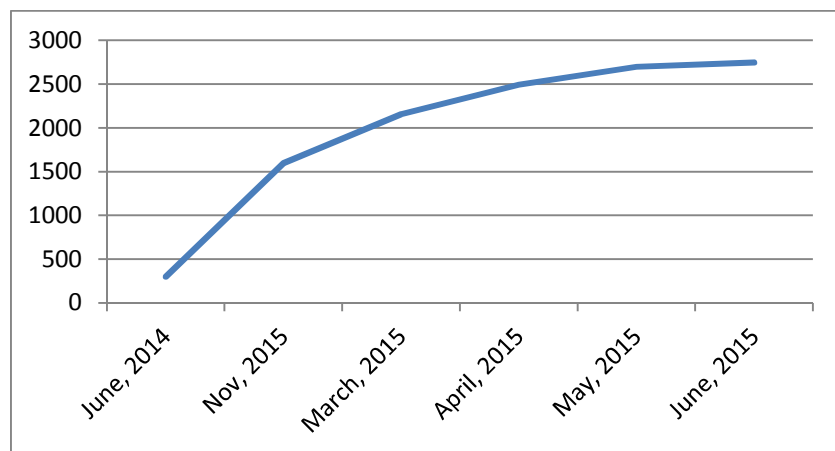
Phase 5 the project evaluation consisted of two sub-phases: evaluation of the pharmacy educator peer leader network and evaluation of the e-Resource. The evaluation activities were initiated after the receipt of written reports from peer leaders. Evaluation activities were coordinated through the PEPLN leadership group. Two peer leaders with evaluation expertise, Marion Pearson and Gilles Leclerc, were included in the evaluative process.

### A. Evaluation of PEPLN

Increased use of the e-Resource and integration of informatics topics occurred within curricula.

Prior to the first PEPLN workshop in August 2014, the number of users was approximately 350 with users from 3/10 pharmacy schools. By the end of June 2015, the e-Resource had enrolled over 2800 individuals at 9/10 schools. In addition, two pharmacy technician schools utilized the e-Resource. This equated to an 8 fold increase in enrollees. The following figure displays this growth.

**Figure 1 - # of e-Resource enrollments by month (period June 2014 to June 2015)**



Over ½ of the students enrolled in pharmacy faculties participated in the integration and used the e-Resource. Approximately 1/3 of the university enrollees were from one university (Toronto) with 8/10

universities accounting for 98% of the pharmacy enrollments. Technician program enrollments accounted for 4% of total enrollments. The following table displays the use by university / technician program.

**Table 5 – # of e-Resource enrollments by university / school (June 2015)**

<b>University / Program</b>	<b># enrollments</b>
Toronto	964
Alberta	409
British Columbia	376
Montreal	301
Waterloo	219
Memorial	218
Dalhousie	193
Manitoba	101
Saskatchewan	42
Laval	10
Total universities	2833
Nova Scotia Community College	72
Stenberg	33
Total technician programs	105
Total both	2938

The number and types of integration activities were dependent on the approach and strategies taken by the local peer leader. Local peer leaders either conducted integration activities within courses they were teaching, or worked with their faculty peers to conduct integration activities within other courses in the curriculum, or did both.

The following table summarizes the types of learning activities and indicates whether they were for credit or optional.

**Table 6 – Types of learning activities employed for integration projects**

<b>Type of Learning Activity</b>	<b>Credit or optional activity</b>
Pre-readings for lectures	Credit course
Pre-lab activities / assignments	Credit course
In class activities	Credit course
Pre-Experiential requirement	Credit course
Experiential learning rotation	Credit course
Contests / awards	Credit course or optional activity
Conferences / symposia	Optional activity
Lunch and learn (students and / or faculty)	Optional activity
On line self-directed activities	Optional activity

## Collective impact of PEPLN

The following five core conditions (from the [Collective Impact Forum](#)) were selected to frame the collective impact resulting from PEPLN.

1. Common agenda
2. Backbone infrastructure
3. Mutually reinforcing activities
4. Shared measurement system
5. Continuous communication

Common agenda – A common agenda was established early and maintained throughout the project. There was some momentum as the PEPLN project built on the work done in the Pharmacists-in-Training project. Many AFPC pharmacy faculty members had some awareness and knowledge about e-Resource. PEPLN participants (including the leadership team, local peer leaders and faculty colleagues) committed collectively to the PEPLN project purpose of integrating the e-Resource (including the consumer health priorities) into pharmacy curricula.

The PEPLN agenda was delineated clearly in the initial project proposal (including background information, project purpose, project scope, project phases, project deliverables, etc.). The proposal was circulated within pharmacy faculties (through the AFPC Councillors). Presentations about progress and results occurred at the Council meetings and annual conference. A regular PEPLN newsletter was posted on the AFPC website.

In the data collected from the survey and focus group there were no specific questions asked of peer leaders relating to their opinions or perceptions about a common agenda. The comments from one focus group participant suggest an understanding, consensus and commitment to the PEPLN agenda.

*“I knew about the e-Resource because, you know, for a couple years. [It] was coming up at AFPC conferences and I just thought the [PEPLN] is a great idea because it’s the only way it’s going to get used. There’s been this tremendous work go into creating this thing, but unless there’s somebody identified in each faculty to take it forward it’s going to sit on the shelf, which would be tragic.”*

Backbone infrastructure – The PEPLN leadership team provided the backbone function for the project. Members of the team included the project sponsor, Infoway liaison, project manager and the peer leader and e-Resource mentor / coaches. The dedicated PEPLN project staff were: peer leader coach / mentor, e-Resource coach / mentor and project manager. All were involved on a part-time basis. The team members had experience from working together in the Pharmacists-in-Training project. The coach / mentors provided guidance and direction to the local peer leaders. In addition, the team developed and maintained supports and resources. Local peer leaders were provided with project funding to assist with local expenses (e.g., orientation, internal evaluations, report writing, and dissemination related activities).

Feedback about the backbone infrastructure was captured through the peer leader survey and through the focus group data.

The following feedback about the infrastructure was obtained from the survey (conducted at the project mid-point). Peer leaders reported an average agreement score of 4 (out of 5) with the statement that they were adequately prepared (had the right tools and resources) to support and mentor colleagues in integrating informatics into curriculum. In addition peer leaders provided a range of agreement mean scores between 3.38 – 4 (out of 5) for the statements about the usefulness of various PEPLN supports / resources. The highest rated aspect of the PEPLN backbone elements was the workshops and the lowest were the teleconferences and the workspace. The following table shows the specific results for six PEPLN infrastructure components.



**Table 7 – Peer leader scoring of PEPLN infrastructure supports / resources (n = 8)**

Survey question	Mean (Maximum=5)
Please indicate the usefulness of the following supports/resources provided by the PEPLN in your role as faculty peer leader.	
- Peer leader (in-person) workshops	4.88
- Peer leader coach / mentor role	4.0
- Peer leader teleconferences	3.88
- E-Resource coach	3.57
- PEPLN Dropbox	3.53
- Peer leader workspace (accessed from e-Resource site)	3.38

*Table notes:*

*Scores were 5 – extremely useful, 4 – moderately useful, 3 – useful, 2 – slightly not useful, 1 – not at all useful.*

Data from the focus group theme analysis showed that the infrastructure should be considered a work in progress as peer leader needs are shaped by local context.

*“Acknowledged that the network is in an early stage of development and is still learning what processes and resources are needed to best to support peer leaders in varying contexts.”*

Mutually reinforcing activities – Through PEPLN common project guidance and support elements were provided through the backbone infrastructure while local peer leaders were given wide flexibility to pursue integration activities (e.g., to implement all or part of the e-Resource, implement in any course – for credit or non-credit, and utilize learning strategies of their choosing). The flexibility was provided to accommodate local context, priorities and dynamics (e.g., peer leader role within the faculty, state of local curriculum management, and other factors influencing local integration). A minimum of 1 integration activity was required for implementation in the fall 2014 and winter 2015 terms.

The focus group theme analysis showed that the network created a reinforcing environment.

*“Participants explained that being a part of a network of individuals with a common interest and goal was motivating supporting the ability to created educational material and provide peer support and achieve a state of readiness”.*

Results from the focus group, presented as a word cloud, illustrates key words and themes attributable to kinds of communications and supports the network created to achieve initial goals.

**Figure 2 – Word cloud created from focus group – PEPLN communications and supports created to achieve initial goals (n=9)**



Shared measurement – A shared measurement system was established and maintained over the duration of the project. A number of common data collection templates and tools were developed and utilized. The templates and tools were primarily developed through the project leadership group and Infoway. Peer leaders were consulted whenever possible and briefed about the measurement system at the initiation workshop and through emails and conference calls. Local peer leaders provided the following reports: the progress of integration activities (via 3 reports: initial, mid-term and final reports) and a verbal and written final case study report. These reports with measures were similar to those required in any research project. In addition local peer leaders completed a mid-point survey and participated in a final focus group. The LMS had questions for students to complete within each domain (related to knowledge and skills gains, navigation and functionality).

There were no specific questions asked about peer leaders’ opinions or perceptions about the shared measurement system in either the peer leader survey or focus group. Also, there were no opinions or perceptions expressed by peer leaders in other written documents about shared measures (e.g., notes from peer leader conference calls, emails, etc.). All peer leaders submitted progress reports, case study reports about local integration reports, and identified revisions for the e-Resource. The PEPLN shared measurement system appeared to be satisfactory to peer leaders.

Continuous communications – Continuous and open communications were maintained throughout the PEPLN project through written and verbal routes (i.e., Dropbox repository, LMS discussion boards, emails, workshops, telephone calls, conference calls, and the newsletter).

The project leadership team met via conference calls every 2 weeks. Meetings were 1-1.5 hours in length. Additional written and verbal communications occurred routinely. Communications between the leadership team members and the local peer leaders was regular throughout the duration of the project. Four teleconference meetings of the peer leader working group occurred. Members of the leadership team and local peer leaders attended the August 2014 initiation workshop and knowledge dissemination workshop.

Positive feedback about communications was captured in the peer leader survey administered at the PEPLN project midpoint. Open ended responses in the survey were positive about several communication features of the project. The following table shows these responses.

**Table 8 – Opened ended survey question responses relating to PEPLN communications (n=8)**

<b>Survey Responses (questions shown for additional context)</b>
<p><u>For the question – I have regular opportunities to engage with other faculty peer leaders to exchange ideas, resources, lessons learned and success stories?</u></p> <p>“The workshop and the teleconference were helpful to connect and share stories”.</p>
<p><u>For the question – What aspects of your role as faculty peer leader are most satisfying?</u></p> <p>“Comparing notes with colleagues across the country”.</p> <p>“... also enjoyed meeting colleagues from across the country and making connections with other schools”.</p> <p>“Meeting other peer leaders and sharing/working together on the project”.</p>
<p><u>For the question - PEPLN has been effective to date - what have you found to be the most effective?</u></p> <p>“Communication between the leadership and the mentors has been very effective”.</p> <p>“Networking between faculties of pharmacy and CHI”.</p>

Regular communications occurred with other audiences. Written and verbal PEPLN progress reports were provided to AFPC Councils and faculty members. External stakeholder dissemination activities included a newsletter (5 editions produced) and presentations to conferences and meetings. Poster and verbal presentations about PEPLN occurred at COACH webinars, Infoway peer leader, E-health, E-safety summit, AACP meetings and conferences.

There were several limitations of the project. One limitation was that majority of peer leaders (6) focused on implementing integration projects within their assigned courses. Working with their peer faculty colleagues to explore how the topic might fit and be integrated into other courses proved to be challenging for many reasons. Ideally it would have been desirable if there was a more balanced approach i.e., integration within peer leader directed courses balanced with integration within peer colleague’s courses.

Another limitation was the selection of the peer leader for the network. Because the Dean of each faculty was responsible for the selection, the peer leaders varied in the number of years’ experience (i.e. familiarity of the curriculum), levels of experience / interest in informatics, position within the faculty (e.g. administrator, instructor), and experience with research / evaluation. Although this brought unique perspectives to the network, it appeared to have affected the types of integration projects and approaches undertaken.

The transition of the pharmacy curriculum from a bachelor’s degree to a PharmD was reported as another limitation at many schools. Because the transition to the PharmD required a complete change in curriculum, much of the efforts of the faculty were devoted to planning for the new program. As such, there was some

resistance to make major changes to the existing curriculum, which may have affected the degree of integration that occurred.

Since the e-Resource was not translated into French, it may have contributed to the limited integration at the Universities of Montreal and Laval. For future versions of the e-Resource, sections of the e-Resource (e.g., documentation, consumer health informatics) should be translated into French.

A major integration challenge is the consideration that the e-Resource will be used either in whole or in part. In curricula where there is no dedicated informatics course, exposure to informatics occurs across a variety of courses. It would be useful to map curricula in faculties against the informatics competencies to assess what is covered in different courses. The results from mapping can be used to redesign content in future versions of the e-Resource to better align with how the topic is delivered in pharmacy curricula.

In summary, PEPLN was successful in increasing integration of informatics into pharmacy curricula. PEPLN facilitated the implementation of 34 integration projects in 8 / 10 faculties in a 1 year period. Enrollments in the e-Resource increased 8 fold to approximately 2800 students. The most frequent type of course for integrations were pharmacy skills labs. Other types of courses where integration activities occurred were: experiential rotations, pharmacy practice, pharmaceutical sciences, therapeutics, management, health systems and informatics. Non course activities included: faculty / preceptor orientations, a conference, e-technology contest, and development of virtual patients. The most common learning activity was pre-reading for labs or lectures. Other learning activities were: flipped class room, support for assignments, and orientations / demonstrations. All 5 domains were used in the integration activities. Domain 5 (consumer health informatics) and domain 3 (knowledge management and technology) were the most frequently used domains. Only 3 courses used all of the domains. Overall PEPLN created conditions considered essential to produce a collective impact (i.e. established and maintained a common agenda, backbone infrastructure, mutually reinforcing activities, shared measurement system, and continuous communications).

## **B. E-RESOURCE EVALUATION (REVISIONS FOR VERSION 2)**

Version 1 of the Informatics for Pharmacy Students e-Resource was completed and officially launched in January 2014 near the completion of the Pharmacists-in-Training project. Limited course/curriculum (i.e., field) testing of the e-Resource occurred prior to launch. Testing by faculty members was limited as the 2014 winter term was already in session. The next opportunity for further testing and use within pharmacy faculties was the 2014 fall term. As a result, course testing of the e-Resource and data collection occurred in the fall 2014 and winter 2015 academic terms (phase 3 of the project – integration projects).

One of the major foci of PEPLN was to identify potential revisions to Version 1 through the increased integration and use of the e-Resource in pharmacy curricula.

Revisions to Version 1 were undertaken based on evaluation data. Sources of data for modifications included:

- Analytics from the Learning Management System (LMS);
- Document analysis;
- Feedback from peer leaders at second workshop (Halifax, June, 2015);
- Case reports from faculties of pharmacy (peer leaders); and
- Instructions from the project leadership team.

Through the leadership team, the decision was made to keep the major focus for Version 2 revisions on format changes. Content changes will be considered in the future for Version 3. The e-Resource coach / mentor led the process of identifying, recommending, and implementing changes.

Analytics from the Learning Management System (student users)

Two types of analytics were collected from the LMS: number of users (including breakdown by school shown in Table 4) and user experience/satisfaction. The number of users was gathered by generating a report on a monthly basis. The breakdown by schools was done manually (using corresponding email addresses).

User experience / satisfaction feedback from students was obtained by a survey at the end of each of the five Domains in the e-Resource. Completion of the surveys was optional, although it was required by some schools in order to obtain a certificate as evidence of participation. There were 7 closed ended and 2 open ended questions relating to the domain content and format.

Ten separate school-specific sites were set up. Faculty peer leaders had access to their respective site and the LMS analytics. The feedback from students was shared with the peer leader from each school and with the project leadership team. The quantitative and qualitative data were analyzed for quality improvement and modifications for Version 2.

Approximately 1/4 (675) of the total pharmacy student enrollees completed experience / satisfaction survey questions in one or more domains. Domain 5 received the highest amount of feedback (49% of responses) followed by domain 1, domain 4, domain 2, and domain 3. As domain 3 was lengthy, the number of students completing this survey was low. There was no attempt to utilize measures to assess the amount of exposure and learning that occurred by students for each specific domain.

**Table 9 – # students completing experience / satisfaction survey questions by domain**

<b>Domain</b>	<b>Domain description</b>	<b># students</b>
Domain 1	Concepts and context in pharmacy informatics	202
Domain 2	Information management and technology	56
Domain 3	Knowledge management and technology	6
Domain 4	Privacy security and confidentiality	79
Domain 5	Consumer health informatics	332
	Total	675

Overall at least 70% of respondents strongly agreed or agreed with all the questions / statements related to domains 4 and 5. For the domains 1, 2 and 3 responses to questions were 55% or greater for the strongly agree or agree responses with 3 exceptions. For domains 1 and 3 between only 33 - 44% of respondents strongly agreed or agreed with question 6 relating to number of topics and length. For domain 2 only 43% of respondents strongly agreed or agreed with question 5 relating to interactivity.

**Table 10 – % students responding strongly agree / agree to experience / satisfaction survey questions by domains 1-5**

Question	% of students who agree or strongly agree					% range
	Domain					
	1	2	3	4	5	
1 - ... relevant.	66	70	83	97	90	66-90
2 - ... increased my knowledge.	69	71	100	88	85	69-100
3 - ... skill development.	57	54	83	83	70	54-83
4 - ... well organized.	55	82	83	73	75	55-83
5 - ... interactive elements ...	68	43	67	82	78	43-82
6 - ... number of topics/activities/length...	44	80	33	87	73	33-87
7 - ... apply the concepts ...	59	57	100	97	77	59-100

*Table explanatory notes:*

*The following 7 statements were presented in the experience / satisfaction survey.*

1. *The topics covered in this domain were relevant.*
2. *This domain increased my knowledge.*
3. *This domain was useful for skill development.*
4. *This domain was well organized.*
5. *The interactive elements (e.g., virtual patients, polls, discussions) were helpful.*
6. *The number of topics/activities/length of this domain was appropriate.*
7. *I will be able to apply the concepts in this domain in my education and training.*

*The response scale was 1-5 (1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, 5 = strongly agree).*

Experience / satisfaction survey responses were collected for 2 topics within domain 3. The number of respondents for topic 3.2 was only 8 and for topic 3.3 was 194. Experience / satisfaction scores were in a favorable direction for both topics and all questions.

**Table 11 – % students responding strongly agree / agree to experience / satisfaction survey questions by topic 3.2 and 3.3**

Question	% of students who agree or strongly agree		% range
	Topic		
	3.2 electronic resources	3.3 clinical documentation	
1 - ... relevant.	100	92	92-100
2 - ... increased my knowledge.	100	85	85-100
3 - ... skill development.	100	87	87-100
4 - ... well organized.	100	81	81-100
5 - ... interactive elements...	87	81	81-87
6 - ... length of topic ...	83	54	54-83
7 - ... apply the concepts ...	87	92	87-92

Table explanatory notes:

The following 7 statements were presented in the experience / satisfaction survey.

1. The topic covered was relevant.
  2. This topic increased my knowledge.
  3. This topic was useful for skill development.
  4. This topic was well organized.
  5. The interactive elements (e.g., virtual patients, polls, discussions) were helpful.
  6. The length of this topic was appropriate.
  7. I will be able to apply the concepts in this topic in my education and training.
- The response scale was 1-5 (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree).

Three open ended questions relating to each domain were included in the experience / satisfaction questions. The questions were as follows: What aspect did you like about this domain? Do you have any suggestions? Do you have any other comments or suggestions? The e-Resource coach / mentor reviewed the responses and identified common themes. The following table summarizes the results from this analysis.

**Table 12 – Summary of common themes from analysis of open ended experience / satisfaction survey questions**

<b>Domain</b>	<b>Analysis</b>
1. Concepts and context in pharmacy informatics	A number of students found Domain 1 interesting, thorough, and provided a good overview. As with other Domains, the Virtual Patients and interactivity were valued. The use of videos was singled out as a way to “break up” the content/reading, and it was mentioned that there was a good balance of reading and mixed media. However, a number of students found Domain 1 long and confusing. Some mentioned that the concepts felt disconnected, and that it could be better organized. Some students found the videos too long and, as with other topics in the e-Resource, some students felt that a summary of key points would have been helpful. Navigation challenges included some broken URLs, the need for “next” arrows and small font size.
2. Information management and technology	A number of students found Domain 2 useful, noting that they learned about areas previously not familiar to them i.e. LANs, WANs, explaining that it was personally relevant to them. Students requested more interactivity for Domain 2 (there were no Virtual Patients or a quiz in this Domain), although there were polls and videos. Some students found Domain 2 lengthy.
3. Knowledge management and technology	As with other Domains, students valued the interactive elements, particularly the Virtual Patients. Students liked the examples provided, and the activities that required them to seek information or complete documentation. A number of students mentioned the “variety”, and the appeal of short sections that simplified the areas. However, a number of students found the Domain too long, and many students were interested in seeing the answer keys for documentation (which were to instructors but not to students). Navigation challenges were also cited, as previously noted. Overall, students valued the topics in Domain 3; it should be noted that the evaluation data were largely for Topics 3.2 (Electronic Resources) and 3.3 (Clinical Documentation).
4. Privacy security and confidentiality	Students found Domain 4 concise. Many students mentioned the examples of “breaches” provided as being particularly useful and the “real world” examples. The Virtual Patients were particularly noted as being a positive element. A number of students could not access the Virtual Patients, and some cited the broken URLs as frustrating. Navigation challenges were also mentioned, including the “checking off” of activities. Memorial University required that a certificate be produced for Domain 4, and some challenges emerged for some students.

5. Consumer health informatics	Students appreciated the interactivity (including the polls, forums, virtual patients, cartoon-like images/animation, videos, and quiz). Domain 5 presented new concepts for students (e.g., Canada Health Infoway) and provided resources they were not aware of previously. Students mentioned the lack of reading and the simplicity of the materials and format, and found it easy to navigate. Other students found the LMS difficult to navigate, and a number of them mentioned that they would appreciate more explanation of concepts presented with concrete examples. Some students found the discussion forums not useful, and others found the content wordy and theoretical (although this was not a common theme). French translation was requested. A number of students were seeking some direction on what constitutes “good information” for patient care, and a summary of the material.
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For a more detailed evaluative report on the e-Resource modifications please see “AFPC PEPLN Evaluation Report Supplement” (available upon request through AFPC office).

The interactive elements of the e-Resource were appreciated by the majority of students, and topics that were practical (clinical documentation and electronic resources) were rated more highly than those that were more conceptual in nature. This finding is aligned with the results of the Competency Framework research from Phase 1 of the Clinicians-in-Training project. Students appreciate brevity and materials that are concise; this is not a surprising finding and is substantiated by the medical education literature (e.g., AFMC, 2012). Self-reported gains in knowledge and skills are difficult to measure, although some instructors reported an improvement in grades compared to students in previous cohorts.

In addition to the LMS data, the e-Resource coach / mentor collected data and identified potential e-Resource revisions from the following sources:

- Document analysis report;
- Workshop #2 peer leader presentations and the peer leader case reports; and
- Attending focus group (as participant and observer).

From the workshop and focus group field notes were taken and the notes were analyzed. The revisions identified from these sources were triangulated with the data obtained from the LMS.

Concordance between student feedback and faculty evaluation results occurred in a number of areas, including the need for brevity in certain domains, improved navigation, and an increase in quiz items. Additional recommendations were generated from the focus group, including collapsing the domains into topics, a streamlined registration process, the elimination of enrolment keys for university specific sites, and the use of personal emails rather than university email addresses. A list was generated and shared with Peer Leaders after the 2<sup>nd</sup> workshop that included:

- a) Eliminate discussion forums
- b) Ensure all links/URLs are working
- c) Edit content/parse material
- d) Indicate some sections/materials as optional to decrease reading
- e) Eliminate school specific sites and need for enrolment keys (and replace with one "universal" site for all universities)
- f) Write more assessment items (quizzes) for learners to gauge their understanding
- g) Ensure all navigation, i.e., “proceed to next section”, is available / adjusted
- h) Eliminate the Domains, and create 12 to 13 topics with some interactivity

Peer Leaders affirmed the proposed changes. With respect to improved navigation, the input of Peer Leaders was sought once the conversion from a “tab” format to a more traditional book layout was



available; feedback for this redesign was positive. Throughout the modification process, peer leaders were invited to participate in a variety of activities, including writing quiz items and providing feedback on Version 2 as it was in various states of development.

Other modifications to Version 1 included the registration process, specifically with respect to defining/expanding categories for registration in order to allow for the collection of data. Further, the decision was made to allow open access to the e-Resource for other audiences.

Twelve major changes and 10 minor changes have been made to Version 1 of the e-Resource. In addition there are 9 items that will not be changed to the e-Resource at this time. The following summary table shows where major, minor, and no changes were made related to access / use, navigation / layout, activities and content.

**Table 13 – Summary of Version 1 e-Resource major, minor and no changes**

<b>Major Changes</b>	<b>Minor Changes</b>	<b>No Change</b>
<b>Access /Use</b>		
<ol style="list-style-type: none"> <li>1. University specific sites deleted to allow one universal site</li> <li>2. University email address requirement changed to allow any email address for enrolment and open access</li> <li>3. Registration process modified to provide categories/demographics</li> <li>4. Features and table of contents manual to reflect new layout</li> </ol>	<ol style="list-style-type: none"> <li>1. Recommended browsers emphasized (Firefox and Chrome) vs. Internet Explorer</li> <li>2. User manuals adapted based on change in navigation/layout</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirmation of enrolment process</li> <li>2. Device platform (not intended for mobile use)</li> <li>3. Access from AFPC Website</li> <li>4. French translation</li> </ol>
<b>Navigation/Layout</b>		
<ol style="list-style-type: none"> <li>1. Domains/topics converted to chapters (12), accessed from one page</li> <li>2. Tab format converted to book format</li> <li>3. Navigation arrows provided throughout</li> <li>4. Table of contents block on left side of site</li> </ol>	<ol style="list-style-type: none"> <li>1. References/names provided for all URLs</li> <li>2. Learner progress tracking items verified</li> <li>3. Colour coded Domains removed</li> </ol>	<ol style="list-style-type: none"> <li>1. "Open in new window" feature for activities and URLs (vs. open in same window).</li> </ol>
<b>Activities</b>		
<ol style="list-style-type: none"> <li>1. Three new virtual patients (minor ailments/consumer health)</li> <li>2. Quizzes added for all chapters (105 new MCQs written, added to existing 15 items)</li> </ol>	<ol style="list-style-type: none"> <li>1. Discussion forums/wikis deleted</li> <li>2. Certificate settings enabled with consistency</li> <li>3. Faculty discussion forum archived</li> </ol>	<ol style="list-style-type: none"> <li>1. Request for audio (by 1 school) not feasible due to cost and without further needs assessment</li> <li>2. Polls retained</li> </ol>

Major Changes	Minor Changes	No Change
3. OSCAR (EMR) Sandbox decommissioned		

The major limitation of the review process was that some domains (i.e., domains 1, 2, 4 and 5) and topics (i.e., topic 3.3) were utilized in courses more than others and as a result the breadth and depth of feedback for these domains was greater than for domain 3. Topic 3.3 within domain 3 did receive considerable feedback. Only 1 integration project utilized all e-Resource domains. Most used 1 or 2 of the domains. As the priority for Version 2 was format (rather than content), the modifications identified for domains 1, 2, 4 and 5 were applied to domain 3.

An additional limitation is that limited resources and time were available to collect feedback, conduct a comprehensive review and make modifications related to e-Resource content. Content revisions will require significant involvement and participation of current and potential contributing authors and time for this process.

The major challenge related to this process is that the modifications undertaken will not be fully evaluated until the next academic terms in fall 2016 and winter 2017. Similarly, this challenge will be applicable to Version 3 of the e-Resource with revised content. Ideally from a quality improvement perspective it is important that new versions of the e-Resource be field tested in classroom or other teaching settings.

In summary, the AFPC e-Resource “Informatics for Pharmacy Students” was field tested in Canadian pharmacy faculties for two academic terms. Feedback from student users and faculty peer leaders was reviewed and analyzed using mixed methods. Overall, the feedback illustrated that Version 1 of the e-Resource was a useful and valuable tool for integrating important concepts and principles relating to the use of information and information technology through different types of courses in pharmacy curricula. There were 12 major and 10 minor changes identified for modification of Version 1 to improve access / use, navigation / layout and specific learning / teaching activities.

## VIII. ADDITIONAL PEPLN PROJECTS

The PEPLN leadership committee opted to investigate three additional areas of interest related to informatics education and the use of the on-line e-Resource. The topics were interprofessional education, pharmacy technician education and pharmacist continuing professional development. An official amendment was made to the original project agreement between AFPC and Infoway. For more detailed information about these projects see AFPC PEPLN evaluation report supplement. A summary report follows for the three additional PEPLN projects conducted.

### A. Interprofessional Initiative – University of Montreal

This project was conducted because of the AFPC interests and dialogue about the teaching of informatics and the use of an on-line e-Resource in an interprofessional learning environment. Through the project exploratory research was done about student perceptions and local opportunities for learning about this topic through an interprofessional approach. The following is a brief description of this project.

## Objectives

The project aimed to:

- sensitize students to the issues, challenges and opportunities of digital health;
- provide a picture of students' educational needs in teaching and learning digital health at the University of Montreal.

## Description of Project

The project consisted of 3 phases: 1) integration in interprofessional education; 2) study of digital health education at the University of Montreal; and 3) conducting a one day symposium on e-health. Phase 1 led to developing and administering a 4-question survey about the benefits of digital health to students enrolled in an interprofessional course (n=1434). Phase 2 consisted of developing and administering a 20 question on-line survey to health and psychosocial sciences students (n=294). In addition, semi-structured interviews were conducted on a sample of 5 students. In phase 3 a 1-day symposium was held to demonstrate practical achievements in digital health, debate current issues, and preview transformative innovations (number of participants = 375). A questionnaire was administered to symposium attendees (n=116).

## Selected Key Findings

### *Societal benefits of digital health (n=294)*

- 78.6% perceived that system productivity gains would occur.
- 73.8% felt that there would be improved collaboration between professionals.
- 43.5% indicated that the shift to digital health would better serve the population.

### *Health professionals' benefits (n=294)*

Implementation of health professionals enabling technologies would improve:

- Collaborations with other health professionals (85%)
- Data availability (64.3%)
- Documentation (53.1%)
- Waiting times (45.9%)
- Communications with patients (44.9%)

Further benefits would be possible if technologies could provide :

- a better framework for collaborative work flow (85%)
- a real time sharing of information (68.4%).

### *Patients' benefits (n=294)*

Implementation of patient enabling technologies would improve :

- Communications with health professionals (67.3%)
- Treatment compliance and effectiveness (42.9%).

Benefits are more likely to occur if:

- Technology is easy to use and learn (95.2%),
- Security and confidentiality can be assured (65.6%).

### *Opinions about teaching / learning of e-health (n=294)*

- 74.7% indicated that teaching of digital health was non-existent or insufficient.
- 88.6% viewed that the above gap should be addressed within the next 5 years.
- 71.8% felt that this topic should be integrated into the existing undergrad curriculum.

- 89.1% supported simulation learning activities.
- 67.3% were in support of a self-study online component to learning.
- 56.8% suggested digital health be compulsory learning.
- Skills development in technology used (76.9%) and technology-related patient teaching (69%) should be prioritized.
- For knowledge acquisition, the focus should be put on the following: e-health best practices (80.6%), legal and professional issues (59.9%) and overall e-health challenges and opportunities (56.1%).

*Symposium on Digital Health (n=375)*

The conference allowed students to better understand the challenges and opportunities of digital health while fostering the desire to pay more attention to various aspects of it in the future. In this regard, the respondents (n=116) want to hold a symposium again next year (95.7%). A list of suggested topics is found in the appendix of the interprofessional initiative report (see AFPC PEPLN evaluation report supplement).

**B. Pharmacy technician training program initiative**

Description of the project

Students from 2 pharmacy technician training programs accessed various sections of the e-Resource. Nova Scotia Community College in Dartmouth and Stenberg College in Kamloops participated. The project provided teacher and student feedback about the utility of the e-Resource and what customizations may be required.

The following table summarizes the pharmacy technician education program integration activities.

**Table 14 Summary of Pharmacy Technician Education Integration Activities:**

<b>Program</b>	<b>NSCC</b>	<b>Stenberg</b>
Number of students	44	30 (2 groups of 15)
Domains accessed	3.2; 4	3; 4
Activities	<ul style="list-style-type: none"> <li>• 8 students volunteered to serve as Team leads. They became familiar with accessing the e-resource.</li> <li>• 1 day learning assignment for all students, with Domain 3.2. Team leads mentored small groups of 5 – 6 students</li> <li>• Students were then encouraged to complete Domain 4 while on Practicum.</li> </ul>	<ul style="list-style-type: none"> <li>• 1 group of students was an on-campus class. They completed Domain 4.</li> <li>• The 2<sup>nd</sup> group was an on-line group. They completed Domain 3 and 4.</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>• Accessing the e-CPS was frustrating for the students due to the limited number of computers (internal issue).</li> </ul>	<ul style="list-style-type: none"> <li>• Issues were encountered with accessing Virtual Patients.</li> <li>• Need to specify what browser to use.</li> </ul>

	<ul style="list-style-type: none"> <li>• The timeframe for the pilot project was very short.</li> <li>• Exercises tailored more to pharmacy students.</li> </ul>	
Successes	Overall the students found the e-resource an excellent learning tool that could be incorporated into the curriculum. It provides a more interactive learning experience.	<ul style="list-style-type: none"> <li>• Both groups of students were very familiar with the use of Moodle, and found the site easy to navigate and work through.</li> <li>• This e-resource would be so valuable to integrate into Pharmacy Technician training programs.</li> </ul>

### Key findings

Seventy-three students accessed the e-Resource. Two domains (domain 3 and 4) were utilized as assignments in courses. One program had the students complete the domain while the students were on their practicums. Some technical issues were encountered. Overall feedback from teachers and students was positive about the e-Resource (for format and contents). Fifteen technician training programs requested access to the e-Resource in 2015-16.

The following table illustrates feedback received from the pharmacy technician initiative.

**Table 15 – Comments from pharmacy technician trainees.**

Open ended comments from pharmacy technician trainees
<p>“I liked the fact that it would ask you a question, and then it would point you in the direction of which references to use if needed”</p> <p>“ I also enjoyed the polls as it was nice to see other people’s points of views and opinions on different subjects”</p> <p>“ It was nice to have the dashboard type of view as well, because you could easily see which tasks you had completed and what were still waiting to be done all at once”</p> <p>“I really liked the virtual patient. It was thought-provoking, and it was also a more realistic aspect of what I could potentially see while working in a pharmacy”</p> <p>“I found the e-resource fairly easy to register, login, and navigate. It looks like it would be an exciting tool for additional learning experiences and assignments for the Pharmacy Technician course”</p> <p>“It gives a bit of insight as to how a pharmacist would do a therapeutic evaluation, so we can better understand what they do, and how we can incorporate ourselves into it”</p> <p>“I would hope in the future the exercises will be technician based”</p>

### C. Practising pharmacists / preceptors initiative

#### Description of the project

This initiative consisted of a small pilot study to provide preliminary information regarding the use of the e-Resource by preceptors and as a potential continuing professional development option. Pharmacists at 2 pharmacy locations were to provide qualitative comments about the e-Resource.

#### Key findings

Unfortunately the community pharmacies decided to not participate because of time management considerations.

## IX. RECOMMENDATIONS

The following recommendations were made by the project leadership team:

1. A peer leader skills development boot camp / workshop should be conducted. Potential topics include change management, building relationships, communicating and networking with peers.
2. A targeted approach should be utilized for the future development and nurturing of the peer network. The focus should be peer leaders and faculty with teaching interests in pharmacy skills labs, experiential education, pharmacy practice, and informatics. A reasonable goal for 2016/17 is to double the number of faculty and colleagues committed to integrating informatics and information technology into curricula.
3. Current pharmacy curricula should be mapped against the AFPC informatics competencies (gap analysis). The focus for mapping should be on the course types identified in recommendation 2.
4. Initiate a process for e-Resource content revisions. Continued focus should occur on practical / hands on learning approaches. This process will require new authors and reviewers.
5. Modifications should be made to selected sections or chapters of the e-Resource for use in pharmacy technician training programs (e.g., documentation, consumer health informatics, privacy/security/confidentiality). Consultations will be required with pharmacy technician training program leads to identify learning needs.
6. To potentially increase the utilization of the e-Resource and the teaching of informatics, translate 2 or 3 sections of the e-Resource into French (e.g., documentation, consumer health informatics, privacy/security/confidentiality).

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