INSTRUCTIONAL DESIGN AND ASSESSMENT

Bridging Education in Pharmacy: The International Pharmacy Graduate Program in Ontario, Canada

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Objectives. To describe development and implementation of a bridging education program for international pharmacy graduates who are seeking licensure as pharmacists in Canada.

Design. The International Pharmacy Graduate (IPG) Program is built upon 5 pillars: prior learning assessment of knowledge and skills (based on entry-to practice competencies), individualized learning plans (including development of customized curriculum and assessments benchmarked to undergraduate pharmacy courses), mentorship, distance learning opportunities, and peer network formation.

Assessment. A total of 264 pharmacists from outside North America have accessed some or all of the IPG Program. Of those who successfully completed all program components, 95% (40/42) were able to meet all other regulatory requirements and pass all licensing examinations, including the Pharmacy Examining Board of Canada’s Objective Structured Clinical Examination. Of those who took only some components of the program, or who did not successfully complete all components of the program, 72.7% (192/264) were able to meet all requirements for licensure.

Conclusion. The IPG Program model for bridging education in pharmacy provides a unique vehicle for allowing foreign-trained pharmacists to meet North American standards of pharmacy practice. This program may be of importance as part of the human resources planning strategy for the profession of pharmacy, and assists immigrant-professionals in meeting standards and expectations of professional practice in Canada.

Keywords: health professionals education, immigrant-professionals, foreign-trained professionals, international pharmacy graduates

INTRODUCTION
Demographers have noted the aging of populations throughout the Western world. With fertility rates declining in most developed countries to subreplacement levels, and increasing demands for services from an aging population, policymakers have argued that immigration will be a key economic strategy for ensuring ongoing growth and prosperity. Without immigration, there may be serious imbalances in the workforce; a declining number of working-aged people will be called upon to provide goods and services for an increasing number of retired people. While technology and other productivity-enhancing strategies may address short-term human resource issues, in the longer term, skills shortages are likely to become significant economic and public policy issues in most developed countries.

The Pharmacy Manpower Project, Inc., has declared “…(a) significant shortage of pharmacists exists today” in the United States. In other countries, similar shortages have been noted. Pharmacy, like other health professions, is facing a growing gap between supply and demand of well-qualified professionals. Despite record numbers of pharmacy graduates from domestic schools each year, the Pharmacy Manpower Project has estimated there may be a shortfall of 157,000 pharmacists in the United States alone by 2020.

In other jurisdictions, similar concerns regarding the pharmacy workforce have been expressed. In Canada, the Canadian Association of Chain Drug Stores has estimated there are currently close to 2,000 vacancies for pharmacists across the country, and this number is projected to grow over the next decade. This trend is consistent with the experience of other professions and trades. The Canadian government has projected that by the year 2010, 100% of growth in the overall labor force will be due to immigration; domestic production of professionals and skilled tradespeople will only account for replacement of those retiring or leaving the workforce for other reasons.

For pluralistic democracies (countries such as Canada, Australia, New Zealand, and the United States),
there is a long-standing connection between immigration, nation-building, and economic prosperity. While immigrants in past generations may have occupied niches in manual labor or skilled trades, today’s immigrants have unprecedented levels of education and professional training. In many countries facing skills shortages in the health professions, concerted efforts have been undertaken to systematically recruit and/or provide preferential treatment to immigrants with professional qualifications, such as pharmacists. There have been reports of large pharmacy employers actively recruiting pharmacists from other countries (such as South Africa, the Philippines, India, and Egypt) to immigrate to Canada in order to address the current demand. In what increasingly appears to be a global shell game, employers from the United States are actively recruiting pharmacists from Canada, the United Kingdom, and other countries to address the United States shortage of pharmacists.

Clearly, the human resources situation in pharmacy is of critical concern, given the important and expanding roles pharmacists are assuming in the delivery of health care in North America. Equally clear, pharmacy is not unique in predicting a shortage of well-qualified personnel to assume positions of responsibility now and in the future – virtually all professions and trades will face similar demographic pressures in the future. Strategies to address the human resources issue in health care will most likely be multipronged, involving increasing enrollments in university-based programs as well as increasing reliance on foreign-trained professionals.

Pharmacy in Ontario

Canada’s largest province and home to over 11 million people, Ontario has traditionally been described as the nation’s “economic engine.” A large manufacturing base, particularly in automobile production, is complemented by a growing and diversified service sector, particularly in the areas of financial services, health care, and education. Demographically and economically, Ontario most closely resembles midwestern states such as Ohio or Illinois.

Toronto, the capital city of Ontario, has been described as the most cosmopolitan city in the world: 43.7% of its residents were born outside the country, as compared with 24.4% of residents in New York City, or 30.9% of residents in Los Angeles or Sydney, Australia.

A heavy reliance upon immigrant-professionals in pharmacy in the province of Ontario is unique in North America. Each year, more than 40% of all newly licensed pharmacists in the province were educated outside Canada or the United States. In total, 25% of all pharmacists currently licensed in Ontario received their education or training outside North America. There are several reasons for this reliance on foreign-trained pharmacists. Consistent with the trend throughout North America, there has been an increasing demand for community pharmacists due to the expansion of pharmacies in a variety of settings. The publicly supported nature of Canada’s universities means there is a constrained and somewhat inelastic supply of domestically educated pharmacists. There is only one accredited school of pharmacy in the province, and there are currently no provisions for private postsecondary degree-granting institutions.

Pharmacy in Ontario is unique in demonstrating such a strong reliance on foreign-trained professionals; few other jurisdictions in North America have such a large number of immigrant-professionals complementing the domestically educated workforce. This pattern was first noted in the 1980s and has continued since. Today, it is difficult to project how the profession of pharmacy in Ontario could function without the contributions of immigrant-professionals.

Given labor and demographic projections in pharmacy (and in other health care professions) in North America, pharmacy in Ontario may be described as a sentinel, a “canary in the coal mine,” for future developments in the healthcare labor force. While the reasons behind the present situation in Ontario are somewhat unique, most demographers suggest that a similar pattern of reliance on foreign-trained professionals and skilled tradespeople will, in the future, be much more commonplace throughout North America.

While the number of foreign-trained pharmacists seeking licensure in Ontario has reached unprecedented proportions, educational and regulatory systems to assist these individuals have not necessarily kept pace. Foreign-trained pharmacists seeking licensure in Ontario are required to:

1. demonstrate comparability of academic preparation in pharmacy, through successful completion of the Pharmacy Examining Board of Canada’s Evaluating Examination (similar to the Foreign Pharmacy Graduate Equivalency Examination [FPGE] in the United States);
2. demonstrate minimal levels of English (or French) language fluency as defined by standardized tests such as the Test of English as a Foreign Language (TOEFL) or the International English Language Testing Service (IELTS);
3. successfully complete an in-service apprenticeship period of 32 weeks, under the supervision of a qualified pharmacist;
4. demonstrate competency at the entry-to-practice level through successful completion of the Pharmacy Examining Board of Canada’s Qualifying Examination Part I (written test of clinical knowledge) and Part II (Objective Structured Clinical Examination [OSCE]);
5. successfully complete an internship period of 16 weeks under the supervision of a qualified pharmacist; and
6. successfully complete an examination in pharmacy jurisprudence.

In the past, the apprenticeship and internship periods were somewhat unstructured, without clearly defined learning objectives or outcomes. Feedback from foreign-trained pharmacists and their preceptors suggested that such an unstructured approach to in-service training did not equip foreign-trained pharmacists with the knowledge and skills necessary to successfully apply their previous education and training to the North American pharmacy context. Though successfully able to meet regulatory/licensing entry-to-practice requirements, some foreign-trained pharmacists may experience difficulty once licensed and in active, patient-care practice.8

Retrospective analysis of disciplinary records of the Ontario College of Pharmacists (OCP, the regulatory and licensing body for pharmacy in Ontario) indicates that 63% of all cases involve foreign-trained pharmacists (this despite that only 25% of pharmacists in the province are foreign-trained). The OCP Quality Assurance process (a direct assessment of maintenance of competency through a written test of clinical knowledge and an objective structured clinical examination [OSCE]) has revealed that foreign-trained pharmacists experience greater difficulty in meeting standards of practice than their North American-educated peers.9 While (on average) 13.6% of all pharmacists require remediation or upgrading education, 28.9% of all foreign-trained pharmacists tested have difficulty in meeting expectations for professional practice.

Research undertaken in Ontario suggested that there was a large pool of pharmacists who had immigrated to Canada, but were unable to gain licensure due to these and other regulatory, logistical, and financial barriers.8 For many, the licensing requirements were simply too time consuming and these individuals could not afford to live and support families while working in low-paying apprenticeship positions. Consequently, these potential pharmacists simply drifted away from pharmacy into other fields that allowed them to earn a reasonable income without having to undertake the arduous licensing process.

Some foreign pharmacy graduates experienced significant difficulties in passing national licensing examinations in Canada. The Pharmacy Examining Board of Canada administers the 2-part Qualifying Examination to candidates for licensure in Canada.10 Part one is a written, multiple-choice, case-based test of clinical knowledge that is administered over 2 consecutive days. Part two is a large-scale, objective, structured clinical examination consisting of sixteen 7-minute stations. For some foreign-trained candidates, the OSCE examination format in particular was difficult, and simply not part of their experience in pharmacy education or licensure in other countries.

In an effort to address the skills development issue in the profession, and to assist landed immigrants in obtaining professional employment commensurate with their education and skills, the University of Toronto (U of T) partnered with OCP and the Access to Professions and Trades Unit of the Ministry of Training, Colleges, and Universities of the Ontario Government (APT) to develop a bridging education program for foreign-trained pharmacists. As part of its economic strategy for the province, the provincial government had recognized the cost to the economy of the province of underemployment of immigrants with professional qualifications. As a result, more than $18 million (Canadian dollars) was dedicated to various professions and trades to develop educational programs aimed at assisting foreign-trained individuals with meeting Canadian standards of practice and gaining access to employment. Due to the particularly strong demand for pharmacists in the province, pharmacy and nursing were selected as the first professions to develop bridging education programs.

**Issues in Development of Bridging Education Programs**

There is a growing body of literature indicating the costs of underemployment of foreign-trained professionals throughout the Western world.11 For regulators, there is an important but fine balancing act. Access to a profession is a privilege, not an automatic right. Licensing bodies have the responsibility to ensure that all candidates for licensure are able to meet entry-level standards of practice for safe and effective patient care. Equally, licensing bodies must also be mindful of their responsibilities to fairly and equitably apply standards, consistent with legal provisions that prevent discrimination, and not unreasonably deny access to licensure and employment. Unreasonably high regulatory requirements may result in qualified individuals not becoming licensed and a worsening of the skills shortage. Alternatively, unreasonably low requirements may result in individuals who are not competent becoming licensed and introducing risks to the health care system.
A provocative question raised by some immigrant advocates relates to the nature of standardized testing in professions. Given the differential success of North American-educated and foreign-trained pharmacists on standardized national licensing examinations (such as the NABPLEX or PEBC), some have suggested that these tests may be culturally biased or introduce unreasonable barriers to regulated professions. For example, a study of performance-based assessment in medicine demonstrated that differences in communication style may adversely impact assessment.\textsuperscript{12} While there is no direct evidence to support claims of bias, some candidates do report experiencing difficulty understanding expectations for professional practice in North America, and this may result in suboptimal performance and assessment.

One common anecdote relates to the nature of pharmacy practice itself. In many countries, the status of the pharmacist may be somewhat higher than in North America, and the customer-service role of the pharmacist may be different. For example, in many parts of the Middle East, it is considered a sign of respect for the patient to approach the pharmacist and initiate dialog. Likewise, the pharmacist would very rarely approach a patient, introduce himself or herself, and ask if he or she may be of assistance. Clearly, by North American standards, such behavior would make the pharmacist seem aloof, indifferent, or unapproachable, yet it is widely accepted and expected in other cultures. Thus, in an internship setting, the North American-educated preceptor’s expectations of customer service may be at odds with the foreign-trained pharmacist’s sense of professionalism. In an OSCE setting (where candidates have only 7 minutes in which to identify and resolve drug-related problems), significant time may be lost if the candidate is expecting the simulated patient to approach and initiate dialog. OSCE cases generally anticipate that the pharmacist will introduce himself or herself and begin questioning in a time-efficient manner.

Examples such as these suggest that the reasons for poor performance of foreign-trained pharmacists on licensing examinations or in internships may be complex and multidimensional. Pharmacists from other countries may lack knowledge regarding certain common therapeutic conditions in North America (eg, depression, hypertension, hypercholesterolemia) or may have superior knowledge in other areas (eg, pharmacognosy, medicinal chemistry, or treatment of malaria or infant dehydration). In many cases, they may not be aware of how to demonstrate skills appropriately in the North American context. Unfortunately, there is currently no formal vehicle by which their previous knowledge and experience can be aligned with North American expectations. Issues of communicative and cultural competency in practice may cloud direct assessment of pharmacotherapeutic knowledge and skills.\textsuperscript{13}

As a government-sponsored economic policy, Bridging Education aims to address this issue through systematic teaching and assessment of critical professional competencies, particularly so-called “soft skills” related to interpersonal communication and communicative competency. Recognizing that the process of immigration is inherently stressful, and that immigrants with professional qualifications frequently are left on their own without adequate support to acquire a complex body of knowledge and skills in a short time (while other day-to-day pressures exist), Bridging Education becomes a viable alternative to the hit-and-miss strategy that may characterize attempts at licensing examinations or other regulatory requirements. More importantly, Bridging Education provides a vehicle by which foreign-trained professionals may be connected to the academic institution and the broader professional community during their formative training period, as a way of learning the customs, conventions, and practices of the profession in a structured fashion with ongoing, criterion-based assessment.

**History of Bridging Education in Pharmacy in Ontario**

In 1999, in response to regulatory issues previously described, OCP first provided support for Bridging Education through a 3-year unrestricted grant to the University of Toronto. As the licensing and regulatory body for pharmacy practice in the province, OCP recognized its responsibility to the public and the profession to ensure the competency of all practitioners, including those who were educated outside North America. This initial grant provided the University with an opportunity to develop and pilot courses to support foreign-trained pharmacists. Initially, courses and workshops were developed in the areas of pharmacy practice, English-for-specific-purposes (ESP), and health care systems. The goal of this program was to provide a bootstrap to individuals entering apprenticeship and internship positions so they would better understand the context of pharmacy practice and therefore be more likely to succeed. Partnerships with local community agencies serving immigrants were also developed to provide access to other life skills and supporting services (including teamwork, goal-setting, and resume preparation).

The initial Bridging Education pilot programs were well received by foreign-trained pharmacists, their pre-
ceptrors, and employers. All 12 participants in the pilot were able to successfully complete licensure requirements and gain employment within 1 year, a more efficient process than the hit-and-miss attempts that characterize many foreign-trained pharmacists’ attempts at licensure examinations, structured practical training, and internship requirements. As part of a system to improve and standardize pre-service education for foreign-trained pharmacists, OCP also changed the unstructured 32-week apprenticeship to a structured practical training (SPT) program. Specific learning activities and objectives were introduced, as were more structured and rigorous assessment criteria. A training program for preceptors was introduced to ensure greater consistency in teaching and assessment of foreign-trained pharmacists. Again, the goal of these systems was to provide greater support for (and a more standardized approach to the training of) foreign-trained pharmacists.

In 2000, the government of Ontario announced availability of funding for Bridging Education. Through a competitive process, the University applied for and received a grant to develop a more formal educational program for foreign-trained pharmacists seeking licensure in Ontario. As part of the application, a specific model for bridging education for foreign-trained professionals in general was proposed. The intent of the grant was to test this generic model in the context of pharmacy as a profession, with the goal of allowing other professions and trades to adopt and customize this model.

**DESIGN**

The International Pharmacy Graduate (IPG) Program model was developed through a systematic review of literature and the experience of foreign-trained professionals, including pharmacists in the original OCP-funded pilot program. The IPG program model consisted of the following pillars:

1. Prior Learning Assessment and Recognition
2. Individualized Learning Plans
3. Mentorship
4. Distance Learning Opportunities
5. Prior Learning Assessment and Recognition

**Prior Learning Assessment and Recognition.** The educational needs of pharmacists are diverse, and vary depending on educational background, experience, language skills, and familiarity with North American health care practices. Prior Learning Assessment (PLA) has been used in a variety of fields to evaluate an individual’s level of practice-readiness. Such PLAs have been static, requiring all candidates to undertake rigorous tests regardless of ability or background.

Adaptive PLA involves skills evaluation that is modified to match an individual’s performance. Rather than undertake a full battery of assessments, different tiers are established corresponding to the specific tasks. Using different tiers of assessment, each individual’s strengths and weaknesses can be probed to provide a more reliable and valid assessment of competency. While the goal of a typical PLA is to simply identify whether a candidate meets or does not meet a predetermined standard, the goal of adaptive PLA is to identify why standards are met or not met, and what specific education or intervention would be best suited for an individual candidate.

Within the IPG program model, the adaptive PLA involves several components: language of practice competency, procedural task effectiveness, and clinical skills. A variety of written, oral, and simulated pharmacy testing methods are used, based on benchmarks established in undergraduate pharmacy education at the University of Toronto. Candidates who demonstrate strengths and competency in any or all of these areas may proceed to progressively more demanding tiers. For example, candidates who successfully complete language assessment will be invited to undertake assessment of procedural task effectiveness (eg, dispensing prescriptions, taking verbal prescriptions, pharmacy calculations) or clinical skills (eg, simulated patient interviews, oral therapeutics examinations).

The rigorous nature of the adaptive PLA means that, for some well-qualified IPGs, no further work will be required, and these candidates may be advised to proceed directly to national licensing examinations. For others, the adaptive PLA can provide a “map” for skills enhancement requirements. Since PLA components are benchmarked to entry-to-practice requirements, candidates who successfully complete all tiers of PLA should not require additional bridging education to prepare them for Canadian standards of practice. For other candidates, an accurate diagnosis of needs will ensure that targeted educational interventions can be undertaken in a more efficient manner, rather than in a haphazard, trial-and-error fashion.

**Individualized Learning Plans.** Based upon the results of the adaptive PLA, each candidate can be provided with individualized career and academic counseling, as well as a customized learning plan. The learning plan provides an outline of steps that should provide the candidate with the knowledge and skills necessary to meet Canadian practice standards and expectations.

A key feature of Bridging Education is the development of academic courses developed specifically for foreign-trained professionals. While a variety of compressed
courses were developed, divided into two 8-week modules (Appendix 1). Based on these documents, 10 distinct courses in pharmacology, medicinal chemistry, or pharmaceuticals; consequently, no bridging education courses in these disciplines have been developed. However, significant needs have been identified in a variety of other areas for which courses have been developed including:

- pharmacy practice (dispensing procedures, pharmacy calculations, compounding, etc)
- drug information (retrieval, storage, interpretation, dissemination)
- pharmacotherapeutics (particularly of “Western” conditions such as hyperlipidemia, depression, and hypertension)
- patient care skills (simulated patient-based interviewing, information gathering, and counseling)

Wherever available, academic material (curriculum, teaching and learning resources, instructors, and examinations) for these courses is drawn from the undergraduate pharmacy curriculum to ensure foreign-trained pharmacists have access to the same high-quality education as other pharmacists, and to ensure the program has credibility with the pharmacy community and the public. Though major developmental and some delivery costs were subsidized by the provincial government grant, tuition (Can $3500) was charged to offset additional operational costs. In some cases, employers assumed this tuition charge as an investment in a future employee.

The academic program was developed using educational outcomes statements developed by the Association of Faculties of Pharmacy of Canada (AFPC) for baccalaureate graduates in Canada, as well as the model standards of practice developed by the National Association of Pharmacy Regulatory Authorities (NAPRA) (see Appendix 1). Based on these documents, 10 distinct courses were developed, divided into two 8-week modules: Canadian Pharmacy Skills I (CPS I) and Canadian Pharmacy Skills II (CPS II). (Course descriptions are available by e-mail from the author.) The program is sequenced in a logical, progressive manner so that courses related to material taught in junior years (eg, pharmacy law) are a prerequisite for material taught in senior years (eg, comprehensive patient interviewing/assessment). Learning objectives in all courses were derived from the undergraduate program and were based on educational outcomes or standards of practice. While, in most circumstances there was considerable overlap between these outcome statements, in cases where there was some divergence, the more stringent standard was selected as a basis for teaching and assessment within the program.

In total, 16–20 weeks are required to complete all courses (including examinations and other assessments). During this time, candidates are encouraged to complete both CPS I and CPS II before attempting to take the licensing examinations; however, a large number do attempt taking examinations midway in an effort to expedite their licensure process. The courses are compressed and require significant time commitment; on average, students in the program attend classes for more than 35 hours per week, with an expectation of 20–30 hours of preclass preparation. Regularly scheduled tests and examinations are complemented by ongoing formative feedback to allow for skills enhancement. Throughout all courses, particular attention is paid to language and cultural competency issues; in some courses (such as communications and simulated patient interactions), pharmacy instructors are paired with English-as-a-second-language (ESL) tutors to provide both pharmacy and language-specific feedback.

Development of a Mentorship Network. Throughout the world, the profession of pharmacy has a long and proud tradition of apprenticeship. The IPG program has developed a mentorship network to link individual foreign-trained pharmacists with practicing pharmacists from a variety of settings and geographic regions of the province. By providing access to mentors who are experienced, practicing pharmacists, the IPG program hopes to expedite the process of professional enculturation and encourage the development of personal and professional links necessary to sustain individuals through the difficult licensure process, and to facilitate postprogram employment. In addition, issues related to communicative and cultural competency are discussed in a friendly, non-evaluative manner.

For mentors, the rewards of the network are many. Mentors can contribute meaningfully to the personal development of new pharmacists, and can in turn benefit greatly from exposure to individuals from different countries and cultures. Mentors need not be physically proximate to the student; using distance technologies, it is possible to link mentors and mentees from across the province. A mentor in a specialty pharmacy field can be linked to a student anywhere via the Internet, and can share her or his insights and experiences. In addition, the mentor will have access to a pool of candidates who, following licensure, may be potential employees.
A mentorship training program has been developed that provides interested pharmacists with an opportunity to learn about intercultural communication skills, culture shock, and learning styles. This training program is designed to provide mentors with coaching and communication skills to use in providing feedback to mentees. Since a mentor does not actually evaluate a student in a formal, summative manner, his or her main responsibilities are to act as a guide, friend, coach, and sounding board. Summative assessment of clinical skills and practice readiness continues to be the purview of the Ontario College of Pharmacists and their trained preceptors.

**Use of Distance Technologies.** Ontario is a large and geographically diverse province. While urban centers such as Toronto are often the destination of choice for immigrants (including foreign-trained pharmacists), more pharmacists are needed in rural and northern communities. As a way of maintaining and encouraging connections across the province, distance-learning courses were developed in the area of pharmacotherapeutics and clinical skills to provide asynchronous access to curriculum and assessment.

**RESULTS**

Since its inception, 264 foreign-trained pharmacists have taken some or all of the components of the IPG program (see Tables 1 and 2 for details). Key findings related to the Prior Learning Assessment have been previously reported. As reported, there was a strong correlation between performance on the language tier of the PLA (testing speaking, reading, writing, and listening) and performance on procedural tasks and clinical skills. Data analysis suggests that communicative competency is predictive of success in clinical skills.

Preliminary analysis suggested the IPG program is playing a positive role in providing the knowledge and skills necessary for international pharmacy graduates to meet Canadian standards of practice. Of the 264 participants, 211 (79.9%) were able to pass course requirements for CPS I. Not all participants took the second module (CPS II); some were able to complete licensure examinations successfully after CPS I, while others reconsidered their decision to proceed towards licensure. Of the 175 participants in CPS II, a much smaller number (42 or 24%) passed the course requirements. In large part, this may have been due to the configuration of the courses. CPS I is benchmarked to curriculum in professional years I, II, and III of the undergraduate program.

<table>
<thead>
<tr>
<th>Result</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled in CPS I</td>
<td>264 (100%)</td>
</tr>
<tr>
<td>Successfully completed CPS I (including all examinations)</td>
<td>211/264 (79.9%)</td>
</tr>
<tr>
<td>Enrolled in CPS II</td>
<td>175/211 (82.9%)</td>
</tr>
<tr>
<td>Successfully completed CPS II (including all examinations)</td>
<td>42/175 (24.0%)</td>
</tr>
<tr>
<td>Attempted Pharmacy Examining Board of Canada (PEBC) Licensing Examinations (Parts I and II)</td>
<td>264/264 (100%)</td>
</tr>
<tr>
<td>Successfully completed Pharmacy Examining Board of Canada Licensing Examinations (Parts I and II) and successfully completed CPS I</td>
<td>159/211 (75.3%)</td>
</tr>
<tr>
<td>Successfully completed Pharmacy Examining Board of Canada Licensing Examinations (Parts I and II) and successfully completed CPS I</td>
<td>40/42 (95.2%)</td>
</tr>
<tr>
<td>Successfully licensed as a pharmacist in Ontario</td>
<td>192/264 (72.7%)</td>
</tr>
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*CPS = Canadian Pharmacy Skills

<table>
<thead>
<tr>
<th>Variable</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>Years worked as a pharmacist before immigrating to Canada, n (SD)</td>
<td>9.25 (2.7)*</td>
</tr>
<tr>
<td>Geographic region in which pharmacy education/training was received</td>
<td></td>
</tr>
<tr>
<td>Middle East</td>
<td>18.8%</td>
</tr>
<tr>
<td>Southeast Asia</td>
<td>30.2%</td>
</tr>
<tr>
<td>East Asia</td>
<td>4.0%</td>
</tr>
<tr>
<td>Africa (including Egypt)</td>
<td>35.8%</td>
</tr>
<tr>
<td>Europe</td>
<td>7.7%</td>
</tr>
<tr>
<td>Other</td>
<td>3.5%</td>
</tr>
<tr>
<td>Previous work experience as a pharmacist</td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>6.3%</td>
</tr>
<tr>
<td>Community</td>
<td>65.5%</td>
</tr>
<tr>
<td>Industry</td>
<td>24.9%</td>
</tr>
<tr>
<td>Other</td>
<td>3.3%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>48%</td>
</tr>
<tr>
<td>Male</td>
<td>52%</td>
</tr>
<tr>
<td>Previous experience moving from one country to another as a pharmacist?</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>43.5%</td>
</tr>
<tr>
<td>No</td>
<td>56.5%</td>
</tr>
</tbody>
</table>

*Range: 0-19.5 years
CPS II is benchmarked to curriculum in professional years III and IV, and is consequently more complex, requires a more sophisticated level of communicative competency, and is targeted toward pharmacotherapeutically complex cases.

A large number of individuals who were not successful in passing CPS II requirements were still able to meet all licensure requirements. As of February 2004, 137 (51.9%) of the 264 foreign-trained pharmacists entering the program had met all licensure requirements, while another 55 (20.8%) had passed licensure examinations and were completing final in-service training requirements prior to licensure, for a total of 72.7% (192/264).

In large part, this may be due to the IPG program not currently being a mandatory requirement for licensure. As a bridging education program, some participants may view the IPG program simply as a source of support. For some candidates, the focus and priority is to pass licensing examinations and internship requirements, not to pass the courses or university-based examinations. The intensity of the program and the rigorous assessment embedded throughout the courses are challenging and highly predictive of success; of the 42 candidates, the 40 (95%) who successfully passed both CPS I and CPS II also passed all licensing requirements on the first attempt (a figure comparable to domestically educated students). Nonetheless, as a nonmandatory program, there was no consequence for candidates who enrolled but did not successfully complete course examinations. Furthermore, there was a clear benefit to simply attending the program without necessarily investing the effort needed to pass the courses.

**DISCUSSION**

These findings raise intriguing questions regarding pharmacy practice, education, and standards. It is generally accepted that professional education in all fields overprepares students for professional practice. In most professional fields, success rates on national licensing examinations routinely exceed 90% to 95% for domestically educated individuals. Standards and expectations for professional education generally exceed those for professional practice, since education prepares individuals for a lifelong career of ever-increasing expectations, not just for standards that are in place today. An examination of educational outcomes and standards of practice reveals significant overlap; however, the levels and ranges of expected performance of each outcome or standard may differ.

Results from the IPG program suggest there may be a gap between academic standards and entry-to-practice standards. The fact that a large number of candidates do not pass coursework requirements but are still able to pass licensure requirements is not necessarily an indication of problems related to regulatory or educational processes. Indeed, many students (and some faculty members) have commented for years on the over-preparation phenomenon, and the disappointment that new pharmacists experience when they realize their practice setting may not be as idealized as depicted during school.

The experience of foreign-trained pharmacists in Ontario suggests that a gap between education and licensure standards in pharmacy exists; the implications of this from a professional practice perspective need to be evaluated. There is no indication and no data to conclude that individuals who fall into this gap are providing suboptimum patient care, or phrased differently, that academic over-preparation for current practice standards and expectations (as defined by licensing and regulatory bodies) results in any differences in practice. In large part, this may be because licensing examinations must (of necessity) measure competency from a perspective of minimum competency standards. Nevertheless, these results suggest the need for further research to determine the gap between academic standards and regulatory standards, and the implications of this gap for professional practice. It also raises the question of whether bridging education should be a mandatory requirement, rather than simply a support. If bridging education were to become mandatory, there might be a greater incentive to pass examinations; however, the program then might inadvertently become yet another barrier to professional practice. Anecdotal feedback from employers suggests their strong preference for hiring successful IPG program graduates, rather than pharmacists who have not enrolled in or successfully passed the program. However, given the current demand for pharmacists, some employers may not be as discerning regarding their hiring practices.

Another key finding of this project has been the role of distance technology in facilitating acquisition of knowledge and skills for foreign-trained professionals. Initially framed to enable access and improve convenience, asynchronous distance education programs in pharmacotherapeutics and in clinical skills were developed and piloted. These programs were initially designed to complement the traditional, face-to-face bridging education courses that had been developed with the expectation that, perhaps in the future, they could replace such classes. Given the expense of live classroom instruction, its limited geographical availability,
and the inconvenience for some working adults of having to take classes at fixed times, computer-assisted learning was considered a potential option for long-term curriculum delivery.

Of interest, participants in the program reported a strong preference for face-to-face classroom instruction, despite the inconvenience and cost. For many, the opportunity to observe and learn communicative and cultural competency is better facilitated through face-to-face instruction, and is difficult to replicate in a distance format. Feedback regarding pronunciation, body language, and syntax is provided frequently and freely within the program; however, it is much more difficult to provide in computer-assisted learning.

More importantly, candidates report the benefit of being part of a community of learners is essential in facilitating knowledge and skills acquisition. The experience of immigrants with professional qualifications tends to be one of significant isolation and culture shock. Frequently, individuals feel alienated from their professional community due to a variety of cultural, linguistic, or socioeconomic barriers. The opportunity to meet others who are in a similar situation is of significant importance in reducing feelings of isolation and loneliness that may compromise learning and performance. Despite within-group cultural and language differences, all are pharmacists seeking licensure in Canada, and this commonality provides an important social bond and a foundation for professional networking. The development of a unique and viable subculture of foreign-trained pharmacists is facilitated through classroom and laboratory education and participation, particularly given the intensity of the program and the high-stakes nature of the outcome. As a result, a fifth element has been added to the original 4 elements of the IPG program model: peer network formation. As reported by Austin, peer networks appear to play an important role in allowing individuals to define that which is “learnworthy,” a peer-negotiated process of valuing and prioritizing the importance of learning.16

A significant outcome of this program has been a clearer understanding of the struggle and stresses faced by immigrants with professional qualifications attempting to negotiate licensing and employment. Early in the process, IPG program staff discovered that the term “foreign-trained pharmacist” was itself insulting to many. As one participant reported, in a medical context “foreign” is bad (as in a “foreign object in the eye”), dogs are “trained” but people should be educated, and “pharmacist” had a pejorative connotation given the isolation experienced by many individuals. Thus, the term, “international pharmacy graduate” evolved to replace the term “foreign-trained pharmacist” in the program, as well as within the profession at large.

CONCLUSIONS

Bridging education is a viable and important strategy for ensuring that immigrants with professional qualifications are able to meet standards of practice and gain access to regulated employment in an effective and efficient manner. It is an investment in the human capital of immigrants and has, as its dividend, the production of more qualified personnel who are better connected to their professional community, better able to practice in a safe and competent manner, and more successful in obtaining employment commensurate with their qualifications and addressing the growing domestic demand for pharmacists. The International Pharmacy Graduate Program has been recognized by the Ontario government as a “best practices” model for bridging education, based on the 5 elements of prior learning assessment and recognition, individualized learning plans, mentorship, distance learning, and peer network formation. Partnerships with employers, regulators, social service agencies, and government have been essential in the success of the program, and continue to be nurtured and developed.

As reliance upon internationally educated professionals continues to increase in pharmacy (and most other professions and trades), structured methods for facilitating attainment of domestic standards of practice and enculturation to the profession should be developed. Failure to do so will result in a hit-and-miss approach to professional development that is inefficient, ineffective, and damaging to both the individual and the profession as a whole. The IPG program provides a “best practices” model for bridging education as an important tool for human resource planning within a profession.

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REFERENCES

Appendix 1. Educational Outcomes and Standards of Practice Statements

Association of Faculties of Pharmacy of Canada (AFPC)
Educational Outcomes for a Baccalaureate Pharmacy Graduate in Canada (1998)

Professional Outcome #1: Meet Patients’ Drug-Related Needs
Outcome Unit: Pharmacy graduates, in partnership with patients and other health care providers, use their knowledge and skills to meet patients' drug-related needs, with the objective of achieving optimal outcomes and maintaining or improving patients' quality of life.

Professional Outcome #2: Assume Legal, Ethical and Professional Responsibilities
Outcome Unit: Pharmacy graduates will be able to practice within legal requirements, uphold ethical and professional standards of practice, fulfill professional responsibilities, and contribute to the development of the profession.

Professional Outcome #3: Provide Drug and Drug Use Information and Recommendations
Outcome Unit: Pharmacy graduates provide information and recommendations to individuals and groups concerning drugs and drug use to ensure optimum and cost-effective patient care and to promote health.

Professional Outcome #4: Educate about Drugs, Drug Use and Health Promotion
Outcome Unit: Pharmacy graduates educate individuals to encourage appropriate drug use and to promote health.

Professional Outcome #5: Manage Drug Distribution
Outcome Unit: Pharmacy graduates meet patients' requirements for the accurate supply of quality pharmaceuticals by taking responsibility for the functions of distribution and preparation of pharmaceuticals.

Professional Outcome #6: Understand Practice Management Principles
Outcome Unit: Pharmacy graduates demonstrate an understanding of management principles with the goals of optimizing patient care and the use of practice resources.

Professional Outcome #7: Apply the Principles of Scientific Inquiry to Contribute to the Profession and Society
Outcome Unit: Pharmacy graduates will apply the principles of scientific inquiry to address pharmacy practice issues.

National Association of Pharmacy Regulators of Canada (NAPRA)
Model Standards of Practice for Canadian Pharmacists (revised 2003)

Professional Competency #1: Practise Pharmaceutical Care
Competency Unit: Pharmacists, in partnership with patients and other health care providers, use their unique knowledge and skills to meet patients’ drug related needs, and to achieve positive patient outcomes by maintaining or improving the patient's quality of life.

Professional Competency #2: Provide Drug Information
Competency Unit: Pharmacists assume responsibility for information retrieval, evaluation, and dissemination to ensure safe and effective provision of pharmaceutical care and to promote health.

Professional Competency #3: Educate
Competency Unit: Pharmacists educate individuals to support optimal patient care and to promote health.

Professional Competency #4: Manage Drug Distribution
Competency Unit: Pharmacists manage drug distribution by performing or supervising the functions of acquisition, storage, preparation, and distribution of drugs to ensure the safety, accuracy, and quality of supplied products.

Professional Competency #5: Apply Management Principles
Competency Unit: Pharmacists apply the knowledge, principles, and skills of management as they pertain to the site of pharmacy practice with the goal of optimizing pharmaceutical care and professional relations.

(Optional) Advanced Professional Competency: Undertake Research
Competency Unit: Pharmacists apply the principles of scientific inquiry to address pharmacy practice issues.