Designing a novel continuing education program for pharmacists: Lessons learned

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The ADAPT program arose from a grassroots partnership of pharmacy educators and researchers, pharmacist organizations and experts in online learning. ADAPT is a unique online educational experience intended to help pharmacists change their practice approaches with patients and other health care providers. We describe the steps involved in, and the learning from, the development and implementation of ADAPT.

Le programme ADAPT est le fruit d'un partenariat local entre les enseignants et les chercheurs en pharmacie, les organismes pharmaceutiques et les spécialistes en matière de formation en ligne. Le programme ADAPT propose une expérience de formation en ligne unique visant à aider les pharmaciens à modifier leur approche en matière de pratique auprès des patients et des autres fournisseurs de soins de santé. Nous décrivons les étapes de l'élaboration et de la mise en oeuvre du programme ADAPT, ainsi que les enseignements que nous en avons tirés.

Introduction

Rapid changes in health care and the evolving role of the pharmacist, as shown by the recent expanding scope of practice changes in several Canadian jurisdictions, have created a need for additional pharmacist continuing education (CE). Many pharmacists move into these new roles with excitement and trepidation. Some pharmacists may be comfortable communicating with patients but less certain how to document the care provided or how to conduct physical assessments. Some may have had plenty of opportunities to talk with physicians but less experience working with other health care providers. Many know that these new roles will improve patient care and want support and CE to move confidently into this new world.
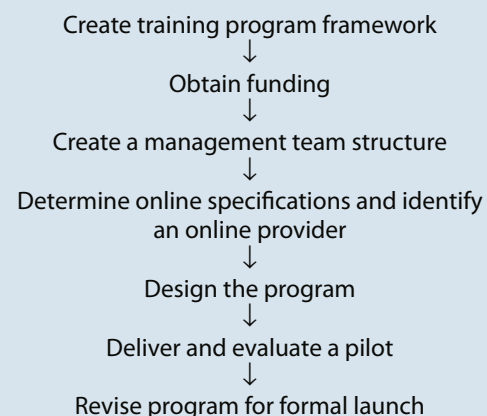
A group of pharmacists involved in the Primary Care Pharmacy Specialty Network (PC-PSN), a joint initiative of the Canadian Pharmacists Association (CPhA) and the Canadian Society of Hospital Pharmacists (CSHP), could see that these changes were beginning to happen within the practices of PC-PSN members and through research initiatives such as IMPACT,[1-3] SCRIP, SCRIP-plus and REACT.[4-6] The group envisioned a "real-world," accessible, national CE program that would enable pharmacists to enhance patient care in primary health care settings.

This article describes the creation, pilot testing and launch of the Adapting Pharmacists' Skills and Approaches to Maximize Patients' Drug Therapy Effectiveness (ADAPT) CE program. The program comprises 7 online learning modules designed to enhance patient care and collaborative skills, plus a face-to-face workshop designed to provide additional feedback about those skills. Program development began in November 2009. The pilot offering of the program occurred from August 2010 to February 2011 and the program became available to all Canadian pharmacists in August 2011 (www.pharmacists.ca/adapt).

It was a challenge to create a rigorous, high-quality program for working pharmacists that was practical in terms of the skills taught and the delivery method. A summary of the ADAPT development and implementation process is provided in Box 1. Lessons learned from the ADAPT experience may help others to develop similar CE programs in the future.

BOX 1 ADAPT development and implementation snapshot

Create training program framework
↓
Obtain funding
↓
Create a management team structure
↓
Determine online specifications and identify an online provider
↓
Design the program
↓
Deliver and evaluate a pilot
↓
Revise program for formal launch

Creating the training program framework

In 2007, a PC-PSN training subcommittee created a Primary Health Care Skills Training Program framework (Box 2) using content and structure developed for the IMPACT (Integrating Family Medicine and Pharmacy to Advance Primary Care Therapeutics) project.[7]

Obtaining funding: Creating your luck

The initial challenge was obtaining funding to create a high-quality CE program. A development grant provided by the McMaster University Department of Family Medicine supported the proposal development and networking with potential funders. Several meetings were held with representatives from faculties of pharmacy and pharmaceutical companies before the Health Canada opportunity, facilitated by CPhA, presented itself. In July 2009, CPhA worked with the PC-PSN on a $500,000 funding proposal to Health Canada's Health Care Policy Contribution Program to create a CE program for primary health care pharmacists using the arguments outlined in Table 1. CPhA, CSHP and PC-PSN representatives entered into a partnership for the purpose of this proposal. Notice of successful funding was received in November 2009.

Lesson learned:
- Ensure adequate unrestricted funding. Health Canada's funding made it possible to assemble the right pharmacists, educators, researchers and project managers to deliver and evaluate a mixed model of online, real-world and in-person CE that is not biased toward a particular product, manufacturer or practice setting.

Managing development and implementation

Managing this project on a tight timeline required strong project management skills and a collaborative working environment. This was achieved by hiring a project manager who coordinated many components and managed multiple partners and by creating a management committee comprised of representatives from the PC-PSN, CPhA and CSHP and jointly chaired by a CPhA staff member and PC-PSN representative. The management committee met by monthly teleconference and quarterly face-to-face or Web-facilitated meetings; co-chairs met weekly with the project manager. They also used a secured online data-sharing website (PBWiki) to facilitate communications among committee members and their respective organizations. Tasks of the management commit-

tee are outlined in Box 3.

The management committee contributed significantly to further developing the ADAPT program framework. For example, the committee's distance learning experts identified the benefits of using online moderators to support ADAPT learners. The management committee also responded quickly to address learner challenges that arose during the pilot.

Lessons learned:
- Work with partner associations. ADAPT benefited from the collaborative working relationships among team members and the willingness

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KEY POINTS

- Pharmacists want support and continuing education (CE) opportunities to move confidently into new roles.
- Partnership between primary health care pharmacists, professional associations and universities creates high-quality CE programming.
- Distance education best practices should inform course design and operation.
- A multi-faceted evaluation framework and soliciting learner feedback contributes to making an already good course even better.

BOX 2 PC-PSN Primary Health Care Skills Training Program framework

Goals
1. Enable any Canadian pharmacist to achieve exposure, understanding and mastery of skills or topics relevant to evolving interdisciplinary primary health care practice.
2. Create a university-recognized program in primary health care pharmacy practice.
3. Enable integration of key course content into undergraduate pharmacist education.

Main components
1. A series of basic skill-building modules.
2. An introductory practice-based experience.
3. Follow-up modules for enhanced knowledge and skill building.
4. Specialty modules in therapeutic and relevant practice topics, as well as practice skills activities and experiences.

Principles of program format and delivery
1. Opportunities for flexible format learning.
2. Sequencing of learning to provide opportunity to build skills along the continuum of exposure, understanding and mastery.
3. Elective courses to recognize diversity of participant and primary health care system needs.
4. Experiential application of learning as much as possible.
5. Meeting the needs of primary health care pharmacists irrespective of their university or association affiliation.

TABLE 1 Arguments for funding ADAPT program development and evaluation

General principle	Arguments used in the proposal to Health Canada
Appeal to potential impact on human resources	Pharmacists are the third largest group of health care providers in Canada.
Align with the funder's priorities	ADAPT meets Health Canada's Health Human Resource Strategies Division Policy Framework second priority, which is to use human resources skills effectively.
Provide evidence that the program will contribute to improved health outcomes and cost savings	Pharmacy practice research studies comparing enhanced pharmacy care to usual care demonstrate a distinct health benefit for patients with deep vein thrombosis and pulmonary embolism,[8] high cardiovascular risk and need for cholesterol management,[4,5] diabetes[9,10] and asthma.[11,12] Canadian studies also demonstrate savings to the health care system by implementing advanced pharmacy care.[8,12,13] There is also evidence to support that patient-centred approaches are correlated with positive patient outcomes.[14-18]
Outline consequences of not implementing the program	Risks of not enabling pharmacists to practise to their fullest scope are compelling. Evidence shows that adverse drug events are associated with thousands of hospital admissions and emergency department visits, yet many of these events and visits are potentially preventable.[19] The estimated cost of misuse, underuse and overuse of medications ranges from $2 billion to $9 billion per year.[20]
Show how the program fits with long-term plans	ADAPT is not a one-off project. It is part of a larger change management initiative, the Blueprint for Pharmacy.

BOX 3 Management committee tasks

- Develop committee terms of reference (Appendix A)
- Establish strategic direction for ADAPT program development.
- Make decisions about program ownership, authorship and licensure.
- Create a typical learner group profile to assist with instructional design, participant recruitment and moderator training.
- Analyze the learner group to understand instructional design and market factors.
- Elicit interest from and recruit PC-PSN members as subject matter experts, reviewers and moderators.
- Develop structure for subject matter expert and moderator reimbursement.
- Determine functional specifications for online learning provider.
- Review and approve major project documents.
- Conduct environmental scan to ensure ADAPT content is in line with undergraduate approaches to teaching patient care process and medication assessment.
- Oversee program content creation by a large number of subject matter experts and reviewers.
- Monitor pilot progress.

Identifying an e-learning provider

Criteria for selection of an online learning environment (e-learning platform) and service provider (design, building, hosting and maintenance) for the online program were identified. Guiding principles included that the learning environment be interactive, multimodal in its learning methods and contemporary in its layout. Platform requirements were defined prior to the request for proposal process. An evaluation of the 3 bidders included site visits by ADAPT principals and use of an objective bid evaluation tool based on the criteria specified in Box 4. The Centre for Extended Learning, University of Waterloo, was selected as the ADAPT e-learning provider.

Lessons learned:
- Use distance education expertise. Our management committee experts helped us to define "need to have" versus "nice to have" features of a distance learning environment and provider, keeping the learners' needs foremost and staying on time and on budget.
- Use distance education best practices. We selected the provider before preparing the educational content and this enabled maximal use of the provider's education experts who guided development of the content to fit the learning environment capabilities.

Designing the ADAPT program

Two teams were involved in designing the main components of the ADAPT program. Centre for Extended Learning education experts at the University of Waterloo worked closely with subject

and enthusiasm of CPhA and CSHP to support their joint PC-PSN to undertake a new kind of partnership to develop this innovative program.
- Use principles of collaboration. A clear management committee structure and communication plan facilitated decision-making, conflict resolution and task completion to ensure that the project was completed on time, within budget and was of high quality.
- Educational program development is a fluid process. An adaptive, creative and dedicated management committee arrives at key decisions by revising initial assumptions as new data emerge.

matter experts to develop online module learning objectives, content and activities. A second team, with expertise from the University of Toronto Standardized Patient Program (http://spp.uto-ronto.ca/), developed objectives, activities and assessment tools for the face-to-face component of ADAPT.

Online module development

The goals, as well as a sample learning objective for each of the ADAPT modules, are outlined in Table 2. Learners completed each module's activities (e.g., lectures, videos, exercises) within a 1–3 week timeframe and also participated several times a week in discussion boards. Further information about the individual modules can be found at www.pharmacists.ca/adapt.

For ADAPT to enable practice change, we used an experiential learning approach with many interaction opportunities for learners. The prin-

ciples of cognitive apprenticeship informed the program design. In this model, the learner engages in authentic (i.e., real world) activities under the guidance of experts whose involvement diminishes over time as learners gain competency.[21] This represented a significant departure from traditional approaches in pharmacist distance CE programs, where learning is a passive, individual activity and evaluation is based on simple quizzes.[22] Table 3 outlines the general principles that informed ADAPT's design and how these principles were implemented during development.

At the time the pilot orientation module was "live," only the first 3 content modules were completed (with the fourth in draft). This gave subject matter experts and educational designers an opportunity to improve the modules still in production based on lessons learned from earlier modules. For moderators, important iterative improvements included more explicit support

TABLE 2 ADAPT module descriptions

Module	Goal	Sample objective
Orientation module	To provide an introduction to the course and the basic features and functions of the learning environment	Successfully navigate the University of Waterloo ANGEL course environment and be able to use the basic features required to complete activities and communicate within the course.
Module 2: Medication assessment: What is it and how do I start getting ready?	To practise using a comprehensive medication assessment approach for a patient with multiple medications and conditions in order to prevent/solve medication-related problems	Discriminate between available problem-solving frameworks and tools and apply them to assist in identifying drug therapy problems.
Module 3: Collaborating with family physicians and other health care providers	To work collaboratively with all members of the primary health care team to improve patient care, as well as develop a plan and take practical steps to move from one stage of a collaborative working relationship to the next stage with one or more physicians	Distinguish the roles, responsibilities and expertise of primary care providers and incorporate this knowledge to care collaboratively for patients.
Module 4: Patient interviewing and assessment	To increase comfort level and ability in conducting focused and comprehensive interviews/assessments with patients	Evaluate situations to understand when to use a comprehensive or focused interview and understand how to use physical assessments to obtain varying layers of information.
Module 5: Using evidence-based practice in clinical decision-making	To integrate information from patients and the literature to make decisions about individual patients, as well as make decisions in the face of uncertainty and take responsibility for those decisions through action, follow-up and response	Use well-recognized, high-quality, evidence-based literature synopses, summaries and guidelines to answer focused clinical questions.
Module 6: Documentation of medication-related care	To improve the effectiveness of written medication-related communication so that solution-focused recommendations are clear and can be easily acted upon and to ensure that medication histories are accurate and comprehensive enough to facilitate subsequent decision-making	Develop and utilize a standard format and strategies for effective documentation to produce written documentation notes.
Module 7: Putting it all together	To review key skills covered in Modules 2 to 6 and create a plan to implement those skills in participants' practice settings	Complete the following components of a comprehensive medication assessment: compile a medication history, identify drug therapy problems and develop a care plan.

BOX 4 Online program provider, design and function specifications

Provider
- Must understand learner needs and content development process.
- Has a method for maintenance and updating.
- Undertakes the contract and completes the work within target dates and budget.

Design
- Simple, intuitive navigation of learning environment.
- Able to host 7 to 10 training modules including introductory learning needs assessment modules.
- Able to host small moderated groups of learners within a large group of registrants.
- Access to a "resource library."
- Able to navigate to external URLs (e.g., evidence-based medicine sites).

Function
- Access to synchronous or asynchronous technical support.
- Solutions for minimal downtime.
- Able to work with PC and Mac operating systems.
- Able to verify the minimum required hardware and software on a learner's computer and direct that learner to the appropriate download site if applicable.
- Able to allow a learner to stop and start the program between lessons and save progress such that they can resume the program at any point in the future.
- Use of avatars, animated text, narrations (including audio), video or other interactive features.
- Electronic message boards (or some other suitable vehicle) for discussion, feedback and Q&A among learners.

TABLE 3 Steps in ADAPT development

General principle	Implementation
Develop learning objectives based on real-world skills needed for expanding scope	• Specific learning objectives, following Bloom's taxonomy,[23] were developed and organized into discrete learning modules to ensure ADAPT's overarching goals were met. Learning objectives were mapped to draft primary health care pharmacists' competencies that were being developed for existing practitioners.[24]
Incorporate experiential learning, opportunities for feedback and action planning Ensure consistency among and across modules	• Subject matter experts used each module's learning objectives and a standard template to outline key lecture content, develop tools and collect relevant real-world samples, including finalizing 3 complex cases to use as the basis for simulated clinical encounters. • Discussion board activities provided a social learning space after learners reviewed lecture-type material, video simulations or other interactive forms of media. • Peer feedback and assessment were incorporated throughout. • Activities to be conducted at work led participants through new processes and helped them to engage with effective, new practices.[25] • Moderators provided encouragement, assisted with time management, probed participant discussion board responses and provided feedback. Moderators were pharmacists with experience facilitating live CE. • Each module culminated with an action plan activity based on SMART (specific, measurable, attainable, realistic, timely) criteria. The action plan provided a space to reflect on module content and write a practical change management plan. A moderator provided feedback about each participant's action plan. This assessment approach was consistent with the ADAPT program's underlying design and goal of supporting practice and cultural change.
Ensure applicability and quality	• Module activity completion time estimates were created (maximum 4 to 5 hours/week). • The project manager and 8 practising pharmacists reviewed draft modules for usability, clarity, difficulty of activities and relevance of content. • Subject matter experts selected modifications and educational designers implemented changes and conducted quality assurance checks.

documents and development of an action plan feedback tool that simplified the process of providing participants with meaningful responses.

Face-to-face development
The 1-day face-to-face workshop (F2FW) development began while the online modules were in progress. The purpose of the F2FW was to further transform skills acquired during the online component into practice. The learning objectives are outlined in Box 5.

The activities selected for the F2FW included patient interviewing, medication assessment, documentation, drug information retrieval and communication, and patient case discussion with a physician. The F2FW included direct interaction with standardized patients — a commonly used approach in undergraduate pharmacy education and entry-to-practice pharmacy examinations and more recently in pharmacy CE.[26,27] Four patient clinical scenarios were developed and used to train standardized patients. Physician interactions were incorporated to assist learners who may lack the opportunity to gain confidence in communicating with physicians about therapeutic choices and patient management. Timely verbal and written feedback about interviewing skills from the standardized patients, physicians, peers and group facilitators was incorporated using standardized global rating scales.[28-31] Presentations of cases from their own practices to peers, as well as discussion of ADAPT action plan progress, were also incorporated. To make the most efficient use of time and budget, the F2FW was designed to allow learners to rotate through activities in groups of 4, taking turns interviewing patients, providing feedback and communicating with physicians. The F2FW took place 1 to 2 months after completion of all online modules.

Lessons learned:
• Be innovative with educational design. The development of ADAPT had an overarching plan that was grounded in the educational theory felt to best help pharmacists develop change management strategies. Innovation in Canadian pharmacy education included learning objectives linked directly to desired competencies, requirement for weekly (often daily) learner commitment to practice activities, use of online moderators and peer discussion boards, requirement for learner reflection and active development of a change management plan, inclusion of a F2FW to allow for structured practice and assessment of skills and the extended length of

the program that allowed for skill development beyond simple knowledge acquisition.
• Use a systematic process for development. The systematic process of developing learning objectives based on required competencies followed by creation of content and activities that related specifically to those learning objectives allowed us to ensure that each program component was relevant to patient care.
• Plan for the future. To support the possibility that future iterations of ADAPT could lead to a

POINTS CLÉS

• Les pharmaciens veulent du soutien et des programmes de formation continue pour se préparer avec confiance à leurs nouveau rôles.
• Le partenariat entre les pharmaciens prestataires de soins de santé primaires, les associations professionnelles et les universités favorise la création de programmes de formation continue de haute qualité.
• La conception et la prestation des cours devraient s'appuyer sur des pratiques exemplaires en matière d'éducation à distance.
• Un cadre d'évaluation à volets multiples et la collecte de la rétroaction des apprenants contribuent à l'amélioration d'un cours qui est déjà bon.

BOX 5 ADAPT F2FW learning objectives

Learners will demonstrate the ability to:
1. Utilize effective focused and comprehensive interviewing techniques with simple and complex simulated patients who pose communication challenges.
2. Effectively perform self- and peer-assessments on interviewing techniques, identify areas for improvement and define clear actions for skill improvement.
3. Compile patient information and incorporate evidence to identify drug-therapy problems, document assessments and develop care plans with solution-focused recommendations efficiently and effectively.
4. Effectively and efficiently communicate in writing a patient assessment and solution-focused recommendation(s), effectively perform self-assessments on documentation notes and define clear actions for skill improvement.
5. Effectively communicate verbally a patient assessment and solution-focused recommendation(s) in a complete and effective manner to the patient's primary care physician.
6. Utilize evidence-based medicine strategies to efficiently prepare and present the answer to a complex (ill-defined or an area of clinical uncertainty) drug information question.
7. Develop and present a comprehensive case from their individual practice utilizing the SBAR (situation, background, assessment, recommendation) format.
8. Complete and expand on personal action plans to incorporate new skills into practice.

BOX 6 Summary of lessons learned

- Ensure adequate unrestricted funding.
- Work with partner associations.
- Use principles of collaboration.
- Remember that educational program development is a fluid process.
- Use distance education expertise.
- Use distance education best practices.
- Be innovative with educational design.
- Use a systematic process for development.
- Plan for the future.
- Include willing pilot participants.
- Conduct a pilot and evaluate it.

certificate or credential, a performance-based evaluation of the skills taught in the program was incorporated to enable learners to demonstrate attainment of learning objectives and relevant competencies.

Implementation: Planning for success

In addition to developing ADAPT based on sound educational principles and quality design, the management committee felt that there were 2 key steps to planning for a successful CE program that would facilitate practice change:

1. Conduct a pilot, purposefully selecting participants to represent a range of practice settings, demographics and geography.
2. Evaluate the program rigorously so that course content, delivery and facilitation processes could be revised and improved using an evidence-informed approach.

The pilot
CPhA, CSHP and PC-PSN member pharmacists received an invitation to participate in a pilot of the ADAPT program in spring 2010. Interested pharmacists completed an online open-access module that provided background about primary health care reform, pharmacists' evolving roles and information about the expectations of the ADAPT program. Pharmacists ($n = 271$) who registered upon completion of the initial open-access module and who agreed to participate in the pilot and associated program evaluation were candidates for the pilot group ($n = 90$). Selection criteria included practice setting (focus on community pharmacy but with varied practice sites represented), wide geographic representation and capacity to dedicate significant time to ADAPT. Participants were divided into 5 cohorts and a moderator was assigned to each cohort. The online modules started in September 2010 and finished in December 2010. A 1-day F2FW was made available in Saskatoon and Waterloo in February 2011.

Lesson learned:
- Include willing pilot participants. These pharmacists not only came to learn but were willing to deliver constructive feedback, knowing that their de-identified assignments, comments

and discussions were being analyzed to better understand the learning that was occurring.

The evaluation
The $50,000 evaluation budget for the ADAPT program was contracted to the Élisabeth Bruyère Research Institute who coordinated with co-investigators from other universities. The evaluation was designed to provide insight into how the participants fared in the pilot program, improvements that could be made and how participants made transformational change within their own practice. Initial evaluation results[32-40] have been presented (full publication pending), including examination of the demographics and motivation of learners, evaluation of the learner experience, satisfaction and participation, course assessment and impact on performance of skills and practice change.

Lesson learned:
- Conduct a pilot and evaluate it. Feedback from the evaluation of the pilot has been instrumental in modifying the program to ensure sustainability and application to practice.

Conclusion

This article describes the creation of the ADAPT CE program. We set out to create an online and F2FW CE program that could improve patient care and collaborative skill development and enable practice change. We worked closely with partner associations, developed a strong unrestricted funding proposal, used principles of collaboration in project management, used educational approaches that could enable practice change, selected an e-learning provider who met our requirements, systematically developed content, put supports in place to plan for the future and conducted and evaluated a pilot with willing participants. The lessons learned are summarized in Box 6. Each of these steps was vital to the successful implementation of the ADAPT program. We believe that the program represents something very new for Canadian pharmacists and pharmacy educators to consider. Lessons learned may help inform the development of future CE programs for practising pharmacists.

Final lesson learned:
- Be passionate about the work. The ADAPT program was developed, delivered and evaluated over a 14-month period. The program team accomplished this work by motivating each other and holding a common passion for making

a contribution to fostering successful pharmacy practice in Canada.

Future directions

The ADAPT pilot concluded in February 2011. As anticipated, the pilot yielded significant input from its participants that has guided modifications implemented prior to the formal launch of the program in August 2011.

The ADAPT program online foundational modules and F2FW, which address the first 2 main components of the PC-PSN Primary Health Care Skills Training Program framework, offer a strong foundation for pharmacists to orient their practice toward delivering optimal patient-centred care. It seems reasonable to propose that additional modules will be created to build on this foundation in the future, addressing additional practice skills and pharmacotherapeutic knowledge.

Steps to address the second and third overarching goals of the PC-PSN (see Box 2), to create a university-recognized program and to enable integration of key course content into undergraduate pharmacist education, are in progress. A national ADAPT advisory committee, with representation from the management committee and other stakeholders, has been established to guide this work. ∎

ADAPT
Adapting pharmacists' skills and approaches to maximize patients' drug therapy effectiveness

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The Canadian Pharmacists Association's (CPhA) ADAPT education program was developed in collaboration with the Canadian Society of Hospital Pharmacists (CSHP) and the members of the CPhA-CSHP Primary Care Pharmacy Specialty Network. ADAPT is funded in part by Health Canada under the Health Care Policy Contribution Program.

CANADIAN PHARMACISTS ASSOCIATION
ASSOCIATION DES PHARMACIENS DU CANADA

Canadian Society of Hospital Pharmacists
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