Introduction

The undergraduate program (BScPhm) of the School of Pharmacy was externally reviewed by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) in November 2011. CCAPP issued a report and recommendations in 2012. The University of Waterloo used the self-study and the CCAPP findings as the basis for the internal report.

The actions taken by the School of Pharmacy to address the recommendations made by CCAPP and the University of Waterloo are detailed on the following pages. However, these actions must be viewed in the context of two major developments that occurred in 2013:

a) In January 2013, CCAPP adopted new accreditation standards for programs leading to the professional degree in pharmacy
b) In February 2013, the Ontario Ministry of Training, Colleges and Universities (MTCU) approved the Doctor of Pharmacy (PharmD) degree as the entry-to-practice degree for pharmacy practice in Ontario.

The School of Pharmacy moved rapidly to implement the PharmD which replaces the previous BScPhm degree. The first students entered the new PharmD curriculum in January 2014 and will graduate with the PharmD designation in 2017. In addition, a transition program was developed for the Class of 2015 and Class of 2016 giving these students the option of moving into the PharmD program. All students in both classes made the decision to transition into the PharmD. As a result, the BScPhm program was discontinued at the end of the Spring semester 2014.

The PharmD curriculum differs substantially from the BScPhm program, particularly in the area of experiential education. In order to achieve the expected outcomes for the PharmD program and meet new accreditation standards, the School has developed a blended model of experiential education which includes community service learning, co-op placements (3 in the PharmD vs. 4 in the BSc) and structured clinical rotations (24 weeks in the final year of the PharmD). Clinical rotations are full-time patient care experiences in a variety of practice settings including hospitals, family health teams, community pharmacies and long-term care facilities. Given the limited capacity for these placements in the KW area, the School has implemented a strategy which will use clinical training sites throughout the province. The addition of clinical rotations and curricular initiatives intended to meet new accreditation standards in areas such as interprofessional education and programmatic assessment has resulted in a significant increase in the resources required to operate the PharmD program relative to the BSc program.
Response to Recommendations from the 2012 Review of the Pharmacy Program

**Item 1:** The School must move forward with strategic planning including developing a succinct mission, vision, goals and objectives with performance measurements and timelines; it has been difficult to measure success without a strategic plan.

**Response:** The School began a systematic strategic planning process in late 2012 with the creation of a Strategic Planning Committee. New mission, vision and value statements were developed and discussed at a strategic planning workshop in April 2013. These discussions ultimately resulted in a strategic plan for the School of Pharmacy that was approved by Pharmacy Faculty Council in January 2014. The strategic plan is supported by an operational plan that identifies a responsible individual for each of the 87 strategies and actions listed in the plan along with appropriate metrics and timelines for accomplishment. The Pharmacy Executive Committee has assumed responsibility for ongoing monitoring of progress towards achievement of the items in the strategic plan.

**Item 2:** The draft constitution needs to be approved according to UW procedures and implemented.

**Response:** A draft constitution was developed by the School of Pharmacy in 2010. CCAPP expressed concern that this document provided full voting rights to a large number of part-time faculty members and staff giving these individuals disproportionate representation on Pharmacy Faculty Council. The constitution was revised to limit voting rights to select staff members and part-time faculty members with 40% or greater appointments. Full-time faculty members now constitute the majority of voting members on Pharmacy Faculty Council. The revised constitution was approved within the School of Pharmacy in September 2012. In response to CCAPP’s concern that the constitution be reviewed by a body outside the School, the document was discussed and approved by Science Faculty Council on November 27, 2012. Minor modifications were approved by Pharmacy Faculty Council on September 3, 2014.

**Item 3:** Curricular mapping must be completed.

**Response:** Although the BScPhm curriculum was designed a number of years ago, it was not until the end of the spring term 2011 that all courses had been offered. The School of Pharmacy held a curriculum retreat in fall 2011 to begin the process of mapping the curriculum with respect to content and desired outcomes. The School now maintains a comprehensive curriculum mapping database where the learning objectives of each course are entered and mapped against Association of Faculties of Pharmacy (AFPC) outcomes. The Integrated Patient Focused Care (IPFC) courses provide integrated teaching of medicinal chemistry, pharmacology, and therapeutics in nine disease-focused modules. Mapping of these courses has ensured that foundational material in the pharmaceutical sciences is built upon throughout the course sequence.
Item 4: Co-op experiences need to be evaluated to ensure adequate exposure to patient care in both community and hospital settings.

Response: Co-operative education is an innovative model for providing students with practical experience that enhances and reinforces classroom learning. Co-op offers our students exposure to a much broader range of potential career opportunities than traditional experiential education. Students may work in community pharmacy, hospital pharmacy, long-term care, family health teams, pharmaceutical industry, government, and professional organizations. A concern raised by external evaluators is that co-op is an employer-driven model. Since the employer is paying the student, it is difficult for the university to impose rigid expectations for student learning during the co-op experience. Training of health care professionals has traditionally used a highly structured model in which preceptors (typically clinicians working in a variety of health care settings) provide close supervision of students under their direction to ensure that students are meeting a rigid set of outcomes established by the university.

The limitations of co-operative education and the concerns of the external evaluators will be addressed in the PharmD curriculum. Students will complete three co-op placements in the 2nd and 3rd years of the curriculum. In addition, they will complete 24 weeks of structured clinical rotations in the 4th year of the program. The clinical rotations will consist of three 8 week experiences. At least one of these rotations must be in primary care (family health team, community pharmacy) and at least one must be in an institutional (hospital) setting. The blended model of experiential learning incorporated into the PharmD curriculum will ensure that students receive exposure to patient care in a variety of settings.

Item 5: The program needs to implement a systematic approach for program evaluation including assessment of teaching effectiveness.

Response: The external review noted that the School did not have a coordinated plan in place to assess and monitor progress towards achieving the objectives of the program. The ability to collect and analyze data related to the achievement of curricular and other programmatic goals was limited prior to the graduation of the first class in fall 2011. An Assessment Committee was created in 2012 as a standing committee of the School of Pharmacy. This Committee has responsibility for assessment of all aspects of the pharmacy program including the undergraduate curriculum, experiential program, and admissions process. A new administrative position (Associate Director, Curriculum and Assessment) was created to lead this initiative and a staff position added to support assessment activities. The committee has developed a comprehensive programmatic assessment plan which outlines the metrics, the CCAPP standards each metric assesses, and the parties responsible for data collection and data use. It also describes the frequency of evaluation of the undergraduate pharmacy program (both didactic and experiential), the admission process, the assessment of Faculty and Staff and, to a limited extent, Continuing Education. The Graduate Program assessment plan has not yet been completed. Several sections of the plan have been implemented so far such as coordination of course and teaching evaluations, peer evaluation of teaching, and metrics for co-op employer recruitment and retention.
**Item 6:** The full complement of faculty vacancies needs to be approved for hiring and filled; the large number of sessional appointments, rather than full-time faculty members in the professorial stream, who are teaching major components of the curriculum creates some vulnerability to the program.

**Response:** Significant progress has been made in faculty hiring for the School since the 2011 external review. New hires are listed below:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul Spagnuolo</td>
<td>Assistant Professor</td>
<td>March 2012</td>
</tr>
<tr>
<td>Jonathan Blay</td>
<td>Professor and Associate Director, Research and Graduate Studies</td>
<td>November 2012</td>
</tr>
<tr>
<td>Cynthia Richard</td>
<td>Clinical Lecturer</td>
<td>September 2013</td>
</tr>
<tr>
<td>Tejal Patel</td>
<td>Assistant Professor (Clinical)</td>
<td>March 2014</td>
</tr>
<tr>
<td>Sherilyn Houle</td>
<td>Assistant Professor</td>
<td>April 2014</td>
</tr>
<tr>
<td>Wasem Alsabbaugh</td>
<td>Assistant Professor</td>
<td>October 2014</td>
</tr>
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</table>

The School now has 20 full-time faculty members and the proportion of required courses coordinated by regular faculty has increased to 65%. This represents a significant shift since 2011 when full-time faculty members were teaching only 25% of the courses in the BScPhm curriculum. Teaching staff coordinate an additional 13% of required coursework. The School continues to have a valued core group of part-time adjunct faculty members who are high-level pharmacy practitioners and coordinate the remaining 22% of the didactic courses.

Although progress has been made, past and present hiring freezes have delayed the achievement of the full complement of faculty for the School of Pharmacy. It is essential that the School move forward with additional hiring to meet the original target of 25-30 faculty members.

**Item 7:** A finalized budget for the School needs to be established that provides the School with the necessary resources to achieve its mission.

**Response:** A permanent budget was established for the School for fiscal year 2012-13. We are currently in the second year of implementation of this budget. It should be noted that this budget was based on the resources needed to deliver the BScPhm curriculum NOT the PharmD program. Implementing the PharmD degree has resulted in a significant increase in the resources required to meet accreditation standards related to experiential education, interprofessional education and programmatic assessment. The PharmD program has 1 additional academic semester compared with the BScPhm degree (8 vs. 7 semesters) and therefore generates more revenue for the University of Waterloo. As the university moves to an activity-based budget model, it is imperative that the resources required to deliver the PharmD curriculum be reflected in the future budget for the School of Pharmacy.
Item 8: Strengthen and expand inter-professional education (IPE) with a particular focus on relationships with medicine and nursing.

Response: Inter-professional education has been a significant challenge for the School of Pharmacy. All other Pharmacy programs in Canada are based in universities with programs in Medicine and Nursing as well as an affiliated network of teaching hospitals. Faculty, staff and students at the School have worked hard to create an inter-professional education group involving Medicine (McMaster University satellite campus), Optometry (Waterloo), Nursing and Health Sciences (Conestoga College) and Social Work (Wilfred Laurier University). Despite these efforts, the external reviewers noted that a higher level of inter-professional interaction is needed. An inter-professional education strategy was approved by the Curriculum Committee in 2014. This plan will ensure that Waterloo pharmacy students meet the core competencies of communication, patient/family/community-centred care, role clarification, team functioning, collaborative leadership, and conflict resolution as defined by the Canadian Interprofessional Healthcare Collaborative (CIHC). A passport approach will be used in which students will progress from exposure to immersion to application as they move through the pharmacy curriculum.

The achievement of required outcomes in inter-professional education is highly dependent on building collaborative relationships with external partners. The School of Pharmacy values its relationship with the Waterloo satellite of the DeGroote School of Medicine, McMaster University. However, we also recognize that this is a small program with limited capacity to support inter-professional education initiatives. As a result, a partnership has been initiated with Western University and the SouthWestern Academic Health Network (SWAHN). SWAHN has affiliations with universities, colleges and health care facilities in southwestern Ontario that are involved in the training of a wide range of health care professionals including physicians and nurses. A Memorandum of Understanding (MOU) has also been signed with Fanshawe College in June 2014 which will bring pharmacy and pharmacy technician students together for educational initiatives. Finally, the School of Pharmacy is discussing an agreement with the Northern Ontario School of Medicine (NOSM) to explore opportunities related to inter-professional education, rural health and aboriginal health.

Item 9: Library resources need to be assessed and possibly upgraded. Preceptors and employers involved in the supervision of students on clinical placements should have access to appropriate electronic and other resources as needed.

Response: The approval of a permanent position within the library budget for a pharmacy liaison librarian in 2012 was a significant positive development. This position was filled by Shannon Gordon, an experienced health sciences librarian who has been active in evaluating the library collection and ensuring that faculty, staff and students are aware of available resources. The pharmacy liaison librarian has also been instrumental in discussions designed to ensure that preceptors and others involved in the clinical training of pharmacy students have access to the electronic resources of the University of Waterloo. This is an accreditation requirement and it is anticipated that this issue will be resolved shortly.
Summary

The School of Pharmacy has made significant progress in all areas identified as issues in the 2012 review. Items that have not yet been fully resolved include faculty hiring, library access for preceptors and approval of a budget that will meet the requirements of the PharmD program. These items must be addressed in order for the PharmD program to achieve full accreditation status.

Submitted by:

David J. Edwards, BScPhm, PharmD, MPH
Hallman Director, School of Pharmacy

September 23, 2014
Date