



FOR APPROVAL

PUBLIC

OPEN SESSION

TO: Business Board

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DATE: November 16, 2020 for November 25, 2020

AGENDA ITEM: 3

ITEM IDENTIFICATION:

Proposal to establish an Academic Pharmacy at the Leslie Dan Faculty of Pharmacy

JURISDICTIONAL INFORMATION:

Pursuant to the *Terms of Reference* of Business Board, University policy on ancillary operations and monitoring of business ancillaries is within the jurisdiction of the Board.

The Board is also responsible for the designation of incorporated or unincorporated units as ancillaries (footnote 12) or termination of such designation; general financial policy on ancillaries; and for incorporated business ancillaries, the review of annual reports and financial statements; and approval of arrangements for incorporation.

The classes of ancillaries designated in the footnotes to this section of the Terms of Reference indicate that the proposed Academic Pharmacy would be similar in nature to other incorporated business ancillaries of the University, such as U of T Press and the University of Toronto Asset Management Corporation.

GOVERNANCE PATH:

1. Planning & Budget Committee [for recommendation] (April 1, 2020)
2. Academic Board [for approval] (April 23, 2020)
3. **Business Board [for approval of incorporation] (November 25, 2020)**
4. Executive Committee [for confirmation] (XX, 2020)

PREVIOUS ACTION TAKEN:

No previous action taken.

HIGHLIGHTS:

Furthering experiential learning and research

The Leslie Dan Faculty of Pharmacy prides itself on being at the forefront of developing and evaluating innovative ways to deliver pharmacy services and pharmacy education. In order to support and accelerate this work, the Faculty proposes to develop a fully accredited Academic Pharmacy, with the primary twin goals of furthering both a) student experiential learning, and b) innovative and impactful research. The Pharmacy will also be an operating pharmacy open to members of the University community only (students, staff, and faculty).

The attached proposal outlines the academic and research plans for the Academic Pharmacy and sets out the proposed business structure. The core elements and structure of the pharmacy have been established following substantial consultation within the Faculty and across the University. Some of the details of the proposal, however, including the precise initial location of the Academic Pharmacy, have yet to be finalized. It is nonetheless essential to bring this proposal forward at a relatively early stage in the planning process, in order to enable the incorporation of the Academic Pharmacy, which will in turn enable its accreditation by the Ontario College of Pharmacists. The four phases of the development and roll-out of the pharmacy are described within the Proposal at pages 22 and 23. Under this model, the Academic Pharmacy will not officially launch until Phase 4, which is anticipated to occur from September through December 2021.

Accreditation and services provided

Following incorporation, the Academic Pharmacy, as currently designed, will meet all Ontario College of Pharmacists accreditation requirements. It will provide health care programs delivered by members of more than one health discipline (pharmacy, medicine, nursing, social work) and embedded within the University of Toronto's interdisciplinary health care education and research eco-system, so as to provide a training venue to educate students in health and other disciplines, conduct medication and health care services research and to support the physical, mental health and overall wellness of U of T's faculty, staff, students and wider community. All users of the Academic Pharmacy's services must be members of the University of Toronto community; the clinic's services will not be available to members of the public.

Location

The Academic Pharmacy will have its first main location within the Leslie Dan Faculty of Pharmacy building at 144 College Street. Details of the precise location are currently being finalized, and a project planning committee is being formed; a project plan for development of the Academic Pharmacy site may be brought forward to this Committee at a later date.

The Leslie Dan Faculty of Pharmacy is also exploring integration or co-location with the Health and Wellness services on the St. George campus and University of Toronto Scarborough campus. Flexible “pop-up” or “mobile” locations throughout the U of T community are also being considered, in order to enable short-term pharmacy services such as flu vaccinations to students, faculty and staff.

Business structure

Following advice from internal and external legal counsel, the Leslie Dan Faculty of Pharmacy seeks to structure the Academic Pharmacy as a not-for-profit corporation with the University of Toronto as its sole member. After evolving conversations with the Ontario College of Pharmacists we have received confirmation that the interdisciplinary approach planned for the Academic Pharmacy will meet the requirements of s. 142(5) of the *Drug and Pharmacies Regulation Act* and as such would optimally be structured as a not-for-profit corporation.

Draft incorporation documents have been prepared with the advice of University and external legal counsel and are included as appendices to the proposal. Authority to incorporate the Academic Pharmacy is being formally sought from Business Board, further to the terms of reference of the Board.

Any profits flowing from the Academic Pharmacy will flow back to the Academic Pharmacy, in order to support the University’s broad academic mission.

Following incorporation, the Academic Pharmacy will report annually to Business Board, which has responsibility for review of annual reports and financial statements of incorporated business ancillaries.

The AP will have its own Board of Directors, whose interdisciplinary members are appointed by University of Toronto Governing Council. All initial directors are faculty or staff members of the University of Toronto with a majority from the Leslie Dan Faculty of Pharmacy.

Consultation Process

Seven formal stakeholder engagement workshops on the development of an Academic Pharmacy were held in 2018 with 47 participants (including University of Toronto students from Pharmacy and other units, faculty members, community pharmacists, pharmacy technicians, and U of T Health and Wellness staff.) Participants in the workshops indicated that the Academic Pharmacy would provide additional educational value to students, as well as to Leslie Dan Faculty of Pharmacy faculty members and affiliated community pharmacists. There was great interest in the Academic Pharmacy providing opportunities to share new knowledge created through the development and testing of new programs and processes of care among all stakeholder groups interacting with the Academic Pharmacy. Many stakeholders identified the strong need for an academic centre that could be a neutral testing ground for innovations in pharmacy.

The Dean and the Academic Pharmacy development team worked at all stages of the development of this proposal with a number of institutional shared services offices and Vice-Presidential

portfolios (including the Division of the Vice-President, Research and Innovation, Financial Services, the Provost's Office, legal counsel, Ancillary Services, etc.) to seek their input into the proposal.

Dean Lisa Dolovich met informally with U of T health science Deans, Departmental Chairs and Program Directors to inform them of the goals of the Academic Pharmacy, and to find ways to foster interdisciplinary and cross-disciplinary education. Furthermore, the Dean also presented the Academic Pharmacy proposal to the Council of Health Sciences (where all health science Deans are represented) in February, in order to promote the potential to increase collaboration and enhancement of health science research and education endeavours through the Academic Pharmacy.

The Dean also met with the Provostial Advisory Group, which resulted in uniformly positive feedback on the proposal. The Dean is also presented information about the Academic Pharmacy to UTSC campus leadership on May 5, 2020 and has been in communication with the administration at UTM to discuss how to examine possible opportunities for activities at UTM.

The Leslie Dan Faculty of Pharmacy works collaboratively with the Toronto Academic Health Sciences Network (TAHSN) hospitals. The Academic Pharmacy was presented in February 2020 to the Hospital University Pharmacy Education Committee (HUPEC), and a workshop with TAHSN pharmacy leaders is planned for Winter 2021 to better understand how the Academic Pharmacy can best support and interact with hospital care providers.

Furthermore, the Leslie Dan Faculty of Pharmacy has consulted with U of T employee benefit provider Green Shield Canada, and with the student union officers who manage relationships with the various student benefit providers. All consultations have been positive and have identified useful emerging collaborations or opportunities for the Academic Pharmacy in working with our benefits providers.

Faculty Approval

The Leslie Dan Faculty of Pharmacy Faculty Council approved in principle the development of an academic pharmacy at its meeting on October 8, 2019 and approved the academic and research plans for the academic pharmacy (which are integrated into the attached proposal) at its meeting on February 12, 2020.

FINANCIAL IMPLICATIONS:

As outlined in the proposal, there are no resource implications for the University's operating budget. Start-up funds have been allocated from the Leslie Dan Faculty of Pharmacy operating reserves, and budgetary projections indicate that the Academic Pharmacy should be self-sustaining.

Business Board, November 25, 2020: *Proposal to develop an Academic Pharmacy at the Leslie Dan Faculty of Pharmacy (Incorporation)*

RECOMMENDATION:

Be It Resolved:

Concurrent with Academic Board approval in principle of the incorporation of the Academic Pharmacy at the Leslie Dan Faculty of Pharmacy,

THAT the proposed incorporation of the Academic Pharmacy at the Leslie Dan Faculty of Pharmacy, as described in the *Proposal: The Development of an Academic Pharmacy at the Leslie Dan Faculty of Pharmacy, University of Toronto*, dated November 16, 2020, be approved.

DOCUMENTATION PROVIDED:

Proposal: *The Development of an Academic Pharmacy at the Leslie Dan Faculty of Pharmacy, University of Toronto*, dated November 16, 2020.



UNIVERSITY OF TORONTO
LESLIE DAN FACULTY OF PHARMACY

PROPOSAL:
The Development of an Academic Pharmacy
at the Leslie Dan Faculty of Pharmacy, University of Toronto

November 16, 2020

Steering Committee

Lisa Dolovich, Professor and Dean
Zubin Austin, Professor
Aleksandra Bjelaja Mejia, Assistant Professor
Carlo DeAngelis, Clinician Scientist
Project Development Lead: Ernie Avilla
Research Officer: Annalise Mathers

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EXECUTIVE SUMMARY

The role of pharmacy has evolved beyond dispensing medications and will continue to grow as health care systems around the world work to build modern, integrated and sustainable health care systems that include the best use of medications to maintain and improve health.

The Leslie Dan Faculty of Pharmacy (LDFP) is at the forefront of developing and evaluating innovative ways to deliver pharmacy services and pharmacy education. LDFP is the fourth ranked school in the world for pharmacy and pharmacology (QS World University Rankings). To support and accelerate our work the LDFP is planning to build a fully accredited Academic Pharmacy (AP) aligned with the University of Toronto's strategic goals. The focus of the Pharmacy will be research and teaching.

Partnering with and enhancing existing LDFP programs (both education and research) and resources, the academic pharmacy will serve as a living laboratory, dedicated to research, education, and innovation. The research and educational mission of the pharmacy will be accomplished while providing exemplary patient care for the management of acute and chronic conditions, with a special emphasis on health promotion and disease prevention. The academic pharmacy will include a needs-based dispensary with limited onsite inventory and offer a range of professional pharmacy services for students, staff and faculty at the University of Toronto from all three campuses. This academic pharmacy will function as a vehicle for evaluating practice innovation and will accelerate the speed of which new models of care are applied to practice.

The AP will provide health care programs delivered by members of more than one health discipline (pharmacy, medicine, nursing, social work) and embedded within the University of Toronto's interdisciplinary health care education and research eco-system, so as to provide a training venue to educate students in health and other disciplines, conduct medication and health care services research and to support the physical, mental health and overall wellness of U of T's faculty, staff, students and wider community

The development of the AP is aligned with The University of Toronto's principle that work-integrated and experiential learning opportunities play an important role in enhancing the educational experiences of students. Experiential education (EE) is an integral and mandatory component of student learning at the Leslie Dan Faculty of Pharmacy and other health and related schools and faculties. The AP practice experience will be embedded in the pharmacy curriculum by offering EE placements (both direct and non-direct patient care) designed to prepare and assess students for practice-readiness. In addition, the AP will provide a unique practice environment

where LDFP faculty will have the opportunity to conduct direct observation and assessment of pharmacy students' application of knowledge and clinical skills in a real-world setting. The AP will also provide an environment to standardize and build the skills of preceptors to continually improve the quality of our educators. The AP will also provide opportunities for learners and faculty from other health disciplines to train in and for the delivery of interdisciplinary care and for learners and faculty from other disciplines to focus on innovation in connected areas such as business, technology, architecture and information science. The integration of the AP into the EE curriculum of pharmacy and other units will be a multi-phased approach over the next two years where we will test best methods for teaching and learning as well as slowly scale-up implementation of programs and research initiatives.

The development of the AP is well aligned with the LDFP strategic plan for research initiatives. Two of the main priorities outlined in the LDFP five-year Strategic Plan are to: (1) Grow our scientific impact by investing in our infrastructure to support our core research areas and increasing both the impact and visibility of our research; and (2) Improve health through knowledge translation and influence.

The AP will offer a robust research enterprise and work collaboratively with the Department of Pharmaceutical Sciences graduate programs and several LDFP and multi-unit research centres to support the scholarly work of faculty and create a nurturing infrastructure for new researchers and students from Pharmacy, other health disciplines and nonhealth disciplines such as Business and Engineering. Furthermore, the AP will offer pharmacy and other students with multiple opportunities to advance their research abilities.

On October 8, 2019 the Faculty Council of the Leslie Dan Faculty of Pharmacy approved in principle the development of the AP. Subsequently, on February 12, 2020, the Faculty Council of the Leslie Dan Faculty of Pharmacy approved the development of the Academic and Research Plan for the AP.

At its meeting on April 23, 2020, the Academic Board of the University of Toronto approved in principle the proposal to establish the AP.

In light of a May 2020 change in advice from the Ontario College of Pharmacists regarding the ownership structure of the Academic Pharmacy, the proposal to establish the AP was withdrawn from discussion and approval at the June 2020 Business Board meeting.

Based on further guidance from the Ontario College of Pharmacists, discussion with University and external legal counsel and others, a decision was made to incorporate the academic pharmacy as a not-for-profit corporation, with the University of Toronto as its sole member. With guidance and collaboration from University legal counsel and outside counsel retained by the LDFP, various corporate documents have been drafted using this structure.

We believe that the AP, as proposed, will meet the Ontario College of Pharmacists' accreditation requirements.

The dispensary space will not be accessible to the public. We are in the initial planning stages of considering the first main location of the AP, to be located at the LDFP at 144 College Street. However, we are also exploring integration or co-location with the Health and Wellness Clinical Services for students on the St. George campus and the concept of offering flexible “pop-up” or “mobile” locations throughout the U of T tri-campus communities, where pharmacy services such as administering flu vaccinations, providing student consultations around maintaining health and well-being (with a focus on medication and use of substances such as cannabis and other ‘natural health products’), general medication management, or travel health may occur. This will provide a convenient enhancement to current healthcare services for members of our University community. We will work closely with University Health and Wellness Clinical Services to ensure smooth integration of service delivery.

We do not expect the operating budget including direct revenues from student tuition or other fees to be used to fund the operations of the AP. Therefore, there are no resource implications for the University's operating budget. Start-up funds were allocated to the academic pharmacy in 2018 from the LDFP operating reserves (from 2018/19, 2019/20 and 2020/21). Our budgetary projections indicate that the academic pharmacy is self-sustainable. Revenue will be generated through the provision of pharmacy services (third-party payers, billable pharmacy services, cash transactions) and reallocation of funds spent on external experiential rotations to resource rotations within the AP. In addition, LDFP, in consultation with the Division of University Advancement, is building the case to approach private and corporate donors to secure a portion or all of the required funds. In addition, government grants will be sought to support educational and research activities.

SCOPING REVIEW AND STAKEHOLDER ENGAGEMENT

A number of planning activities were carried out over the last year that have informed the development process for the AP. They include:

- an environmental scan and scoping review to gain a better understanding of the characteristics existing academic-based (i.e., universities/colleges) pharmacies such as technology, patient services and population, and research/educational mandates; and
- structured stakeholder engagement workshops with potential AP customer and participant groups to determine current issues with current health service offerings, identify barriers/facilitators to AP use, needs and expectations.

1) Environmental Scan and Scoping Review

A search of electronic databases and the International Pharmaceutical Federation (FIP) Official List of Pharmacy Schools from 2000-2019 yielded a total of 19 academic-based pharmacies: 3 in Canada, 14 in the United States, and 2 in the United Kingdom. A total of 33 publications (in both the academic and grey literature) were published by these organizations which reported the following key characteristics:

Operations:

- 64% opened between 2010-2018
- 84% had a physical location
- 16% telepharmacies that worked directly with a medication therapy management service provider
- 50% were located directly within the university's School of Pharmacy (as opposed to another location on campus)

Products/Services:

- 47% dispensed medications
- 63% provided medication reviews
- 37% offered immunization services
- 26% offered medication education, preventative health management services, and smoking cessation
- 21% had travel health services
- 11% offered group education
- 63% offered a consultation/referral model; 26% used an appointment-based service
- 26% were directly linked with community pharmacies

Population:

- 68% served patients from the community
- 32% of universities served the university population (students, staff)

Technology:

- 5% Mobile app for medication ordering and refills
- 5% Automated dispensing system
- 5% On-campus mobile health services
- 5% Online prescription transfers

2) Canadian Academic Pharmacies - Comparators

The three academic pharmacies in Canada [University of British Columbia Pharmacists Clinic, University of Saskatchewan Medication Assessment Center (MAC), and Memorial University of Newfoundland Medication Therapy Services Clinic (Exhibit 2)] have been operating for between three and eight years; serving patient populations between 527 to 8660 annually. All programs support student learning experiences; however only the UBC clinic reported any students are currently utilizing their services (N=463). Services offered include immunizations and medication reviews and drug information consultation. None of the pharmacies dispense medications. UBC and Memorial reported accreditation by their provincial regulators and all conduct research projects.

3) Formal Stakeholder Engagement Workshops

Seven formal stakeholder engagement persona-scenario workshops were held in 2018 with 47 participants (4 students as patients, 6 pharmacy students, 17 pharmacy faculty members, 5 community pharmacists, 9 pharmacy technicians, and 6 U of T Health and Wellness staff).

Participants stated that the AP would provide additional educational value to students as well as faculty and affiliated community pharmacists. This was closely related to an interest in the AP supporting opportunities to share new knowledge created through the development and testing of new programs and processes of care among all stakeholder groups interacting with the AP. For example, the sharing on how patients can use virtual technology to interact with their pharmacist or how different pharmacy and nonpharmacy health care providers can collaborate in the medication management using technology. Many stakeholders identified the strong need for an academic centre that could be a neutral testing ground for innovations in pharmacy. The stakeholder groups also discussed the need to identify specific roles and clearer distinctions between the educational versus research

aspects of the pharmacy. Stakeholders identified numerous policies and procedures as needed so as to ensure smooth and transparent operations of the proposed academically (research and education) oriented pharmacy.

4) Other consultations

In addition, LDFP is one of seven health programs at U of T, including Medicine (which incorporates physiotherapy, occupational therapy, medical radiation sciences, and physician assistants), Nursing, Public Health, Social Work, Dentistry and Kinesiology/Physical Education. Other schools/faculties that are relevant to our academic mission include the Rotman School of Management, the Ontario Institute for Studies in Education (OISE), and the Faculty of Arts and Science. The Dean (Professor Lisa Dolovich) has met informally with respective Deans, Departmental Chairs and Program Directors to inform them of the goals of the academic pharmacy and to find ways to foster interdisciplinary and cross-disciplinary education. Furthermore, the Dean presented to the Council of Health Sciences (where all health science Deans are represented) on February 5th, 2020 to actively promote the potential to increase collaboration and enhancement of health science research and education endeavours with the development of the academic pharmacy.

In addition to academic institutions, LDFP works collaboratively with the Toronto Academic Health Sciences Network (TAHSN) hospitals, one of North America's largest, and most diverse, networks of health care facilities. A brief overview of the AP was presented to the Hospital University Pharmacy Education Committee (HUPEC), and a workshop with TAHSN pharmacy leaders is planned for Fall 2020 to better understand how the academic pharmacy can best support and interact with hospital care providers. Furthermore, we have consulted with the U of T employee benefit provider Green Shield Canada. We presented information about the AP to UTSC campus leadership on May 5, 2020 and are discussing the proposal with the administration at UTM. All consultations have been positive and have identified useful emerging collaborations or opportunities for the AP.

5) Summary

The data collected identified key developmental and operational components that must be considered during the AP development process. The findings highlight the opportunity for the AP to create value beyond the health services currently offered at U of T, locally (i.e., City of Toronto), nationally and internationally. The groundwork also identified who the AP creates value for (faculty, staff and students) and key success factors (e.g., services offered, technology used, key partnerships, location) to create competitive advantage and sustainability factors such as low-cost strategies, economies of scale and innovation to support AP's business model.

JUSTIFICATION AND DESCRIPTION OF THE ACADEMIC PHARMACY

1) Justification

There has never been a greater need for people to access high-quality expertise about the effectiveness, safety and use of medications. In Canada, medication management practices remain sub-optimal even though subject matter expertise exists. Medication therapy problems are common and are largely preventable¹, however, individuals continue to be poorly managed. Approximately 1 in 50 people have had a preventable adverse drug event leading to emergency room visits and increased costs to the health care system². The modern pharmacist is largely responsible for helping patients navigate an increasingly complex and costly health care system, particularly with respect to medications.

The Canadian population is aging, and health related needs are increasingly more complex such as increased chronic diseases (CD). The younger population including university aged students have increased challenges maintaining their health and wellbeing including rising mental health concerns and at times challenging physical health situations. This is compounded by our current primary health care system unable to provide a coordinated or well-integrated strategy for effective patient-centred chronic disease risk assessment, prevention and management. As a result, there will be an increased demand for pharmacists to use existing and expanded scopes of practice. Increasing access to disease prevention and management strategies in community pharmacies is a proven solution to improve access to healthcare and patient health outcomes. Pharmacist-based targeted interventions, including those for cardiovascular care, renal disease, dyslipidemia, depression, smoking cessation and diabetes care, have been shown to improve health outcomes.³⁻⁵

Our health care system is undergoing significant organizational transformative change. In 2019, the Ontario Ministry of Health (MOH) announced plans to expand the scope of practice for pharmacy professionals. Specifically, the Ontario College of Pharmacists (OCP) was directed by the MOH to submit draft regulations that would enable pharmacists to⁶:

- Administer the flu vaccine to children as young as two years old;
- Renew prescriptions in quantities of up to a year's supply;
- Administer certain substances by injection and/or inhalation for purposes that are in addition to patient education and demonstration;
- Perform point of care tests for certain chronic conditions; and
- Prescribe drugs for certain minor ailments.

Ontario pharmacists provide care through a broad set of patient-centred clinical activities within a variety of health care settings including: conducting comprehensive medication reviews and providing prescribing recommendations including Pharmaceutical Opinions, advising and administering vaccines, counseling and prescribing for smoking cessation, independently renewing and adapting prescriptions and providing targeted clinical services such as anticoagulation and antimicrobial stewardship⁷.

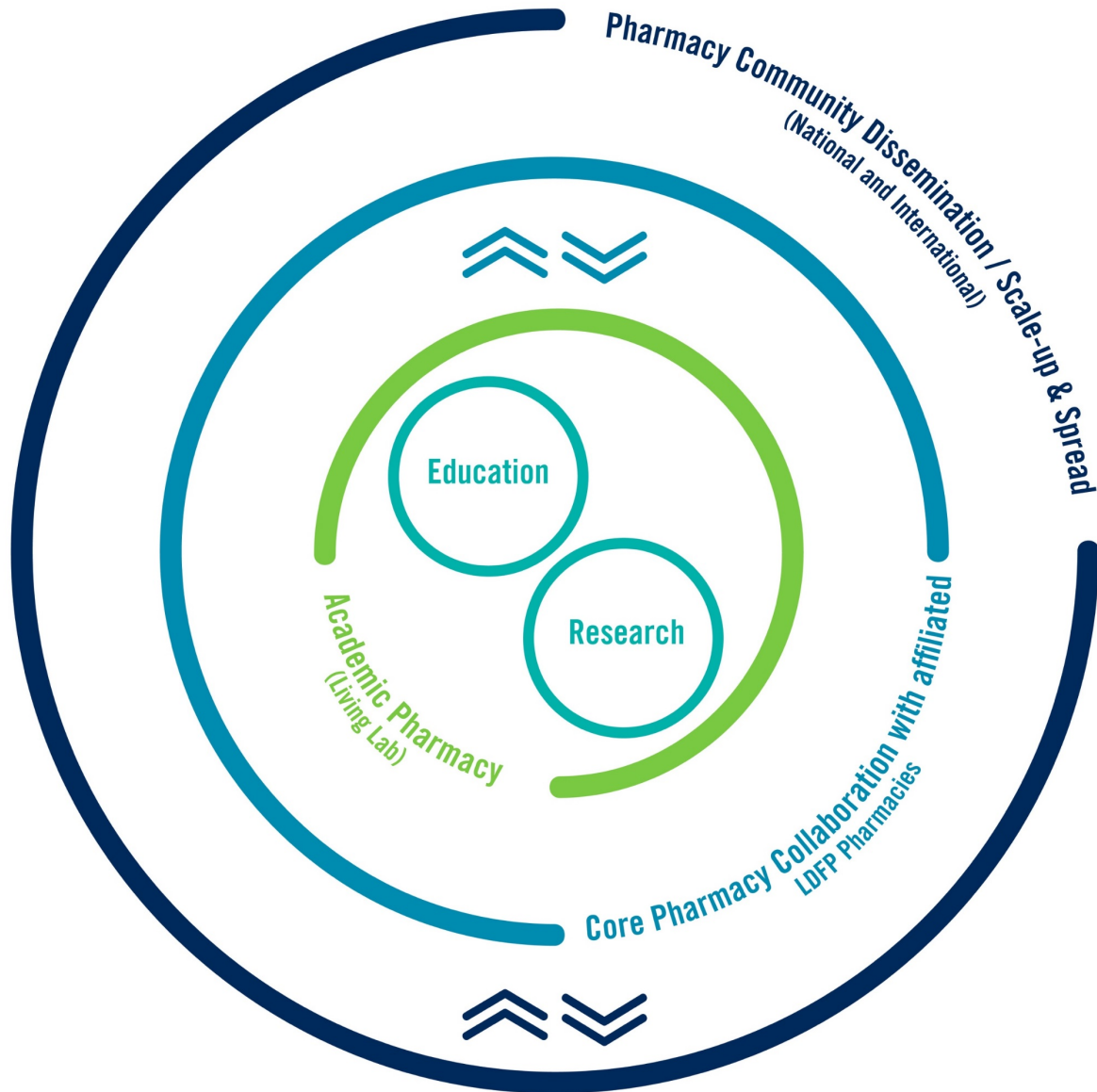
The collective influence of current health care trends and policies compels the profession of pharmacy to make fundamental changes in how it carries out its professional role to effectively and safely meet society's health care needs. Medication management research including pharmacy practice research are key and growing arenas of research, scholarship and innovation development. While the University of Toronto has researchers focused on these areas of work there are few clusters that provide focal points for collective efforts.

The Leslie Dan Faculty of Pharmacy is the largest pharmacy school in Canada training approximately 240 students pharmacy per year within a 4-year pharmacy program. It is challenging to collaborate with a large number of experiential pharmacy learning sites that can provide a future-oriented learning environment complete with integrated and emerging health technologies, a focus on activities that incorporate activities that leverage new scopes of practice for pharmacists, and emerging health care delivery workflows within an increasingly integrated health care system.

2) The Opportunity: An Academic Pharmacy

The Leslie Dan Faculty of Pharmacy is planning to open a pharmacy which will serve as a living laboratory, dedicated to research, education, and innovation (Figure 1). The research and educational mission of the pharmacy will be accomplished while providing exemplary patient care for the management of acute and chronic conditions with a special emphasis on health promotion and disease prevention (Exhibit 1). The pharmacy will include a needs-based accredited pharmacy dispensary and offer a range of professional pharmacy services for students, staff and faculty at the University of Toronto. This academic pharmacy will function as a vehicle for evaluating practice innovation and will accelerate the speed at which new models of care are applied to practice.

FIGURE 1: THE ACADEMIC PHARMACY FRAMEWORK



3) Draft Vision

To be an internationally recognized leader in transforming pharmacy-based health care delivery that will improve the health of Canadians through optimal use of medicines.

4) Draft Mission

To advance education and research for pharmacy practice innovation in healthcare delivery which may ultimately help people around the world to manage and get the best out of their medicines, to enhance their health, wellness, and productivity.

5) Academic impact

The AP will provide an enriched student-learning environment where teaching, learning, research and service delivery occur simultaneously, including:

- Offering hands-on quality learning experiences that facilitate the uptake of new knowledge, and development of skills and confidence required to deliver high quality, evidence-informed, outcomes oriented direct patient care
- Ensuring entry to practice readiness by students demonstrating key pharmacy practice competencies focused on measurable behaviours which impact on patient outcomes
- Standardizing preceptor skills and evaluation of students
- Promoting interdisciplinary education with other faculties across the U of T (e.g., medicine, dentistry, nursing, business etc.)
- Developing practice delivery innovations that will be tested, scaled-up and spread locally, nationally and internationally

6) Research impact

Through partnerships with researchers, educators, students, health care providers and decision makers, the AP will:

- Identify and create knowledge that advances science and drives practice, policy and investment on the medication related questions that matter most
- Attract diverse research partnerships and create opportunities for research funding
- Increase the impact and visibility of the research conducted by LDFP faculty and University of Toronto
- Collaborate within the health care system and organization to develop new models of pharmacy practice to ensure optimal medication management efficacy and safety; advance education, training, research, practice and use of leading-edge technology
- Evaluate the quality of impact of care delivered in therapeutic areas such as mental health, immunizations and travel medicine

PART 1 - ACADEMIC PLAN

1.1 APPROPRIATENESS OF THE PROJECT

In response to the current health care trends, evidence and policy changes, the Leslie Dan Faculty of Pharmacy is planning to develop an academic pharmacy at the University of Toronto. The AP will prepare pharmacy students with the knowledge, skills and practice experience to deliver existing and expanded scopes of pharmacy practice within the health care system in ways that make a difference in peoples lives and lead the pharmacy profession forward.

The development of the AP is very aligned with The University of Toronto's principle that work-integrated and experiential learning opportunities play an important role in enhancing the educational experiences of students. ⁸

The AP practice experience will be embedded in the pharmacy curriculum by offering EE placements (both direct and non-direct patient care) designed to prepare and assess students for practice-readiness. It will incorporate best practice models, offer standardized students experiential learning assessments, ensure quality assurance processes, and enhance preceptor development.

The AP will provide a unique practice environment where LDFP Faculty will have the opportunity to conduct direct observation and assessment of students' application of knowledge and clinical skills in a real-world setting. The AP will also provide an environment to standardize and build the skills of preceptors to continually improve the quality of our educators. Furthermore, the AP will reinforce the importance of connecting teaching and learning with research and practice innovation for students, which is a critical success factor for the pharmacy profession as it continues to evolve.

Furthermore, the AP will offer LDFP students multiple opportunities to advance their research abilities including: (1) Research Elective during APPE rotations; (2) Year 3 Research Elective; (3) Undergraduate Summer Research; and (4) Graduate student programs (Master's and Doctoral degrees; MSc in Pharmacy). The pharmacy will be a living lab training ground for trainees from different programs and disciplines to develop and implement various types of projects and initiatives. Learners from pharmacy and other health disciplines will train in delivery of interdisciplinary care. Learners from other disciplines will be able to focus on innovation in connected areas such as business, technology, architecture and information science. The integration of the AP into the EE curriculum will be a multi-phased approach over the next two years where we will test best methods for

teaching and learning as well as slowly scale-up implementation of programs and research initiatives.

1.2 DISTINCTIVENESS

As indicated above, there are three academic pharmacies in Canada=. All of their programs support student learning experiences; however only the UBC clinic reported that any students are currently utilizing their services (N=463). None of the other Canadian academic pharmacies dispense medications. UBC and Memorial reported accreditation by their provincial regulators and all conduct research projects.

The University of Toronto AP offers a unique combination of education, research and service working in unison to develop pharmacy professionals, incorporate interprofessional health care student learning, while accelerating the speed of which new discoveries are applied to clinical practice. This competitive advantage over other Faculty of Pharmacies around the world (Exhibit 2) will attract prospective students, new faculty and potential research funding.

The AP's mission is well aligned with both the Faculty of Pharmacy and the University of Toronto's commitment to improving student experience and to advance education and research for pharmacy practice innovation in healthcare delivery, which may ultimately help people around the world to manage and get the best out of their medicines, to enhance their health, wellness, and productivity.

1.3 NEED AND DEMAND

The Academic Pharmacy will be part of the University of Toronto's Interdisciplinary Health and Well-being Eco-system

The AP will be embedded in U of T's health and wellness eco-system that comprises interdisciplinary health care teams (medical, nursing, counselling, health promotion and education services) focused on supporting the physical, mental health and overall wellness of U of T's students, faculty and staff. In addition to the the provision of clinical services, programming focused on mindfulness, physical activity, nutrition, healthy relationships and fostering balance all contribute to a positive university experience.

Healthcare professionals from U of T will be part of our interdisciplinary health care team:

- Health and Wellness Student Centre
- Family Medicine/ School of Medicine
- Nursing/ School of Nursing
- Employee Health & Well-being
- David L. MacIntosh Sport Medicine Clinic
- School of Dentistry
- Additional team members, based upon patient needs, may include psychologist, nutritionist, consulting physicians/specialty nurses, social work, therapists (PT/OT)
- An interprofessional care coordinator will be appointed to facilitate:
 - Seamless coordination of care and clear communication across disciplines, care providers and with the patient and their family/carers, to ensure the person's desires and needs are met.
 - Involve the patient's primary care provider to increase the success of care plans
 - Document assessments and ensure clinical handover documents are completed thoroughly and stored in a central place

The Health and Wellness Centre on the St. George campus at U of T provides resources for students that focus on overall health and wellness through the provision of clinical services, programming focused on mindfulness, physical activity, nutrition, healthy relationships and fostering balance, all of which contribute to a positive university experience.

In 2017-2018, the Health and Wellness Centre on the St. George Campus received 57,553 visits by 14,000 students. Focus groups convened by LDFP with students indicated a strong desire and need to move seamlessly among services, thereby avoiding delays in accessing essential support at critical times. Enhancing coordination, collaboration and communication across services on and off campus is critically important to meeting the needs of students. The AP integration into existing U of T models of care will improve access to all services and provide a clear pathway to individualized care.

The current plan is to have the first location of the AP located within the LDFP located at 144 College Street. Future additional locations will include the Health and Wellness Clinical Services for students on the St. George campus. In addition, flexible “pop-up” or “mobile” locations throughout the U of T tri-campus communities will also be possible. This will provide a convenient enhancement to current healthcare services for members of our University community. We will work closely with University Health and Wellness Clinical Services to ensure smooth integration of service delivery.

Thanks to a U of T COVID-19 Student Engagement Award, we are carrying out a survey of students to better understand their medication needs in relation to mental health. The findings from this survey (expected mid fall 2020) will inform development of programs in the AP. The development of the AP will provide increased access to additional health care services on campus where faculty, staff and students can not only fill their prescriptions but also engage with pharmacists about medication management. In partnership with Student Life and Employee Health and Well-being, the AP will co-develop programs that support the U of T health and well-being strategy, offer flu clinics and other clinical services. These programs will be developed as research initiatives that will allow for evaluation of program delivery and impact.

Various stakeholders were also consulted during the early development phase of the proposal for an Academic Pharmacy and revealed the following related to needs and demands:

- opportunity to focus on transitions of care with medication management for University of Toronto students given the large effort currently undertaken by the Health and Wellness Clinic to handle student transition into and out of the university setting;
- opportunity to provide increased levels of travel and influenza vaccination to our university community;
- opportunity for improved intra-professional collaboration between student learners in the pharmacy and community pharmacists, hospital pharmacists, pharmacy technicians, pharmacy preceptors, and other stakeholders;
- opportunity for faculty and clinical instructors to incorporate their areas of expertise into the pharmacy's education and research mandates;
- opportunity to foster improved inter-professional collaboration with other health care providers at the University of Toronto health and wellness centres on all three campuses, in addition to health care providers in the Toronto community and beyond;
- opportunity to launch targeted programs related to various patient needs through the pharmacy, including vaccinations, overall health and wellbeing, sexual and reproductive health, travel health, infectious disease, and health promotion;
- opportunity to develop partnerships with other stakeholders in the Toronto health community, such as Toronto Public Health, University Health Network, Cancer Care Ontario, and other sites;
- opportunity for patients to receive specific medication counselling and education regarding their therapeutics, cannabis and other 'natural remedies';
- opportunity for the pharmacy to act as an experiential learning hub for pharmacy student learners during their educational rotations;
- opportunity to contribute to the expansion of pharmacist scope of practice, through testing innovative ways to deliver patient care.

Employment Opportunities

The Government of Canada's employment outlook for a pharmacist working in Ontario is good over 2019 to 2021, which will lead to employment opportunities for new graduates. However, the number of licensed pharmacists has doubled over the last decade, with approximately 16,750 individuals currently in this segment and growing approximately 4% year-over-year⁹. The increased competition highlights the need for the academic pharmacy

to equip our pharmacy students with best practice models and clinical practice knowledge and skills that will make our new graduates highly competitive in the marketplace. Our engagement meetings with key stakeholders including pharmacy organizations who hire pharmacy graduates have generated high interest in this endeavour.

We have described other comparator programs and other aspects of stakeholder engagement to assess need and interest in a previous section describing our scoping review and stakeholder engagement.

1.4 PROGRAM DESCRIPTION

The AP will be one of the 377 EE practice sites offered to pharmacy students. It will provide both direct patient care (DPC) and non-direct patient care (NDPC) experiential learning opportunities for pharmacy students. One of the benefits of the AP site is that it will provide a unique practice environment where LDFP Faculty will have the opportunity to conduct direct observation and assessment of pharmacy students application of knowledge and clinical skills in a real-world setting. Students will have at least one EE opportunity within the AP site before completing their academic program. The AP will provide an on-site practice site for students who require remediation. This meets a faculty need because it has been at times challenging to find an available site that can accommodate a student who requires an opportunity for remediation within a timely manner.

The entry-to-practice Doctor of Pharmacy program includes forty-three weeks (1720 hours) of practice experiences which complement classroom and laboratory courses and results in an intense program of study to assist students in developing proficiency in all competencies required for entry-to-practice. Our early practice experiences (EPE) involves eight weeks (320 hours) of direct patient care (DPC) in a pharmacy practice setting. Four weeks are completed in a community pharmacy at the end of first year (EPE-1), and four weeks are completed at the end of second year (EPE-2). We provide thirty-five weeks (1400 hours) of Advanced Pharmacy Practice Experiences (APPE) in year 4. At a minimum, students are required to complete twenty-five weeks (1000 hours) in DPC rotations in a variety of practice settings including institutional practice, community practice, and ambulatory care within Canada. The remaining two five-week elective rotations can occur in DPC or non-DPC settings. Non-DPC rotations expose students to wider aspects of the profession of pharmacy. We expect that most pharmacy students will spend approximately 10% of their experiential experiences within the AP (i.e., 1 rotation) so that they obtain the benefit of training within the AP along with the benefit of the balance of their experiential training at

the many other varied placement settings.

The Office of Experiential Education (OEE) manages the faculty’s relationships with 949 preceptors at 377 distinct sites. When fully functioning, the AP will be included as one of the EE placement options for learners across all pharmacy experiential courses (Table 1). The AP placements will be managed by our OEE and as such follow the processes and policies already well established. The policies and processes in place include those that address student health accommodations. Students are expected to develop a learning contract, as well as provide specific objectives for each rotation.

TABLE 1: EXPERIENTIAL COURSES

Year	Code	Description	Schedule
1	PHM151H1	Early Practice Experience 1 <ul style="list-style-type: none"> • Prescription/medication order processing • Patient education • Drug information provision • Medication Hx taking • Observation of/participation in patient safety • Effective communication skills • Professionalism • Teamwork 	May – August
3	PHM389H1	Research Project	78 hours
4	Advanced Pharmacy Practice Experience (APPE)		
	PHM401	APPE institutional required DPC	1X5 week rotation
	PHM402	APPE institutional required DPC	1X5 week rotation
	PHM414	APPE community required DPC	1X5 week rotation
	PHM424H1	APPE Selective DPC	1X5 week rotation
	PHM451H1	APPE Elective DPC	1X5 week rotation
	PHM452H1	APPE Elective DPC	
	PHM461H1	APPE Elective NDPC	
PHM462H1	APPE Elective NDPC		
PharmD for Pharmacists	Required	4 APPEs 3 DPC rotations 1 Elective	1X5 week rotation

Phased Implementation Approach

Table 2 describes a four phased approach to incorporating the AP in our EE curriculum over the next two years.

Phase 1:

During this phase we will begin our formal application for the AP accreditation from the Ontario College of Pharmacists (OCP). The AP will offer NDPC rotations only. We will offer 2 APPE students per block for a total of 8 student placements for this Phase. Students will work with 1.0 Faculty/Preceptor to co-develop programs and services that will be offered at the AP such as travel medicine, immunizations, sexual health, chronic disease management, mental health and other health promotions programs. There will be no additional staff required.

Phase 2:

The AP will continue to NDPC rotations to 4 APPE students per block, for a total of 12 student placements for this Phase. Students will work with 1.0 Faculty/Preceptor. At this stage, if accredited, there may be an opportunity to offering DPC rotations in Block 7. There will be no additional staff required.

Phase 3:

We anticipate that the AP will be fully accredited at this Phase. We will offer NDPC and DPC rotations to a mix of EPI 1/2 and APPE placements for a total of 48 student placements. Limited dispensing may also be implemented during this time. The Faculty complement for this Phase is 1.5 Faculty/Preceptor, including a part-time Licensed Pharmacy Manager and part-time Education Coordinator. During this phase there may be opportunities for Pharmacy Residents and Graduate Students to engage in the work (education, research) offered in the AP.

Phase 4:

This is the AP Launch Phase. The AP will be fully operational to provide both DPC and NDPC rotations. A total of 72 student placements will occur during this phase. The Faculty complement for this Phase is 3.0 Faculty/Preceptor, including a full-time Licensed Pharmacy Manager, full-time Education Coordinator and part-time Interdisciplinary Care Coordinator. During this phase there will be opportunities for Pharmacy Residents and Graduate Students to engage in the work (education, research) offered in the AP.

TABLE 2: PHASES OF IMPLEMENTATION

Phase 1: May – Dec 2020		Phase 2: Jan – Apr 2021		Phase 3: May – Aug 2021		Phase 4: Sept – Dec 2021	
<ul style="list-style-type: none"> • NDPC rotations only • OCP accreditation pending 		<ul style="list-style-type: none"> • NDPC rotations • OCP accreditation pending 		<ul style="list-style-type: none"> • NDPC and DPC rotations • Accredited 		<ul style="list-style-type: none"> • NDPC and DPC rotations • Accredited • Full operations 	
Block 1	2 APPE placements	Block 8	4 APPE placements	Block 1	4 placements per EPE 1/2/APPE	Block 5	24 APPE placements
Block 2	2 APPE placements	Block 9	4 APPE placements	Block 2	4 placements per EPE 1/2/APPE	Block 6	24 APPE placements
Block 3	2 APPE placements	Block 10	4 APPE placements	Block 3	4 placements per EPE 1/2/APPE	Block 7	24 APPE placements
Block 4	2 APPE placements			Block 4	4 placements per EPE 1/2/APPE		
Block 5	2 APPE placements						
Block 6	2 APPE placements						
Block 7	2 APPE placements						
Faculty complement:	1.0	1.0		1.5		3	
Residents:	None	None		1		2	
Graduate students	None	None		1		2	
Pharmacy Staff	None	None		Pharmacy Manager part-time		Pharmacy Manager full-time	
Admin Staff	None	None		Education coordinator part-time		Education coordinator full-time, Interprofessional Care Coordinator part-time	

STUDENT SUPERVISION:

In each Block/rotation, the student is guided, supervised, and assessed on a day to day basis by a preceptor/pharmacist. Experiential Course Coordinators, working with the Office of Experiential Education (OEE) staff, Director of the OEE and Program Directors, provide academic oversight on all aspects related to experiential course delivery, and monitoring and assessment of students during rotations. Appendix II outlines supervision of pharmacy students

1.5 INTERPROFESSIONAL EDUCATION

The AP will also provide DPC opportunities to build an interprofessional collaborative approach to Medication Management. The AP will develop hands-on quality learning experiences for students, faculty and staff across the U of T Health Sciences Academic Units (e.g. Dentistry, Nursing, Medicine, Social Work). It is intended that these experiential opportunities will facilitate the uptake of new knowledge, and development of skills and confidence required to deliver high quality, evidence-informed, outcomes oriented direct patient care and promote interdisciplinary education and training opportunities.

The AP will also offer NDPC opportunities to collaborate within cross-disciplines such as the Rotman School of Management, Faculty of Engineering and the Dalla Lana School of Public Health to pioneer new models of delivering pharmacy practice to ensure optimal medication management efficacy and safety; advance education, training, research, practice and use of leading-edge technology.

1.6 ASSESSMENT OF LEARNING

Students having DPC rotations taking place in the AP will be assessed using the Ontario Pharmacy Patient Care Assessment Tool (OPPCAT) for DPC rotations (Appendix 1) which is the same assessment tool used in other EE rotations. The assessment tool was designed to assess performance longitudinally and is implemented for all levels of learners in all types of DPC settings. The alignment of assessment forms across practice experiences affords the opportunity to track individual student's progression from EPE-1 through to their final APPE rotation.

During both the Early Practice Experience (EPE 1&2) and the Advanced Pharmacy Practice Experience (APPE) rotations, all students are required to evaluate their preceptors and clinical sites at the end of each experiential rotation. This will occur in the AP as it does with other EE rotations. This is accomplished through the completion and submission of the two online evaluation forms, the Student Evaluation of Preceptor and the Student Evaluation of Site., housed and maintained in the CORE ELMS Experiential Database. The form is structured in two parts. The first part of the forms uses a 5-point Likert scale (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree). Students provide an overall rating based on their impression of their preceptors and their experience at the site, as related to adequate time and resources devoted to student learning, teaching techniques and alignment with program outcomes, appropriate level of responsibility and expectation, guidance, support and feedback provided by the preceptor and other relevant staff and team members at the site etc.

The second part of the evaluation forms provide opportunity for students to add written comments that support their assessment with examples and provide professional and constructive suggestions on areas of improvement for both the preceptor and the practice site. The form also includes a “Confidential Comment Box” Students are encouraged to use this section to confidentially provide feedback and comments viewable only to OEE Faculty/Staff.

The Faculty evaluates the quality of the student experience related to their experiential rotations and the AP will be included in this process as with other EE rotations. Students are able to provide feedback related to the site, the preceptors and the overall learning environment. The data is collected and collated at the end of each block by a Data Analyst and is then reviewed at the end of each term by a committee chaired by the Associate Dean, Academic (currently Interim Director of Professional Programs) who serves as Academic Lead for the Office of Experiential Education. Other members of the committee include the Director of the OEE, the Director of the PharmD program, the Data Analyst and a minimum of two experiential education course coordinators (faculty members). Any concerning data is flagged, and if significant concerns and/or significant volume of negative feedback is identified, the sites and/or preceptors are contacted for follow up conversations and or visit. This process allows us to be responsive to the student experience at rotation sites. The effectiveness of the AP overall will be assessed according to the program evaluation plan which will also be a component of emerging scholarship for the entity. The metrics of success have been provided in various sections of this document.

1.7 RESOURCES

The AP will not impact enrolment agreements with the Faculty/Provost’s office. We do not expect the AP to impact tuition fees or use tuition fees to fund the AP.

Office of Experiential Education (OEE) Resources:

The AP EE will be embedded within the OEE. The AP will operate within the existing resources OEE currently provides such as administrative resources to support students during placements, and acts as a central hub for all stakeholders involved in experiential education activities.

The OEE structure is organized to respond to program growth and changes, including the requirement for customization of services, and the noticeable need for a more student-centered approach that includes student advising and career development services. In addition, the staff, with experience working in client-focused roles, are more flexible and responsive and better positioned to identify and address the needs of all other stakeholders, including faculty members, preceptors and experiential sites. The organizational structure is suited to managing the

experiential process, with improved communication, accountability, coordination, and enhanced efficiency in the development of quality assurance measures.

The OEE along with staff and Course Coordinators Faculty meet regularly with the formally affiliated teaching and community institutions, other hospitals, family health teams, and community pharmacies to ensure that our students are able to undertake experiential education rotations with qualified preceptors and at appropriate sites, and to discuss common issues that arise in arranging, monitoring and evaluating experiential placements.

This entity will not require new resources related to research but rather will draw on resources already allocated to our research office at the Leslie Dan Faculty of Pharmacy to assist with the development and implementation of research projects.

New resources for operating the pharmacy have been identified as part of the business plan, which models that the AP will be self-sustaining.

1.8 FACULTY COMPLEMENT

The Faculty has a strong mix of faculty members that is comprised of four categories: tenure stream (n=32), teaching stream (n=9), status-only (n=49), and adjunct (n=54). In addition, there are a very large number of affiliated preceptors (approximately 900) who provide placements for our students during experiential rotations coordinated through our OEE. Full time faculty members include a high number of clinically expert pharmacists with Part A licences valid through the Ontario College of Pharmacists allowing them to practice as a pharmacist within an accredited pharmacy.

Teaching and service work carried out by faculty within the AP will be recognized through LDFP workload assignments. The main areas of teaching work are expected to be supervising DPC or NDPC Doctor of Pharmacy Students. The main areas of service work are expected to be membership on AP committees such as the Board of Directors, research oversight or program development and implementation committees. The LDFP Workload Policy is undergoing revision during the 2019-20 academic year and so will be able to incorporate expectations for the AP as part of that process.

It is expected that many tenure stream faculty will be able to supervise graduate and undergraduate students as part of the AP and LDFP research and learning enterprise. All faculty supervising research within the AP will be expected to have appointments with the School of Graduate

Studies (SGS) and most with the Department of Pharmaceutical Sciences, although we expect faculty from other Departments to also utilize the AP for research scholarship.

There are many other faculty with status or adjunct appointments who can support research and education within the AP. These include affiliated faculty with SGS appointments who can supervise or contribute to graduate trainee activities.

1.9 LEARNING RESOURCES

The AP learners, staff and faculty will have appropriate access to information technology and systems essential for practice such as secured access to patient information, internet and drug and medical information resources as well as access to physical facilities for adequate workspace/resources. In house instructional design and learning technology expertise will be used to help ensure the learner experience is designed in a manner that leverages the use of the best learning resources such as Quercus. Course based materials will be available on Quercus as with almost all other courses, workshops or modules within the Leslie Dan Faculty of Pharmacy.

The AP will be able to leverage the library materials – both print and electronic – that are available without restrictions to pharmacy faculty and students (the only exception being UpToDate, which is only available to students).

The University of Toronto Library (UTL) system is the largest academic library in Canada and is currently ranked 3rd out of all academic research libraries in North America. UTL includes an expansive pharmacy collection. Included in the collection are key pharmacy resources such as:

- All of the major drug monographs, including; e-CPS, RxTx (online and mobile app versions), Micromedex and Lexicomp.
- Key reference books and materials, including; AccessPharmacy, Merck Index, and Harrison's.
- Clinical and Evidence-Based Medicine Resources, including; BMJ best practice, DynaMed Plus, and UpToDate.
- Key health sciences indexes, including; International Pharmaceutical Abstracts, MEDLINE, EMBASE, CINAHL, PsycINFO, Cochrane, Scopus, and Web of Science.
- All 25 of the top 25 journals in the subject of Pharmacology & Pharmacy, as listed in Journal Citation Reports (JCR).

This LDFP eResources page is the highest accessed resource page at UTL with an average of 4000 visits per week. Resources which are not held at UTL are available to users by request via an interlibrary loan service which borrows and supplies materials from libraries around the world.

1.10 QUALITY AND OTHER INDICATORS

One of the key areas of research already identified is the integration of quality improvement processes into pharmacy practice. This focus will allow the AP to both explore quality improvement within a pharmacy setting (a new area for pharmacy practice) as well as the benefit of quality improvement data on various aspects of the experiential, research, practice and management elements of the AP.

Quality of Educational Experience

The Faculty has an Education Office that oversees program evaluation for all education programs at the Leslie Dan Faculty of Pharmacy. LDFP also has a Program Evaluation and Assessment Committee which receives program evaluation reports, reviews policies related to program evaluation and makes recommendations to improve program quality. Evaluations of learner experience in the AP will be integrated into program-based evaluation and be shared through existing LDFP quality management processes.

Overall, we evaluate the quality of the student experience via numerous mechanisms. The most robust source of data related to the student experience with the educational aspects of the program comes from our course evaluation data. All course instructors receive course feedback annually. The process requires Faculty to respond to student feedback with specific approaches that will be taken to improve the learning experience in the next year.

For the experiential component of the program, students have an opportunity to evaluate individual preceptors as well as experiential sites to ensure high quality rotations. We have a formal process where experiential Faculty members review student progress through their rotations. This is done on a monthly basis.

The OEE oversees the collection of data (quality indicators) about the experiential courses. Examples of data collected include items directly related to the match process such as the number of and types of experiential rotations, number of preceptors, number of students who are matched with top three choices and number and types of international student experiential rotations. Table 3 describes the educational objectives and their corresponding output(s) and outcome(s).

TABLE 3: EDUCATIONAL GOAL & OBJECTIVES

Educational goal:

Advance Education Programs that Develop Leaders for Diverse and Emerging Careers

OBJECTIVES	OUTPUT	OUTCOMES
<ul style="list-style-type: none">To prepare individuals to enter a variety of emerging careers and practices and function as a professional	<ul style="list-style-type: none">Number and type of professionNumber of licensed pharmacy practices after program completion and locationNumber and type of educational activities after program completion	<ul style="list-style-type: none">Students prepared to be competent pharmacists within a variety of emerging careers and practices and function as a professional for them for the Profession
<ul style="list-style-type: none">To enrich the student academic experience through experiential learning that will enhance knowledge, skills and professional values and attitudes	<ul style="list-style-type: none">Number and type of students who have had an experiential rotationNumber and type of experiential activitiesIncreased student self-confidence / self-efficacy	<ul style="list-style-type: none">Improved knowledgeImproved clinical practice skillsIncreased problem-solving skillsIncreased leadership skillsIncreased motivation

PART 2 - RESEARCH PLAN

2.1 RESEARCH IN GENERAL AT THE LESLIE DAN FACULTY OF PHARMACY

Research at the LDFP spans the broad range of pharmaceutical sciences, encompassing all aspects of drug therapy. This includes the design, synthesis and characterization of new medicinal agents, studies to understand their mechanisms of action, assessment of their effectiveness for treatment of disease, identifying their optimal clinical use for improving patient care, and the economics and policies that define best practices for their essential role in the health care system.

The development of the AP is well aligned with the LDFP strategic plan for research initiatives. Two of the main priorities for research outlined in the LDFP five-year Strategic Plan are to:

- Grow our scientific impact by investing in our infrastructure to support our core research areas and increasing both the impact and visibility of our research.
- Improve health through knowledge translation and influence on policy by;
 - Creating public forums to engage a broad range of stakeholders and the public around health and pharmaceutical policy issues of broad interest;
 - Optimizing opportunities to engage in multi-stakeholder collaborations that impact the health of Canadians;
 - Creating opportunities in collaboration with governments and enhancing our impact in our local, national, and global communities, and;
 - Establishing ourselves as credible thought leaders in pharmacy practice, policy, and pharmaceutical science.

The AP, as a Living Lab, will serve as infrastructure for the development of cutting-edge health services research by many of our faculty and collaborators from other Centres, Faculties or Schools. The research carried out within a number of the Centres at the Leslie Dan Faculty of Pharmacy will benefit from having the AP available. This includes the Centre for Practice Excellence, the Centre for Pharmaceutical Oncology, and the University of Toronto Centre for Study of Pain. The Centre for Practice Excellence will serve as the home for the Research Component of the AP within the Leslie Dan Faculty of Pharmacy.

The 3-year research plan for the AP will include developing and implementing the following:

- Research experiential opportunities
 - Opportunities for undergraduate and graduate student research experiences (more detail provided below)

- Research projects for the evaluation of all new programs within the AP such as immunization, and travel vaccines.
- Research projects that address the evaluation of new digital health technologies and new pharmacy/health system workflows including work with interdisciplinary colleagues
- Structures for conducting research within the AP such as
 - An AP research committee that will review and adjudicate research proposals for the AP to ensure that they are suitable and of high priority.
 - Mechanisms for encouraging research collaborations across the University of Toronto for research within the AP
 - Use of research data management software (such as RedCAp) for conducting research within the AP
 - Ensuring proper and effective processes for research consent of AP patients
 - Mechanisms to include our affiliated pharmacy experiential learning sites in scale up research projects centred within the AP
- Processes for knowledge translation of findings generated by research conducted within the AP

Examples of Current Research Questions that can be answered through work conducted by the AP:

- What are the technology requirements and implementation approach for a pharmacy providing future-oriented health care?
- What are the expectations of students as learners, students as care recipients, pharmacy educators, pharmacy technicians and the interprofessional health care teams of an academic pharmacy?
- What are medication needs of students and the University of Toronto including needs related to maintaining overall health, sexual health and health promotion?

Examples of Potential Future Research Questions that could be answered within the Academic Pharmacy:

- How can we better define the role of pharmacy students in the delivery of care to patients?
- What is the optimal mix of technical support and professional staff to effectively management medications?
- How can we better use virtual care in medication management delivery?
- What are the best ways to leverage existing (electronic medical records) and emerging technologies to communicate with patients and prevent drug therapy problems?
- How can pharmacy support overall health and well-being among the student population?

- What is the optimal pharmacy physical layout/environment that will optimize medication management?
- What is the effect on health care costs if pharmacists administer minor ailments program?
- Do students learn better with the AP environment versus other experiential sites?
- How does experiential education enhance learning outcomes?
- Do preceptors gain more confidence with on-site, hands-on participation in experiential education activities?
- How can interprofessional preceptorship enhance learning outcomes?
- What is the uptake and effectiveness of influenza and other vaccinations given to University of Toronto students through the AP?
- How can pharmacists work with the interprofessional primary healthcare team at the University of Toronto to maximize student health?
- What is the effect of pharmacy student-delivered education on overall health and medications?

2.2 OPPORTUNITIES FOR STUDENT RESEARCH EXPERIENCES

The development of the AP will offer pharmacy students multiple opportunities to advance their research abilities through NDPC and DPC rotations as part of their experiential training requirements. Selections for non-direct patient care rotations include research rotations, educational rotations and project rotations. Selections for DPC will offer students the opportunity to engage in clinical research where preceptors have a focus on clinical research or have roles in clinical trials.

Undergraduate Summer Research

Students may also conduct an Undergraduate Summer Research program at the AP. Undergraduate students are offered a unique opportunity to participate in research under the supervision of a Pharmaceutical Sciences faculty member. PharmD students are offered a unique opportunity to participate in a 12-week research experience in the following areas: molecular basis of drug targets and diseases; drug development and disease diagnostics; drug safety; health services research and clinical pharmacy research. The focus of the student's research experience may include conducting literature reviews, preparing research protocols, conducting components of clinical research associated with patient care and manuscript writing. Often, students may continue to be involved in the study/project after their experiential rotation has completed. Students have presented posters at conferences and published journal articles related to their research.

Research Elective – Year 3

There will be opportunities for Pharm D students to perform their elective research-based course, PHM 389 at the AP. The course is designed to introduce students to the philosophy, methodology and performance of research in scientific fields offered by faculty members who hold graduate appointments in the Department of Pharmaceutical Sciences. Fields of study are wide ranging and include drug delivery, drug metabolism, medicinal chemistry, pharmaceuticals, pharmacokinetics, pharmacoepidemiology, pharmacy administration and pharmaco-economic, radiopharmacy, receptor biology, therapeutics, and toxicology. The course includes working in the laboratory or other relevant setting such as the AP, reading, searching for literature, performance of research and writing of the research report.

Research Elective during APPE

In this rotation, students participate in one or more research projects and receive an introduction to the requirements and opportunities of a career in research. Students work with the preceptor (and, as relevant, research team) as part of ongoing research at the Faculty or at an experiential placement setting. Students normally are not expected to start and finish an entire research project within the five-week rotation time frame. Although the student's activities may be focused in one or more specific aspects of the research (e.g. research design or data analysis), the student is expected to develop an understanding of all components of the research.

Graduate students

In addition, the AP will offer the students from our Graduate Department of Pharmaceutical Sciences a stimulating and productive environment for graduate education and research for students with degrees in physical, biological, and social sciences. We offer research-intensive programs of study in a wide range of areas leading to Master's and Doctoral degrees.

The LDFP launched a new advanced professional practice program for experienced pharmacists in Winter 2020. The Master of Science in Pharmacy (MScPhm) program builds on entry to practice degree programs. The MScPhm program educates and prepares pharmacists with high potential for leadership and a passion for becoming clinical pharmacy academics and leaders. The program will provide an opportunity for students to gain advanced clinical therapeutic knowledge and practice experience in a defined area, in addition to research, education and leadership skills.

Visiting International Students

Visiting international students working with LDFP or University of Toronto supervisors can conduct research in the AP through student experiential opportunities described above. The conventional university processes for faculty to host visiting international students will be used.

2.3 RESEARCH POLICY AND PROCESSES

Research within the AP will be carried out by LDFP/U of T Affiliated faculty and as such will be supported by the Research Enterprise at the LDFP including oversight by the Associate Dean Research and support from the Research Office. It will also be supported by the Centre for Practice Excellence which will be the research home for activities within the AP. Reports on research within the AP will be developed by the Centre for Practice Excellence and reported within the Annual report of the CPE.

The research activities conducted with the AP will be governed by the University Academic Procedures Manual that include:

- Policy on Ethical Conduct in Research
- Policy on Research Involving Human Subjects
- Framework to Address Allegations of Research Misconduct
- Statement on Protection of Freedom of Speech
- Statement on Prohibited Discrimination and Discriminatory Harassment

The AP will also abide by the policies that guide both faculty and students:

- Code of Behaviour on Academic Matters (guides both faculty and students)
- Code of Student Conduct
- Standards of Professional Practice Behaviour for all Health Professional Students
- Policy on Conflict of Interest for Academic Staff
- Policy with respect to Workplace Harassment
- Policy with respect to Workplace Violence

In almost all cases research conducted at the AP will involve human subjects. All research protocols using human subjects conducted at the AP will be reviewed by a U of T Research Ethics Board (Health Sciences or Social Sciences, Humanities and Education) depending on the type of research being conducted and the faculty affiliation of the Principal Investigator (PI). Research

protocols will also be reviewed by relevant hospital or community research ethics boards depending on the affiliation of faculty investigators or collaborators.

2.4 QUALITY INDICATORS - RESEARCH

A key priority in the LFDP Faculty Academic Plan is to measure and communicate the impact of our research (Table 4) which will include:

TABLE 4: RESEARCH GOAL AND OBJECTIVES

Research goal: Grow our scientific impact

OBJECTIVES	OUTPUT	OUTCOMES
<ul style="list-style-type: none"> To carry out vital research and test innovations in the delivery of pharmacy services 	<ul style="list-style-type: none"> Increased knowledge and skills Number and type of projects Number of co-investigators Number of collaborators Increased opportunities for health research 	<ul style="list-style-type: none"> Increased number of high quality completed research projects Increased understanding about pharmacy practice, pharmaceuticals and medication use processes
<ul style="list-style-type: none"> To train students to carry out vital research and test innovations in the delivery of pharmacy services alongside leading scholars 	<ul style="list-style-type: none"> Number and type of undergraduate research experiences with a faculty member Number and type of practicum research experiences for professional master's students 	
<ul style="list-style-type: none"> To facilitate knowledge translation that informs the public/patients, the profession of pharmacy, educators, other health care professions, government, industry and regulatory partners 	<ul style="list-style-type: none"> Produce high quality papers and conference presentations Number of publications Number of abstracts Number of presentations 	<ul style="list-style-type: none"> Increased awareness of the AP approach by other communities/jurisdictions Increased uptake of H&W research and innovations into practice, education and policy Uptake of innovations within different spheres of pharmacy practice and health care in general

PART 3 - BUSINESS MODEL

3.1 VALUE PROPOSITION

The AP’s value proposition is the unique combination of education, research and service working in unison to develop pharmacy professionals, while accelerating the speed at which new discoveries are applied to clinical practice. This competitive advantage sets U of T apart over other Faculty of Pharmacies (Exhibit 2) to maintain or increase its 4th in the 2020 world QS World University rankings and more attractive to prospective students, new faculty and potential research funding.

The AP business model comprises two core components (education and research) and one support component (service) that functions as a vehicle for practice innovation. Throughout all AP activities, the highest quality of patient care will be delivered. Table 5 summarizes potential revenue sources, costs and core activities associated with each element.

TABLE 5: BUSINESS MODEL COMPONENTS

Model Components	Revenue	Costs	Core Activities
CORE: Education	<ul style="list-style-type: none"> • Experiential placement fees for direct patient care rotations* • Service contracts with external agencies 	Salaries and benefits, educational infrastructure and overhead	Educating Mentoring
CORE: Research	<ul style="list-style-type: none"> • Grants • Donations • Service contracts 	Salaries and benefits, research infrastructure and overhead	Research Grant writing Publishing
SUPPORT: Service	<ul style="list-style-type: none"> • Government • Cash payers • Third-party payers 	Salaries and benefits; infrastructure	Health care services

*NOTE: Currently fees are paid to external sites for EE placements

3.2 BUSINESS MODEL CORE COMPONENT 1: EDUCATION

The education business model operates where people are transformed into new or improved pharmacy professionals or preceptor/evaluators. High quality of teaching and operational efficiency are important sources of competitive advantage; if not maximized, this can lead to lower profit margins (lower student enrollment).

End Users

The AP education core component will create value through experiential learning for both learners and educators. The AP will provide an opportunity for learners to practice pharmacy expanded scope; prepare graduates for practice; and foster professional development for practicing pharmacists. In addition, educators will have the opportunity to test new pedagogical approaches to pharmacy education and collaborate with interprofessional teams.

Learners:

- PharmD students
- PharmD for practicing pharmacists
- Graduate students MSc (Master of Science, Master of Pharmacy) and PhD (Doctor of Philosophy) degree programs.
- Residency Program students: The Hospital Pharmacy Residency program and the Industrial Pharmacy Residency program
- International Pharmacy Graduate students
- Continuous Professional Development students: pharmacy professionals, researchers, scientists, and allied professionals involved in pharmacy practice and policy
- Students from other faculties or schools such as other health sciences, business, engineering
- Affiliated preceptors (local, provincial, national, international) from different health care settings

Educators:

- Faculty
- Affiliated preceptors (local, provincial, national, international) from different health care settings

End User Relationships

The AP education component will provide an opportunity to establish and foster the following stakeholder relationships:

- Preceptor-student (in person and virtual)

- Preceptor-preceptor (in person and virtual)
- Faculty- student (in person and virtual)
- Faculty-faculty (in person and virtual)
- Faculty-preceptor (in person and virtual)
- Community of practice: knowledge exchange & transfer
- Co-creation: design of new and innovative products, services, practice delivery

Potential Revenue Streams

No direct revenues from student tuition or other fees will be used to fund the operations of the AP, however the following are possible external sources of revenues:

- Funds for experiential placements currently provided to external rotation sites that would remain in house.
- Service contracts with external agencies
- Funds for experiential opportunities taken up by current pharmacy professionals (pharmacists or technicians) or other types of learners who want to upskill or be exposed to innovative pharmacy practice and who will add to the University of Toronto learner experience (criteria for this type of placement still need to be developed)
- All income surplus, if any, will flow back to the AP to support the its broad academic mission.

3.3 BUSINESS MODEL CORE COMPONENT 2: RESEARCH

The research model of the AP will entail scholarship for discovery and creation of knowledge that is funded by numerous sources including governmental agencies and not on the basis of achieving a particular outcome. The expected products of our efforts will be consultative advice, new knowledge, and new products (including new technologies) and descriptions of new processes (e.g. implementation guides) that themselves may have scale up and commercialization potential. Research has the potential to generate excess revenue which can be reinvested in further research and education programs. It will also attract exceptional students who can build their research skills, complete their understanding and graduate research requirements, and contribute to the research programs within the pharmacy.

End Users

The AP research core component will create value to researchers and learners by providing meaningful answers to critical research questions. Leslie Dan Faculty of Pharmacy researchers in collaboration with internal and external partners will have the opportunity to test existing and emerging educational, clinical, and technological approaches to the delivery of pharmacy services.

Learners:

- students,
- professionals such as community pharmacists

Researchers:

- Faculty
- Collaborators

Key Stakeholder Relationships

The AP research component will provide an opportunity to further develop and strengthen the following stakeholder relationships:

- Faculty Researcher-Student (in person and virtual)
- Researcher-Researcher (in person and virtual)
- Community of Practice (All): knowledge exchange & transfer
- Co-creation (All): design of new and innovative products, services, practice delivery

Revenue Streams

All research projects are revenue neutral. Potential revenue streams include:

- Grants (public and private);
- External service contracts (public and private) such as commission research. For example, projects to evaluate workflow systems; Practice Assessment of Competence at Entry (PACE) that assess pharmacist applicants' entry-to-practice competence; investigational drug trial service;
- Service fees charged to research projects (internal and external) for research administrative time; and
- Private donors

3.4 BUSINESS MODEL COMPONENT 3: SERVICE

The service model is a mix of a solution shop and fee-for-service process. Fees are paid for services provided to cover the direct costs of the services. The pharmacy services value chain currently faces a decrease in government reimbursement schemes that will force pharmacy providers to reevaluate how decisions are made (purchasing resources, types of services provided, technology use) and how to deliver value (convenience, accessible, positive care experience, lower costs, higher medical quality) to patients while generating enough revenue to cover increasing healthcare costs. The AP research initiatives will provide opportunity to test new approaches to providing effective pharmacy care within changing contexts and constraints.

Strategic Goals for Service

Table 6 describes the objectives for each goal and their corresponding output(s) and outcome(s).

TABLE 6: PHARMACY PRACTICE GOAL AND OBJECTIVES

Pharmacy Practice goal: Improve health care experience		
OBJECTIVES	OUTPUT	OUTCOMES
<ul style="list-style-type: none"> To provide evidenced based pharmacy care to patients through advanced education and research 	<ul style="list-style-type: none"> Number and type of patients Number of types of repeat patients 	<ul style="list-style-type: none"> Customer service/satisfaction Improved health outcomes Sustained customer responsiveness/demand
<ul style="list-style-type: none"> To build partnerships with community pharmacies to foster coordinated care for the patients it serves 	<ul style="list-style-type: none"> Numbers and types of sustainable partnerships that are seen as mutually valued and mutually beneficial 	<ul style="list-style-type: none"> Positive perceptions of community pharmacists
<ul style="list-style-type: none"> To provide pharmacy services that are financially viable and sustainable to optimize medication use, promote wellness and disease prevention. 	<ul style="list-style-type: none"> Profitability Low risks – financial and operational 	<ul style="list-style-type: none"> Profitability ratios: Return on Equity, Return on Investment Operational efficiency Growth

End Users

The main end users of the AP are University of Toronto students, faculty and staff, who will pay fees for pharmacy services, or receive care and services through financial support provided by research and innovation projects.

Seven types of AP service users have been identified (so far) as potential key end-users of the AP (Exhibit 3).

Students: Students are expected to be the primary service users of the AP in terms of numbers of users. During the first year of full operations (after start-up phase), our goal is to serve approximately 10% (n=9,129 in 2018/19; <https://www.utoronto.ca/about-u-of-t/quick-facts>) of the students across U of T tri campuses, recognizing that approximately 15% of students access on campus health and wellness services. We have had initial discussions with undergraduate and graduate students health care benefits administrators about possible discounts for products and services and we will continue to discuss the potential for discounts as we finalize the types of products and services offered.

Exhibit 4 outlines characteristics, issues and needs. Students with complex health needs may engage with multiple university services, transition in and out of hospital, or require long-term support delivered through community services.

Student feedback from focus groups indicated a strong desire and need to move seamlessly among services, thereby avoiding delays in accessing essential support at critical times. Enhancing coordination, collaboration and communication across services on and off campus is critically important to meeting the needs of students.

Staff and Faculty: There were 3,442 full and part time appointed faculty and librarians and 6799 union and non-union full and part time staff as of 2017 (https://data.utoronto.ca/wp-content/uploads/2019/06/Facts-Figures-2018_final.pdf) Currently, this customer segment does not utilize on campus health services. The initial goal would be to capture and serve 10 per cent of this population across various programs once the AP is past its planned development phase. Further research is required to better understand the health care issues and needs of this group segment in order to develop effective marketing strategies.

Key Stakeholder Relationships

The AP service support component will provide an opportunity to establish and grow the following stakeholder relationships:

- Patient and Healthcare Provider Consultations about medication management (in person and virtual).
- Healthcare Provider - Healthcare Provider Consultations about medication management (in person and virtual). For example, Pharmacist and Family Physician consultation.
- Preceptor-Student (in person and virtual)
- Preceptor-Preceptor
- Community of practice: knowledge exchange & transfer
- Co-creation: design of new and innovative products, services, practice delivery
- Automated-service (appointment scheduling, remote dispensing)

Potential Revenue Streams

There are five potential sources for revenue generation for the service support component of the AP business model:

- Third-party payers
- Approved billable pharmacy services that are reimbursable from the Ontario Ministry of Health and Long Term Care (Table 7)
- Cash transactions: over the counter medications, other stocked products
- All income surplus, if any, will flow back to the AP to support the its broad academic mission.

TABLE 7: APPROVED BILLABLE PHARMACY SERVICE FEES

SERVICE	GOVERNMENT REIMBURSEMENT FEES
Medication Review (basic)	\$60 per annually (basic); \$75 per annually (Diabetes)
Medication Review (follow-ups)	\$25 annually for standard; \$25 annually for MedsCheck for Diabetes
Immunization	\$7.50 for injectable publicly funded influenza vaccine, and \$5 for influenza nasal spray (FluMist)
Administration of drugs by injection	Authority to administer drugs by injection but no funding to date
Adaption/altering of prescriptions, continuity care and renewals	Authority to adapt or renew but no funding to date
Initial Access Prescribing or to manage ongoing therapy	Authority to initiate prescription for nicotine replacement therapy but no funding to date
Pharmaceutical Opinions	\$15 per opinion “Not filled as prescribed”; \$15 for “No change to prescription”; \$15 for “Change to prescription”
Smoking Cessation	Up to \$125 annually for Ontario Drug Benefit beneficiaries: \$40 for initial consult; \$15 for up to 3 primary follow-ups; \$10 for up to 4 secondary follow-ups
Emergency Prescription Refills	Authority for emergency refills but no funding to date
Dispensing fee	\$8.83 on average

Key Activities

To provide learners hands-on experiential experience through providing direct patient care the AP will deliver the following pharmacy services

- Overall health and well-being consultations as it pertains to medication management and self-medication education (eg, herbal treatments, cannabis)
- Immunizations (eg, flu vaccine)
- Smoking cessation
- Prescribing for minor ailments
- Acute care for minor ailments
- Chronic disease management
- Mental health program
- Travel medicine program to serve faculty and staff who travel abroad
- Sexual health and needs of specialized groups
- Remote patient consultations
- Telepharmacy
- Dispensing: This will be a needs-based dispensary and will stock onsite a limited inventory of prescription medications.

3.5 OWNERSHIP

The academic pharmacy will be a not-for-profit corporation with the University of Toronto as its sole member. With guidance and collaboration with internal and external legal counsel, various corporate documents have been drafted, including articles of incorporation and bylaws.

- **Articles of Incorporation (DRAFT)** – this is the document that evidences the formation of the company (Appendix III).
- **Bylaws (DRAFT)** – this contains guidelines/rules about how board members are elected, meetings are held, votes are tallied, notice is given etc (Appendix IV).

KEY RESOURCES:

Figure 2 outlines the AP system design that includes both offline and online processes/ activities that the AP will perform to deliver value to customers. The following are resources that are most critical to the successful execution of the AP:

3.6 SPACE/INFRASTRUCTURE:

The AP will meet the OCP accreditation requirements for space. The size of the physical accredited area will be a minimum of 18.6 m² or 200 ft² with the dispensary floor area of at least 9.3 m² or 100 ft² space. The dispensary will not be accessible to the public. In addition, there will be a separate and distinct patient consultation area offering acoustical privacy. The main location of the AP will be located within the LDFP located at 144 College Street. It is embedded in one of North America's most comprehensive Health Sciences Research clusters including Canada's largest University, and the MaRS Discovery District. The Pharmacy Building is accessibility compliant providing a main entrance with an auto door opener, floors accessible via elevators and accessible washrooms.

There are three potential space locations for the AP within the Leslie Dan Faculty of Pharmacy. Discussions have begun to plan the striking of a special committee as part of the space development process that will include representatives from relevant central units, students, faculty and staff. Future space requirements and allocation will be managed through the Dean's office in consultation with Associate Deans, Program Directors and the Chief Administrative Officer and relevant central units.

Mobile or “Pop-Up” Pharmacy

We will also explore the concept of offering flexible “pop-up” or “mobile” locations throughout the three U of T campuses, where pharmacy services such as administering flu vaccinations or providing student consultations around overall health and well-being, medication management and health promotion may occur. This will provide a convenient alternative to accessing healthcare services at campus health and wellness centres.

3.7 HUMAN RESOURCES:

The minimum staff requirements for the AP in the first year of full pharmacy operations will consist of the following:

- 1.0 FTE Pharmacist Manager
- 1.0 FTE Pharmacy Technician
- 0.50 FTE Administrative support

As demand for services increases, the staffing complement will be re-evaluated.

Because the academic pharmacy will be utilizing U of T services, a *Management Services Agreement* between the corporation and U of T will be required. U of T services offered will range from finance, accounting, information technology and human resources.

3.8 FINANCE

It is estimated that approximately \$1 million dollars of capital is required at start-up (Table 8) . In order to secure initial funds, U of T advancement professionals will assist in securing private and corporate donors to contribute a portion or all the required funds. In addition, government grants will be sought to support educational and research activities.

TABLE 8: START-UP BUDGET

EQUIPMENT & SUPPLIES		
Pharmacy Supplies	\$	6,000
Pharmacy Inventory	\$	90,000
Office supplies	\$	10,000
Equipment	\$	20,000
Software	\$	10,000
SERVICES		
Insurance	\$	8,500
Legal Services/Accounting	\$	5,000
OCP accreditation	\$	3,500
Consultants: PIA, Other	\$	25,000
CONSTRUCTION		
Construction	\$	400,000
Furniture/Millwork	\$	100,000
Utilities	\$	8,500
SUBTOTAL	\$	666,500
PROFESSIONAL SERVICES		
Project Manager	\$	66,650
Architect	\$	99,975
Pharmacy Manager (3 months)	\$	40,000
CONTINGENCY	\$	66,650
TOTAL Start Up Costs	\$	959,775

Our projections envision first year operating costs of \$668,300 (Table 9) with an estimated annual revenue of \$755,000 from pharmacy delivered services or dispensing (Exhibit 5) when the AP is operating at full capacity. Based on revenue from pharmacy services, dispensing, research grants and experiential education placements (Table 10) it is expected that the AP will be self-sustainable.

TABLE 9: OPERATING BUDGET – Year 1 of Full Operations

Opening inventory	\$	90,000
Pharmacy Manager (1.0 FTE) includes 24% benefits	\$	148,000
Pharmacy Technician (1.0 FTE) includes 24% benefits	\$	74,400
Interdisciplinary Care Coordinator (1.0 FTE) includes 24% benefits	\$	74,400
Administrative Support (0.25 FTE) includes 24% benefits	\$	25,000
Research Administrative Coordinator (0.25 FTE)	\$	30,000
Repairs and maintenance	\$	7,500
Utilities and telephone/telecommunications	\$	10,000
Information Technology	\$	10,000
Interest and bank charges	\$	10,500
Advertising and promotion	\$	15,000
Insurance	\$	8,500
Lease/rent	\$	150,000
Legal/accounting	\$	10,000
Misc. expenses	\$	5,000
Total Operating Expenses	\$	668,300

TABLE 10: REVENUE SOURCES

Revenue Source	Amount
Prescriptions and Pharmacy Services	\$ 755,000
Research and Innovation Project Grants	\$ 100,000
Advancement	\$ 100,000
Experiential Education Placements	\$ 48,000
Estimated Revenue	\$ 1,003,000

Tax:

The AP will be exempt from corporate tax. The corporation will file T2 corporate tax returns and will register for HST/GST. HST/GST will apply to third-party costs. Pharmaceuticals are zero-rated, thus exempt and U of T provision of services are exempt.

Financial Reporting:

The AP will submit financial statements to the U of T Finance Department (Controller). There will be no financial audit required by the U of T Finance Department. The AP will also submit its

annual financial statements to Governing Council’s Business Board for information, as referenced in the latter’s Terms of Reference.

Financial Sustainability:

Table 11 outlines the financial sustainability metrics the AP will monitor after the first year of full operations.

TABLE 11: FINANCIAL SUSTAINABILITY METRICS

INDICATOR	DESCRIPTION	TARGET
Primary Reserve Ratio	A measure of financial viability and a broad measure of the liquidity	166 days The benchmark for this ratio is 0.40, or about 5 months.
Interest Burden Ratio	The ability to handle its outstanding debt.	≥1.52% (>3 better case; <1 worst case)
Viability Ratio 1.71.	is a direct measure of the amount of net assets available to cover the debt.	<1.71 (Less than 2 is good)

Key Partnerships

The following are AP key partnerships that will support AP’s mission and strategic goals by:

- Providing guidance on initiatives to strengthen engagement with students, faculty, staff, patients, families, and communities across all AP programs;
- Providing feedback into the AP strategic plans and business plans;
- Providing input on internal and external evaluations of AP activities;
- Participating in public relations activities with external community partners
- Providing advice on approaches to enhance the AP processes and their performance; and
- Fostering collaboration amongst key stakeholder groups.

Government

- Ontario Ministry of Health and Long-term Care
- Ontario Health
- Ontario Privacy Commission: PIPIDA
- Government Granting Agencies

Academic/ Hospitals

- Hospitals; Toronto Academic Health Science Network
- Students: undergraduate, graduate, international
- Health and Wellness Centre
- Other U of T Faculties: Dentistry, Architecture, Computer Science, Engineering, Nursing, Medicine, other allied health professions
- Ethics Review Boards
- Hospital Partners
- Other Pharmacy programs

Pharmacy Community

- Community Pharmacies
- Ontario College of Pharmacists
- Ontario Pharmacy Association

Industry

- Technology: Bell, Rogers, Telus
- Distributors: McKesson
- Third-party payers: GreenShield Canada, SunLife, Desjardins, Other
- Manufacturers

3.9 GOVERNANCE

The Academic Pharmacy will be structured as a not-for-profit corporation, as recommended by the provincial Pharmacy regulator. The University will be the sole member. The Academic Pharmacy Not-for-Profit Corporation can be viewed as roughly akin to an “Incorporated Business Ancillary” for purposes of Governing Council oversight. Its annual reports and audited financial statements will therefore be reviewed by Business Board annually.

The Business Board Terms of Reference indicate at s. 5.4 its responsibility for the “designation of incorporated or unincorporated units as ancillaries or termination of such designation.” Other responsibilities of Business Board are listed in s. 5.4 as follows:

- General financial policy on ancillaries
- For incorporated business ancillaries: review of annual reports and financial statements; approval of arrangements for incorporation; approval of capital spending and/or borrowing, as required by financial policy or the by-laws of the ancillary.

Academic oversight of the AP will remain with the Dean through her reporting to both the Faculty Council and to the Provost.

The AP will have its own Board of Directors, whose interdisciplinary members are appointed by the Executive Committee, University of Toronto. The recommendations for initial members of the Board of Directors include:

- Chair of the Board, Lisa Dolovich, Professor and Dean, LDFP
- Vice Chair of the Board, Natalie Crown, Assistant Professor, LDFP
- Vice President, Research, Zubin Austin, Professor, LDFP
- Vice President, Education, Aleksandra Bjelaja Mejia, Assistant Professor, LDFP
- Executive Director/CEO, Ernie Avilla, Project Development Lead, LDFP
- *Two Ex-officio Directors:* Deans or designates from other health science faculties at the University of Toronto., *ex-officio*

4.0 PART 4 - RISK ANALYSIS & MANAGEMENT PLAN

In collaboration with the Risk Management office at the University of Toronto, we have identified which factors impact key evaluation metrics for the AP and identified how each factor impacts these metrics by developing a pro-forma risk assessment model. The model assesses the volatility and certainty of these factors using qualitative measures.

During the development of the AP, it will be important to set corporate policies regarding acceptable level of risk and set procedures for monitoring and managing actual risk.

Risk Assessment Criteria

The areas of risk will be assessed based on the Impact of Risk identified occurring and the Likelihood (probability) (Table 12)

TABLE 12: IMPACT OF RISK AND LIKELIHOOD

Impact Rating	Descriptor	Definition
5	Extreme	<ul style="list-style-type: none"> FINANCIAL: loss of \$200K or more REPUTATION: International long-term negative media coverage LEGAL/REGULATORY: Significant prosecution and fines, litigation PHYSICAL HARM: Significant injuries or fatalities to students, faculty, staff, patients, other ORGANIZATIONAL: Multiple senior leaders leave
4	Major	<ul style="list-style-type: none"> FINANCIAL: loss of \$100K up to \$200K REPUTATION: National long-term negative media coverage LEGAL/REGULATORY: Report to regulatory requiring major project for corrective action PHYSICAL HARM Limited in-patient care required for students, faculty, staff, patients, other ORGANIZATIONAL: Some senior managers leave, high turnover of experienced staff, not perceived as employer of choice
3	Moderate	<ul style="list-style-type: none"> FINANCIAL: loss of \$50K up to 100K REPUTATION: National short-term negative media coverage LEGAL/REGULATORY Report of breach to regulator with immediate correction to be implemented PHYSICAL HARM: Out-patient medical treatment required for students, faculty, staff, patients, other ORGANIZATIONAL: Widespread staff morale problems and high turnover
2	Minor	<ul style="list-style-type: none"> FINANCIAL: loss of \$20K up to \$50K REPUTATION Local reputational damage LEGAL/REGULATORY Reportable incident to regulator, no follow up PHYSICAL HARM No or minor injuries to students, faculty, staff, patients, other ORGANIZATIONAL: General staff morale problems and increase in turnover

1	Incidental	<ul style="list-style-type: none"> • FINANCIAL: loss up < \$20K • REPUTATION: Local media attention quickly remedied • LEGAL/REGULATORY: Not reportable to regulator, no claims • PHYSICAL HARM: No injuries to students, faculty, staff, patients, other • ORGANIZATIONAL: Isolated staff dissatisfaction
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Likelihood Rating	Descriptor	Definition
5	Almost certain	<ul style="list-style-type: none"> • 90% or greater chance of occurrence
4	Likely	<ul style="list-style-type: none"> • 65% up to 90% chance of occurrence
3	Possible	<ul style="list-style-type: none"> • 35% up to 65% chance of occurrence
2	Unlikely	<ul style="list-style-type: none"> • 10% up to 35% chance of occurrence
1	Rare	<ul style="list-style-type: none"> • <10% chance of occurrence

PRIORITIZATION

LIKELIHOOD	5	10	15	20	25
	4	8	12	16	20
	3	6	9	12	15
	2	4	6	8	10
	1	2	3	4	5
	IMPACT				

RISK SCORE	DESCRIPTION	PRIORITY LEVEL
20-25	Critical	1
12-16	High	2
6-10	Moderate	3
1-5	Low	4

Risk Analysis

Table 13 outlines the risks and risk mitigation for the new academic pharmacy.

TABLE 13: RISKS AND RISK MITIGATION

RISK CATEGORY	RISK DESCRIPTION	RISK MITIGATION
Strategic	<ul style="list-style-type: none"> Unmet stakeholder expectations leading to poor reputation perception 	<ul style="list-style-type: none"> Consultative approach of all key stakeholders in the development process
Governance/ Organizational	<ul style="list-style-type: none"> Non-adherence or breach of U of T policies and procedures 	<ul style="list-style-type: none"> Appropriate governance structure and reporting Clear roles and responsibilities between corporation and U of T
Legal/ Regulatory	<ul style="list-style-type: none"> Non-compliance or breach of: Pharmacy Act; Ontario Regulation 202/94; Drug and Pharmacies Regulations Act Ontario government changes to pharmacy payments (eg, new administrative fees; discontinuation of MedsCheck Basic Annual and the MedsCheck for Diabetes) 	<ul style="list-style-type: none"> Accreditation Incorporate all OCP standards of practice and guidelines into corporate policies and procedures Develop new programs that are paid by Ontario government such as the transitions of care services.
Operational Risks (affects cashflows)	<ul style="list-style-type: none"> Demand risk - Actual demand for AP may fall short of anticipated demand Supply risk - Losses from not having adequate provision capacity to meet customer demand Competitive risk - Large pharmacies ¹ dominate the retail drug market results in low revenues 	<ul style="list-style-type: none"> Customer Segmentation Market research survey to students Ensure to obtain buy-in from faculty, students, staff and other key stakeholders during the development process Customer Segmentation Market research Ensure to obtain buy-in from faculty, students, staff and other key stakeholders during the development process Low-cost strategy; Differentiate AP – academic pharmacy; innovation; research Engage in collaborative projects with other industry

¹ For example, the Katz Group operates > 460 Rexall and Rexall Pharma Plus locations; McKesson owns IDA and Guardian pharmacies across Canada; Shoppers Drug Mart, owned by Loblaw, operates > 1,307 stores across Canada; Pharmasave includes 550 independently owned stores in nine provinces.

Financial Risks	<ul style="list-style-type: none"> • Profitability risk <p>Porter's five forces industry analysis:</p> <ul style="list-style-type: none"> • Threat of new entrants – medium • Threat of substitutes – high; natural remedies; lifestyle modifications • Bargaining power of customers –high; increasing customer awareness /expectations (internet) • Bargaining power of suppliers – medium • Intensity of rivalry – high (dominated by handful of large players; online drugstores) 	<ul style="list-style-type: none"> • Profitability depends on access to third-party payer groups • Need to find ways to benefit from economies of scale—for purchasing, access to large groups of customers. • Supplier relationships are important; need to establish strong, long-term relationships with suppliers
	<ul style="list-style-type: none"> • High Interest rates resulting in high costs of goods sold • Interest rates: 1.75% (overnight rates) • 100% U of T equity stake; no cost of borrowing 	<ul style="list-style-type: none"> • Low interest rates; Price of goods low; cost of borrowing low (if needed)
	<ul style="list-style-type: none"> • Lack of growth • Market growth rate: 7.9% annual growth (1998 and 2005 sales drugs; Stats Can); \$4.6 billion revenues in 2005. 	<ul style="list-style-type: none"> • Industry is concentrated, but academic pharmacy can compete effectively because of location, reputation and specializing in education and research excellence
Patient Care Delivery	<p>Medication incidents – any preventable event or error that reaches a patient and that may cause or lead to inappropriate medication use or patient harm.</p> <p>In Ontario, between Nov 2018 to Aug 2019, 4,426 medication safety events were recorded; 2,020 were incidents²: 5.5% Mild; 1.6%; Moderate; 0.3% Severe; 0% deaths</p>	<ul style="list-style-type: none"> • Insurance • Incident reporting – AIMS Program • Implement OCP guidelines • Plan quality: develop quality standards/policies • Quality assurance: identify when and where will we perform QA • Quality control activities: ongoing monitoring • Quality improvement: change control and process improvement processes • Training and Education: Pharmacy Risk Management • Pharmacists have their own personal liability insurance

² AIMS Data Snapshot September 2019 Available at: <https://www.ocpinfo.com/wp-content/uploads/2019/09/AIMS-data-snapshot-september-2019.pdf>

Research Misconduct	<ul style="list-style-type: none"> • Research misconduct will lead to reputation risk and legal risk • 39 cases of research misconducted reported per year (2009 report)³ 	<ul style="list-style-type: none"> • Ethics review • Citi Programs – Good Clinical Practice • Citi Programs - Social and Behavioral Research Course • Tri-Council Policy Statement – Ethical Conduct for Research Involving Humans Course (TCPS 2: CORE)
Experiential Education	<ul style="list-style-type: none"> • Student work-related injury or illness • 2 to 3 WSIB claims per year at LDFFP; majority are needle stick injuries 	<ul style="list-style-type: none"> • Faculty supervision • WSIB coverage • Site-specific safety orientation and training • Preventing and Addressing Workplace Bullying & Harassment training. • Additional training related to any hazards present or handled during the course of the work. • Ontario – Student Insurance for Practicum / Clinical Placement • Immunization • CPR/First Aid • Police Record Check/Vulnerable Sector Screening (PRC/VSS) • Ontario College of Pharmacists (OCP) Registration and ID Verification • Accident Insurance • Verification of Student Illness or Injury • Accessibility Standards • WHMIS Training Instructions
Technology risks	<ul style="list-style-type: none"> • Speed of technological changes; causing operational inefficiencies 	<ul style="list-style-type: none"> • Technology needs assessment • Technology plan that is modular, scalable • Select the most appropriate technology for high operational efficiency
	<ul style="list-style-type: none"> • Cyber threats • Average cost of a cyber breach in healthcare has been estimated at \$359 (US) per record 	<ul style="list-style-type: none"> • Cyber Security and Privacy Liability Insurance • Privacy impact assessment • Use of U of T secure network and services; firewalls; security protocols etc.
Privacy risk	<ul style="list-style-type: none"> • Potential risk of liability relating to privacy breaches involving personal health information • In Ontario, the <i>Personal Health Information Protection Act, 2004</i> (“PHIPA”) There is a statutory right to seek compensation through the Ontario Superior Court for breach of privacy • PHIPA further provides damages for mental anguish relating to breach of privacy, capped at \$10,000 • Cost of privacy breach notification and containment programs - notification of patients is mandatory under PHIPA. 	<ul style="list-style-type: none"> • Privacy impact assessment • Policies and procedures relating to privacy and security of personal health information • Training of staff, monitoring and auditing compliance with policies

³ The State of Research Integrity and Misconduct Policies in Canada. Prepared for the Canadian Research Integrity Committee. October 2009. Hickling Arthurs Low Consultants. Available at http://www.nserc-crsng.gc.ca/_doc/NSERC-CRSNG/HAL_Report_e.pdf

5.0 PRIVACY

In collaboration with the U of T Freedom of Information and Protection of Privacy (FIPP) Office, the LDFP will conduct a Privacy Impact Assessment (PIA) to ensure that privacy is top of mind in the design and implementation of the AP. This will include consideration of any digital health technologies used in the AP or used to transfer information between the AP to patients or other health care providers. The PIA will guide the development of policies and procedures relating to privacy and security of personal health information and the training of staff, monitoring and auditing compliance with policies. The scope of PIA legislative analysis is limited to applicable legislation in Ontario:

- *Ontario Personal Health Information Protection Act (PHIPA)*: is governed under the Ontario Personal Health Information Protection Act, 2004. PHIPA defines the responsibilities and accountabilities of Health Information Custodians (HICs) and other entities that collect, use and/or disclose PHI.
- *Health Information Protection Act, 2016, S.O. 2016, c. 6 - Bill 119*: is an Act to amend the Personal Health Information Protection Act, 2004, to make certain related amendments and to repeal and replace the Quality of Care Information Protection Act, 2004
- *Ontario Regulation 329/04 (O.Reg 329/04)*: is a regulation pursuant to PHIPA. It elaborates on the prescribed requirements for compliance with specific sections of the Act.
- *Ontario Freedom of Information and Protection of Privacy Act (FIPPA)*: applies to public bodies defined in regulations.
- *Personal Information Protection and Electronic Documents Act (PIPEDA)*: federal legislation that applies to information collected, used and disclosed during the course of commercial activities, except where substantially similar provincial legislation exists. The Act does not generally apply to the delivery of health care by publicly funded health care facilities such as hospitals but may apply to pharmacies.

FIGURE 2: The Academic Pharmacy System Conceptual Design

STAKEHOLDERS: Patients, Learners, Educators, HCPs, Researchers



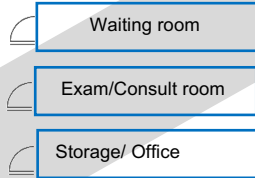
OFFLINE: Bricks-and-mortar

On-site

Pharmacy

- Dispensing (Limited)
- Medication management
- Population health
- Chronic disease management
- Mental health management
- Travel health services
- Reproductive health management
- Infectious disease management
- Other

Pharmacy floor



Care Delivery Services

- Immunizations
- Prescribing for minor ailments
- MedsCheck transitions of care
- Acute care for minor ailments
- Consults: Mental Health, Health Promotion, Chronic Disease, Smoking Cessation, Other

Teaching & Learning

- Experiential learning through direct patient care
- Direct observation of student core competencies
- Standardize preceptor skills
- Interprofessional collaboration

Research & Innovation

- Program evaluation
- Health outcomes
- Student learning outcomes
- Teaching effectiveness
- Insight into pharmacy practice, pharmaceuticals and medication use

Care team

- Pharmacists
- Pharmacy techs
- Learners
- Educators/Preceptors
- Scientists
- Other Healthcare Professionals
- Administrative



Community Education

- Nutrition
- Physical activity
- Health technology

- Experiential learning
- Community engagement
- Direct observation of student communication and leadership skills

- Consumer response
- Sustainability
- Knowledge translation



Retail

- Acute medications: OTC cold & flu, pain management

- Practice management skills

- Test innovations in the delivery of pharmacy services



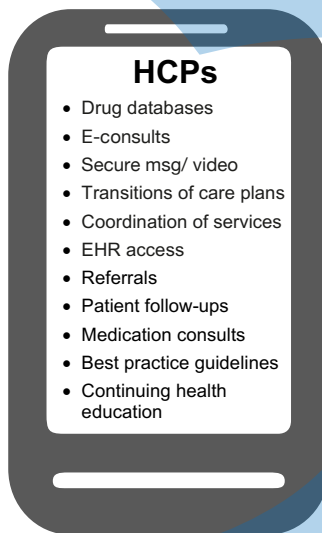
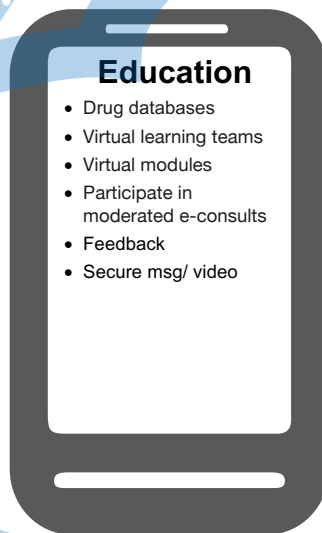
Automated service

- Dispensing kiosks
- Telepharmacy

- Health technology effectiveness

- Analytics

ONLINE



External support

- Regulatory and compliance
- Payers/Employers

- Providers

Internal support

- Command center
- Integrated systems (clinical, CRM, loyalty programs, etc.)

EXHIBIT 1: STRATEGIC GOALS STRUCTURE

Components	Towards 2030 & Research Strategic PLAN	LDFP 2021 Forward Together	AP Goals
Education	<p>Rethinking Undergraduate Education</p> <ul style="list-style-type: none"> • Prepare students effectively for lifelong success • Demonstrate how our teaching programs prepare students for successful careers and create larger societal benefit • Anticipate, leverage recent developments in teaching and learning technologies 	<p>Advance Education Programs that Develop Leaders for Diverse and Emerging Careers</p> <ul style="list-style-type: none"> • Create multiple individualized academic pathways that leverage the diversity and expertise of our faculty members and prepare students for a variety of emerging careers and practices. • Foster a culture of evidence-informed continuous program improvement that elevates the quality of our student experience and establishes us as a North American leader in pharmacy and pharmaceutical sciences education. <p>Lead Innovations in Pharmacy and Pharmaceutical Science Education and Learner Engagement</p> <ul style="list-style-type: none"> • Develop and integrate novel education strategies and technologies to optimize the learning experience. • Optimize practice-based/practicum-based learning. • Ensure the curriculum nurtures self-direction and collaborative decision-making through active learning. 	<ul style="list-style-type: none"> • To prepare individuals to enter a variety of emerging careers and practices and function as a professional • To enrich the student academic experience through experiential learning that will enhance knowledge, skills and professional values and attitudes
Research	<ul style="list-style-type: none"> • Engaging students and trainees in research experiences that prepares them for a broad set of roles in society; • Ensuring that all our undergraduate and professional students have opportunities to engage in research and innovation experiences; • Supporting engagement and inclusive collaboration with peer institutions and a diverse array of industry, professional, public sector, government, community, and civil society partners; • Communicating and celebrating the value of our research and innovation achievements. 	<p>Grow Our Scientific Impact</p> <ul style="list-style-type: none"> • Invest in our infrastructure to support our core research areas. • Increase the impact of our research. • Increase the visibility of our research. 	<ul style="list-style-type: none"> • To contribute to understanding and knowledge about pharmacy practice, pharmaceuticals and medication use processes • To carry out vital research and test innovations in the delivery of pharmacy services • To facilitate knowledge translation that informs the public/patients, the profession of pharmacy, educators, other health care professions, government, industry and regulatory partners
service	<p>Institutional Approach to Improving Student Experience</p> <ul style="list-style-type: none"> • Enhance programming and services to improve student experience and student outcomes; include focused efforts in: health and wellness services including mental health, preventing and responding to sexual violence and sexual harassment, study abroad opportunities, international student experience, and graduate student initiatives. 		<ul style="list-style-type: none"> • To provide evidenced based pharmacy care to patients and advance education and research • To build partnerships with community pharmacies to foster coordinated care for the patients it serves • To provide pharmacy services that are financially viable and sustainable to optimize medication use, promote wellness and disease prevention.

EXHIBIT 2: ACADEMIC PHARMACIES IN CANADA

Location	Start Year	# patients	# students	Services	Location	Technology	Staff	Accred	Research conducted
UBC	2013	8660	463	<ul style="list-style-type: none"> • No dispensing • Medication review • Vaccines • Interprofessional Collaboration (care plans created and shared) • Group education events, outreach education and health awareness initiatives (influenza, medications return, travelling health fairs) 	On campus	<ul style="list-style-type: none"> • Kroll • PharmaNet • Oscar EMR • Excelleris 	<ul style="list-style-type: none"> • 1.0 FTE Director • 1.0 FTE Admin • 2.8 FTE patient care practitioner 	YES	YES
UofSask	2011	527	UNK	<ul style="list-style-type: none"> • No dispensing • Medication Review • Group patient education session • Interprofessional collaboration • Hypnotic tapering/insomnia • CBT • Smoking Cessation 	On campus	<ul style="list-style-type: none"> • MedAccess 	<ul style="list-style-type: none"> • 1.0 FTE pharmacist • 0.2 FTE pharmacist • 0.01 FTE Registered dietician • 0.3 FTE Admin 	UNK	YES
Memorial	2016	780	UNK	<ul style="list-style-type: none"> • No dispensing • Medication review • Deprescribing program • Adverse effect and drug interaction management • Medication adherence supports and education • Consultative services for medication tapering • Injection services • Smoking Cessation program • Specialized pharmacist services for community groups including workplace health visits, special patient groups 	Off-campus	<ul style="list-style-type: none"> • MediTech • HealthNL 	<ul style="list-style-type: none"> • 1.0 FTE Advisor on practice innovation • 1.5 FTE Pharmacists • 1.0 FTE Admin • 1.0 FTE Research Assistant 	YES	YES

EXHIBIT 3: CUSTOMER SEGMENTS

	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6
DESCRIPTI ON	Students who access Health and Wellness Centre	St. George campus students in residences	St. George student commuters	Mississauga campus students in residences	Scarborough campus student in residences	Faculty/staff
Services Used	Birth control; mental health; flu shot; sports injury/pain		UNK	UNK	UNK	UNK
Demographic	43% undergrad 34% graduate 23% international	UNK	43% Toronto 8.3% North York 6.5% Scarborough 6.5% Mississauga Distance from Campus 16% less than 1km 21% 1 – 3 km 10% 4 – 6 km 9% 7 – 10 km 44% - >11 km	UNK	UNK	UNK

EXHIBIT 4: END USER ISSUES AND NEEDS

END USER	Patients (U of T Students)	Pharmacy Students (U of T)	Community Pharmacists
ISSUES	<ul style="list-style-type: none"> • Lack of coordination of services between on-campus and off-campus services • Long wait times • Lack of coordination within university health services (physio, psych, mental health) • Risk of medication misuse (opioids) • Privacy/ conflict of interest with patients who are students or faculty members • Students who live off-campus would not use services 	<ul style="list-style-type: none"> • Minority of pharmacy students access student health services • Long wait times • Lack of coordination of university services (physio, psych) • Privacy/ conflict of interest with patients who are students or faculty members 	<ul style="list-style-type: none"> • Lack of coordination of delivery of patient care/ medication management • Lack of communication between AP & Community Pharmacy
NEEDS	<ul style="list-style-type: none"> • Central location • Extended hours of operation (access after classes) • Quick service; “one-stop shop” • Patient education (adverse effects, meds management, health promotion; impact on health) • Ability to share or transfer prescription from another pharmacy • Healthcare system navigator for out of province or international students 	<ul style="list-style-type: none"> • Opportunities to be exposed to innovative ways to deliver pharmacy services • Direct patient care experience • Working with interprofessional teams and other healthcare students (nurses; medicine) • Opportunity to conduct research • Opportunity to learn from peers at different levels of pharmacy program • Opportunity for future employment • Clear roles/responsibilities, structures/ processes 	<ul style="list-style-type: none"> • Opportunities to be exposed to innovative ways to deliver pharmacy services • Financial incentives • Larger role in patient follow-up

EXHIBIT 5: REVENUE ESTIMATE

	n	%S	Rx dispensed	%S	PO	%S	MCA	%S	MCD	%S	MCA-F	%S	MCD-F	%S	Influenza	%S	SC	%S	SC-F initial	%S	SC-F	%S	HC	%S	HC-F
Fee			\$9		\$15		\$60		\$75		\$25		\$25		\$8		\$40		\$15		\$10		\$60		20
Estimated number of Rx/visits per year			6		1		1		1		1		1		1		1		3		4		1		3
Students n=(91,286)	91286	0.05	\$246,472	0.01	13,693	0.01	\$54,772	0.01	\$34,232	0.01	\$22,822	0.005	\$11,411	0.05	\$36,514	0.02	\$73,029	0.02	\$82,157	0.02	\$73,029	0	\$0	0	\$0
Faculty (N=3442)	3442	0.05	\$9,293	0.02	\$1,033	0.02	\$4,130	0.01	\$2,582	0.02	\$1,721	0.01	\$861	0.05	\$1,377	0.01	\$1,377	0.01	\$1,549	0.01	\$1,377	0.02	\$4,130	0.02	\$4,130
Staff (N=6799)	6799	0.05	\$18,357	0.02	\$2,040	0.02	\$8,159	0.02	\$10,199	0.02	\$3,400	0.02	\$3,400	0.05	\$2,720	0.01	\$2,720	0.01	\$3,060	0.01	\$2,720	0.02	\$8,159	0.02	\$8,159
TOTAL			\$274,123		\$16,765		\$67,061		\$47,012		\$27,942		\$15,671		\$40,611		\$77,125		\$86,766		\$77,125		\$12,289		12,289
																									754,779

LEGEND

%S	Percent served
PO	Pharmaceutical opinion
MCA	MedsCheck Annual
MCD	MedsCheck Diabetes
SC	Smoking cessation
HC	Health Coaching
F	Follow up

Other services not yet considered but could also be possible revenue sources:

- Travel
- Minor ailments
- Health Coaching - deprescribing

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APPENDIX I - OPPCAT

APPENDIX II – Experiential Supervision of Pharmacy Students

APPENDIX III – Articles of Incorporation (DRAFT)

APPENDIX IV – Corporate Bylaws (DRAFT)

APPE - Direct Patient Care Assessment Form (2019)

General overview

The assessment form is used to document **comments after each Domain** about the specific learner's performance during the rotation, and then to **select corresponding ratings** in support of these comments. The form is completed at midpoint and again at the conclusion of the rotation. There are 5 Domains with a total of 20 Elements to consider. Please assess the learner in each Element and then provide an Overall assessment rating at the end of the form.

If you select N/A for any element, please provide a brief explanation. On the final assessment, an explanation for N/A responses are required for submission.

For guidance on the expected level of independence and patient load/volume, please refer to the [Expected level of performance](#) document

For definition of terms, please refer to the [Glossary](#), or hover directly over the element description (for example, 1.1 Develops Patient Relationships).

Patient Care

MIDPOINT

FINAL

1.1 Develops Patient Relationships

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Unable to form a professional relationship with patients; OR Adopts paternalistic or uncaring roles with patients; OR Places personal values over patient's values.	With significant guidance, able to develop superficial professional, patient-centred relationships with patients.	With some guidance, effectively develops and maintains professional, patient-centred relationships with patients.	With minimal guidance, consistently and effectively develops and maintains professional, patient-centred relationships with patients.	Independently determines and develops the professional relationship appropriate for patients.

1.2 Conducts Patient Assessments

1	2	3	4	5
Conducts patient assessments in a minimally flexible or unstructured manner resulting in ineffective or incomplete assessments.	With significant guidance, conducts patient assessments effectively and in a thorough manner.	With some guidance, conducts patient assessments effectively and in a thorough manner.	With minimal guidance, consistently conducts patient assessments effectively in a	Independently adapts patient assessment approaches according to patient needs.

NO SCORE SELECTED

NO SCORE SELECTED

thorough and
concise manner.

1.3 Identifies Drug Therapy Problems (DTPs)

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Demonstrates critical gaps in knowledge and skills required to identify DTPs.	With significant guidance, identifies primary DTPs .	With some guidance, identifies most DTPs . May not always prioritize DTPs appropriately.	With minimal guidance, effectively identifies most DTPs and appropriately prioritizes them.	Independently, effectively identifies and appropriately prioritizes all DTPs , even on matters of complexity .

1.4 Makes Clinical Decisions

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Demonstrates gaps in knowledge and routinely relies on inappropriate literature resulting in an inability to make decisions; OR Regularly demonstrates poor judgment.	Effectively assesses and reviews appropriate literature. Inconsistently or with significant guidance demonstrates judgment in decision-making and provides recommendations.	Effectively assesses and reviews appropriate literature. With some guidance demonstrates judgment in decision-making and provides recommendations.	Effectively assesses and reviews appropriate literature. Consistently and with minimal guidance demonstrates judgment in decision-making and provides recommendations	Independently demonstrates appropriate judgment in decision-making and provides recommendations that incorporate potential systems factors .

1.5 Implements Care Plans

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Unable to develop a care plan; OR Develops care plans that are incomplete, non-specific, unrealistic, or do not foster patient autonomy.	With significant guidance, develops care plans that are safe, effective, and respectful of patient autonomy. Care plans are ineffectively and/or inconsistently implemented.	With some guidance, develops care plans that are safe, effective, and respectful of patient autonomy. Care plans are implemented effectively most of the time .	With minimal guidance, develops comprehensive care plans. Care plans are effectively and consistently implemented.	Independently develops comprehensive and concise care plans. Care plans are effectively and consistently implemented.

1.6 Refers Patients

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Provides care or services beyond their scope of practice ; OR Does not recognize patients who require referral; OR Refers patients to an inappropriate care provider.	With significant guidance, identifies patients who require referral and makes referrals to the appropriate care provider.	With some guidance, identifies patients who require referral, makes referrals to the appropriate care providers, and provides basic rationale for the referral.	With minimal guidance, consistently identifies patients who require referral, makes referrals to the appropriate care providers, and provides complete rationale for the referral.	Demonstrates a clear understanding of the roles and responsibilities of a wide range of health care providers by making appropriate and justified referrals.

1.7 Provides Follow-up and Evaluates Care

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Does not provide follow-up care to patients.	With significant guidance, provides follow-up care to patients and occasionally evaluates the effectiveness and safety of the care provided.	With some guidance, provides comprehensive follow-up care to patients and evaluates the effectiveness and safety of the care provided most of the time .	With minimal guidance, provides comprehensive follow-up care to patients and consistently evaluates the effectiveness and safety of the care provided.	Independently provides comprehensive follow-up care to patients and evaluates the outcomes. Incorporates systems factors for improvement of patient follow-up processes .

1.8 Promotes / Advocates for Patient Health & Wellness

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Demonstrates a lack of awareness of or minimizes their responsibility for, promoting patient health and wellness.	Demonstrates an awareness of their responsibility for promoting patient health and wellness. With significant guidance, effectively engages in the provision of professional services that aim to promote	Demonstrates an awareness of their responsibility for promoting patient health and wellness. With some guidance, effectively engages in the provision of professional services that aim to promote	Demonstrates an awareness of their responsibility for promoting patient health and wellness. With minimal guidance, consistently and effectively engages in the provision of professional services	Independently seeks out current information on health and wellness promotion and actively incorporates activities related to these goals in their daily practice.

	patient health and wellness.	patient health and wellness.	that aim to promote patient health and wellness.	
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Patient Care Comments (Midpoint): ***Comment Required**

Patient Care Comments (Final): ***Comment Required**

Communication & Education

MIDPOINT

FINAL

2.1 Demonstrates Communication Skills (Verbally and Non-verbally)

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Uses their communication skills in a formulaic or unstructured manner, resulting in potentially ineffective interventions.	With significant guidance, utilizes appropriate communication skills to fulfill their professional responsibilities.	With some guidance, utilizes appropriate communication skills to fulfill their professional responsibilities. Unable to consistently adapt their communication skills to address difficult communication situations.	With minimal guidance, utilizes appropriate communication skills to fulfill their professional responsibilities and consistently addresses difficult communication situations.	Demonstrates an ease of communication and able to adapt to situations presented by specific patients.

2.2 Completes Documentation

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Completes written documentation that is incomplete, unclear or inaccurate.	With significant guidance, completes documentation clearly, accurately and in an audience-appropriate format.	With some guidance, completes documentation clearly, accurately and in an audience-appropriate format.	With minimal guidance, completes documentation clearly, accurately, concisely and in an audience-appropriate format.	Independently completes documentation clearly, accurately, concisely and in an audience-appropriate format.

2.3 Demonstrates Presentation Skills

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5

Appears unprepared or disorganized when presenting information or does not abide by time frames.	Presents information in an organized fashion. Appears overly confident or shy throughout presentation. With significant guidance, able to respond to audience questions.	Presents information in a timely, professional and effective manner, although does not always appear confident . With some guidance, able to respond to audience questions.	Presents information in a timely, professional and effective manner with appropriate level of confidence. With minimal guidance responds effectively to audience questions.	Adapts presentation to engage the audience, maximize participation and meet learning needs. Independently responds effectively to audience questions.
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Communication & Education Comments (Midpoint): ***Comment Required**

Communication & Education Comments (Final): ***Comment Required**

Professionalism

Learners will be expected at all times to adhere to the University of Toronto's [Standards of Professional Practice Behaviour for all Health Professional Students](#).

View examples of [appropriate](#) and [inappropriate](#) professional behaviour. Lapses in professionalism should be detailed in the Comments field below.

MIDPOINT

FINAL

3.1 Applies Regulations & Ethical Principles in Practice

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Lacks understanding of fundamental regulations and ethical principles.	Demonstrates understanding of regulations, standards of practice and ethical principles. With significant guidance, detects and resolves actual situations presenting ethical issues AND accepts responsibility and accountability for own decisions and actions.	Demonstrates understanding of regulations, standards of practice and ethical principles. With some guidance effectively detects and resolves actual situations presenting ethical issues AND accepts responsibility and accountability for own decisions and actions.	Demonstrates understanding of regulations, standards of practice, and ethical principles. With minimal guidance effectively detects and resolves actual situations presenting ethical issues AND accepts responsibility and accountability for own decisions and actions.	Independently detects and resolves all actual and potential situations presenting ethical issues effectively AND accepts responsibility and accountability for own decisions and actions.

NO SCORE SELECTED

NO SCORE SELECTED

3.2 Demonstrates an Awareness of One's Own Practice Limitations

1	2	3	4	5
Is not conscious of gaps in own knowledge or skills, practice limitations or need to seek assistance.	Occasionally able to identify when own knowledge and experience is insufficient to manage own practice. With significant guidance, seeks and implements strategies to practice effectively.	Consistently able to identify when own knowledge and experience is insufficient to manage own practice. With some guidance, seeks and implements strategies to practice effectively.	Consistently able to identify when own knowledge and experience is insufficient to manage own practice. With minimal guidance, seeks and implements strategies to practice effectively.	Routinely incorporates self-reflection and openly seeks opportunities and resources to enhance own practice.

3.3 Demonstrates Professional Behavior

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Demonstrates unprofessional behaviour and attitude; OR Lacks self-management/discipline behaviours	Inconsistently demonstrates professional behaviour and attitude; OR With significant guidance, demonstrates self-management/discipline behaviours.	Consistently demonstrates professional behaviour and attitude. With some guidance, demonstrates self-management/discipline behaviours.	Consistently demonstrates professional behaviour and attitude. With minimal guidance, demonstrates self-management/discipline behaviours.	Consistently demonstrates professional behaviour and attitude. Independently demonstrates self-management/discipline behaviours.

Professionalism Comments (Midpoint): ***Comment Required**

Professionalism Comments (Final): ***Comment Required**

Professional Collaboration

MIDPOINT

FINAL

4.1 Develops and Promotes Inter-/ Intra-professional Relationships

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5

<p>Unable to form inter-/intra-professional relationships OR demonstrates behaviors or attitudes that negatively impact these relationships.</p>	<p>With significant guidance, demonstrates interpersonal skills required for inter-/intra- professional relationships.</p>	<p>With some guidance, demonstrates interpersonal skills required for inter-/intra- professional relationships.</p>	<p>With minimal guidance, consistently demonstrates interpersonal skills required for inter-/intra- professional relationships</p>	<p>Independently promotes inter-/intra-professional collaboration to foster a team relationship.</p>
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4.2 Fulfills Professional Roles & Responsibilities within Healthcare Team

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
<p>Is unclear of own professional roles and responsibilities or unable to perform them.</p>	<p>With significant guidance, accurately articulates and fulfills own professional roles and responsibilities.</p>	<p>With some guidance, accurately articulates and fulfills own professional roles and responsibilities.</p>	<p>With minimal guidance, accurately articulates and fulfills own professional roles and responsibilities.</p>	<p>Independently fulfills own professional roles and responsibilities and advocates for advancement of the profession through collaborative relationships.</p>

4.3 Demonstrates Leadership

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
<p>Does not demonstrate leadership abilities when appropriate or required.</p>	<p>With significant guidance, contributes to the overall team and systems management of patients. Demonstrates initiative in managing assigned patients within the healthcare team consistent with the pharmacist's role and the team's objectives.</p>	<p>With some guidance, contributes to the overall team and systems management of patients. Demonstrates initiative in managing assigned patients within the healthcare team consistent with the pharmacist's role and team's objectives.</p>	<p>With minimal guidance, contributes to the overall team and systems management of patients. Demonstrates initiative in managing assigned patients within the</p>	<p>Independently shows initiative in creating and leading inter-professional teams.</p>

			healthcare team consistent with the pharmacist's role and team's objective.	
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Professional Collaboration Comments (Midpoint): ***Comment Required**

Professional Collaboration Comments (Final): ***Comment Required**

Practice Management

MIDPOINT

FINAL

5.1 Prioritizes Patient Care Responsibilities to Manage Patient Workload

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Unable to prioritize patient care. Focuses on technical or distributive functions.	With significant guidance, prioritizes patient care and manages expected patient workload within reasonable time frames to ensure patients receive optimal care.	With some guidance, prioritizes patient care and manages expected patient workload within reasonable time frames to ensure patients receive optimal care.	With minimal guidance, prioritizes patient care and manages expected patient workload within reasonable time frames to ensure patients receive optimal care.	Independently prioritizes patient care and manages higher-than-expected patient workload within reasonable time frames to ensure patients receive optimal care.

5.2 Manages Drug Dispensing

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Assumes roles that disrupt the effectiveness and safety of the drug dispensing system.	With significant guidance, takes responsibility to ensure that all medications are appropriate, accurate, effective, and safe and provided in a manner consistent with all legal requirements. Practice is limited to technical aspects of drug dispensing.	With some guidance, takes responsibility to ensure that all medications are appropriate, accurate, effective, and safe and provided in a manner consistent with all legal requirements.	With minimal guidance, takes responsibility to ensure that all medications are appropriate, accurate, effective, and safe and provided in a manner consistent with all legal requirements.	Independently takes responsibility for and incorporates systems factors to improve the safety and effectiveness of the drug dispensing system.

5.3 Demonstrates Patient and Medication Safety

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Engages in unsafe practices, which may result in near misses or medication incidents. Unable to recognize unsafe / sub-optimal practices OR does not recognize own responsibility to manage unsafe practices.	Inconsistently recognizes unsafe practices. With significant guidance, accepts responsibility for addressing unsafe / sub-optimal practices and managing near misses or medication incidents.	Consistently evaluates own practice, recognizing unsafe or suboptimal practices. With some guidance, accepts responsibility for addressing unsafe / sub-optimal practices and managing near misses or medication incidents.	Consistently evaluates own practice, recognizing unsafe or suboptimal practices. With minimal guidance, accepts responsibility for addressing unsafe / suboptimal practices and effectively manages near misses or medication incidents.	Seeks out and leads formal practice analyses for the purposes of patient safety, continuous quality assurance, and practice improvement to prevent similar situations in the future.

Practice Management Comments (Midpoint): ***Comment Required**

Practice Management Comments (Final): ***Comment Required**

Overall Rating

At the **mid-point assessment**, if the overall rating and/or individual Element ratings are **below '3'**, the learner is at risk of FAILING the rotation; this learner must prepare, in consultation with the preceptor and Experiential Course Coordinator, a revised Learning Contract within 3 days following the mid-point.

At the **final assessment**, if the overall rating is **below '3'**, and/or individual Element ratings are below '3', the Experiential Course Coordinator may consult with the learner and preceptor for further clarity of comments/ratings. Specific comments with corresponding low rating(s) will normally support a rotation grade of **'FAIL'**.

For further information, please view the [Grading Policy](#).

MIDPOINT

FINAL

Please provide an overall rating for the learner:

NO SCORE SELECTED

NO SCORE SELECTED

1	2	3	4	5
Several critical or significant gaps identified that	Requires significant guidance at the expected level. Some gaps identified that	Demonstrates competence to practice safely and effectively	Competent to practice safely and effectively with minimal guidance	Competent to practice at a high level,

require development.	require further focused development.	with some guidance at the expected level.	at the expected level.	beyond the expected level.
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Overall Rating Comments (Midpoint): ***Comment Required**

Overall Rating Comments (Final): ***Comment Required**

NOTE ABOUT THIS FORM

Developed by the Ontario Pharmacy Patient Care Assessment Tool (OPPCAT) group, which includes representatives from the Ontario College of Pharmacists (OCP), University of Toronto (U of T), University of Waterloo (UW), and Hospital Pharmacy Residency Forum of Ontario (HPRFO). Permission from the authors is required to copy or adapt the assessment form.

MIDPOINT

FINAL

NO SCORE SELECTED

NO SCORE SELECTED

SUPERVISION OF PHARMACY STUDENTS & INTERNS FACT SHEET¹

Published: July 2014

Legislative References: Pharmacy Act, O. Reg 202/94

Additional References: Drug & Pharmacies Regulation Act, R.S.O., 1990, Chapter H.4

College Contact: Pharmacy Practice / Registration Programs

PHARMACY ACT REGULATIONS

1. *“direct supervision” means supervision that is provided by a person [i.e. pharmacist] who is physically present on the premises where the practice that is being supervised is being carried out*

DRUG & PHARMACIES REGULATION ACT

149. (1) *“no person shall compound, dispense or sell any drug in a pharmacy other than,*

- a. a pharmacist;*
- b. an intern under the supervision of a pharmacist who is physically present; or*
- c. a registered pharmacy student acting under the supervision of a pharmacist who is physically present; or*
- d. a pharmacy technician acting under the supervision of a pharmacist who is physically present”*

INTERPRETATION

The requirement for supervision of students and interns by a pharmacist is outlined in the terms, conditions and limitations of their certificates of registration; and the type of supervision, direct or otherwise, is reflective of the accreditation status of the pharmacy. Accredited pharmacies require a pharmacist to be physically present where the authorized acts of compounding, dispensing and selling are occurring.

The model of graduated experiential learning leading to pharmacist registration recognizes that the degree of oversight on the student/intern’s practice is adjusted based on his or her demonstration of competence. Supervision is not a one-size-fits-all approach, and requires the active engagement of all participants to ensure a quality learning environment while maintaining best possible patient care.

The principles outlined below are provided to assist in determining the level of supervision required and to fulfill the requirements of the Act and Regulations. They will also facilitate student/intern learning through more independent practice.

¹ The aforementioned information is from the OCP website: <http://www.ocpinfo.com/practice-education/practice-tools/fact-sheets/supervision/>

PRINCIPLES

1. Supervising pharmacist(s) to assess each student/intern individually by:
 - a. Considering student/intern's level of education and experience
 - b. Evaluating student/intern's competence in relevant areas of practice.
2. Supervising pharmacist(s) and student/intern to discuss and agree to:
 - a. Types of activities that can be performed independently
 - b. Extent to which these activities can be performed without the physical presence of a supervising pharmacist (off-site)

Exceptions:

 - Authorized acts of compounding, dispensing, selling cannot be done without a pharmacist physically present
 - Student / intern cannot practice remotely on an exclusive basis
 - c. Extent of communication and collaboration expected between the supervising pharmacist(s) and student/intern when engaging in various activities
 - d. Common understanding of expectations and consequences of independent practice
 - Supervisor takes on accountability / responsibility for student/intern's practice by granting more independence based on their assessment
 - Student/intern takes on significant accountability / responsibility by practicing independently. Should only engage in independent practice when competent, and seek assistance from the supervising pharmacist as needed.
3. Document & retain:
 - a. Details and date of the agreement as outlined in # 2 above
 - b. All future re-assessments that may impact level of supervision required

Written agreement should be shared with other individuals supervising the practice of the student/intern for acknowledgement

4. Supervising pharmacist(s) should be clearly identified and auditable
 - a. Documentation should be available to readily determine who the supervising pharmacist was at any point the student/intern was engaging in independent practice

Key Words: supervision, student, intern

LEGAL AUTHORITY FOR SCOPE OF PRACTICE/AUTHORIZED ACTS



**Canada Not-for-profit Corporations Act (NFP Act)
FORM 4001
ARTICLES OF INCORPORATION**

1a - Corporate name

DISCOVERY PHARMACY INC.

1b - Corporate name in the other official language (if applicable)

2 - The province or territory in Canada where the registered office is situated

Ontario

3 - Minimum and maximum number of directors (for a fixed number, indicate the same number in both boxes)

Minimum number

3

Maximum number

10

4 - Statement of the purpose of the corporation

The purpose of the Corporation is to operate a pharmacy that will provide health care programs delivered by members of more than one health discipline (pharmacy, medicine, nursing, social work) embedded within the University of Toronto's interdisciplinary health care education and research eco-system, so as to provide a training venue to educate students in health and other disciplines, conduct medication and health care services research and to support the physical, mental health and overall wellness of University of Toronto's faculty, staff, students and wider community.

5 - Restrictions on the activities that the corporation may carry on, if any

None.



**Canada Not-for-profit Corporations Act (NFP Act)
FORM 4001
ARTICLES OF INCORPORATION**

6 - The classes, or regional or other groups, of members that the corporation is authorized to establish

The Corporation is authorized to establish one class or group of members.

7 - Statement regarding the distribution of property remaining on liquidation

Upon dissolution and after the payment of all debts and liabilities, all remaining assets will be given to one or more qualified donees described in subsection 149.1(1) of the Income Tax Act (Canada), as amended from time to time, or any successor provision of like import.

8 - Additional provisions, if any

1. The Corporation shall be carried on without the purpose of gain for its members, and any profits or other accretions to the Corporation shall be used in furtherance of its purposes.

9 - Declaration

I hereby certify that I am an incorporator of the corporation.

Print name(s)	Signature(s)
The Governing Council of the University of Toronto	

Note: A person who makes, or assists in making, a false or misleading statement is guilty of an offence and liable on summary conviction to a fine of not more than \$5,000 or to imprisonment for a term of not more than six months or to both (subsection 262(2) of the NFP Act).

BY-LAW NO. 1

A by-law relating generally to the conduct of the affairs of

**DISCOVERY PHARMACY INC.
(the "Corporation")**

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Part Eleven	-	Other
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BE IT ENACTED AND IT IS HEREBY ENACTED as a by-law of the Corporation
as follows:

PART ONE

GENERAL

1.1 Definitions

In this by-law and all other by-laws of the Corporation, unless the context otherwise requires:

- **"Act"** means the *Canada Not-for-profit Corporations Act* S.C. 2009, c.23 including the Regulations made pursuant to the Act, and any statute or regulations that may be substituted, as amended from time to time;
- **"articles"** means the original or restated articles of incorporation or articles of amendment, amalgamation, continuance, reorganization, arrangement or revival of the Corporation;
- **"board"** means the board of directors of the Corporation and **"director"** means a member of the board;
- **"by-law"** means this by-law and any other by-laws of the Corporation as amended and which are, from time to time, in force and effect;
- **"meeting of members"** includes any and all meetings of members, including annual meetings of the membership or a special meeting of all members; **"special meeting of members"** includes a special meeting of all members entitled to vote;
- **"member" or "members"** means all admitted individuals, partnerships, corporations, firms, societies, organizations and agencies approved by the Corporation's board to form the Corporation's membership;
- **"ordinary resolution"** means a resolution passed by a majority of not less than 50% plus 1 of the votes cast on that resolution;
- **"proposal"** means a proposal submitted by a member of the Corporation that meets the requirements of section 163 of the Act;
- **"Regulations"** means the regulations made under the Act, as amended, restated or in effect from time to time; and
- **"special resolution"** means a resolution passed by a majority of not less than two-thirds (2/3) of the votes cast on that resolution.

1.2 Interpretation

In the interpretation of this by-law, words in the singular include the plural and vice-versa, words in one gender include all genders, and "**person**" includes an individual, body corporate, partnership, trust and unincorporated organization.

Other than as specified in Section 1.1 above, words and expressions defined in the Act have the same meanings when used in these by-laws.

1.3 Registered Office

Until changed in accordance with the Act, the registered office of the Corporation shall be located within the province in Canada designated in the articles.

1.4 Corporate Seal

The Corporation may have a corporate seal in the form approved from time to time by the board. If a corporate seal is approved by the board, the Secretary of the Corporation shall be the custodian of the corporate seal.

1.5 Execution of Documents

Deeds, transfers, assignments, contracts, obligations and other instruments in writing requiring execution by the Corporation shall be signed by any two officers or directors and shall be binding on the Corporation without any further formality. In addition, the board may from time to time direct the manner in which and the person or persons by whom a particular document or type of document shall be executed. Any person authorized to sign any document may affix the corporate seal (if any) to the document. Any officer may certify a copy of any instrument, resolution, by-law or other document of the Corporation to be a true copy thereof.

1.6 Financial Year-End

The financial year-end of the Corporation shall be determined by resolution of the board.

1.7 Banking and Security

The board may by resolution appoint one or more banks or trust companies for the Corporation and open such accounts as the board considers advisable. The board may by resolution give the Corporation's power of attorney to a registered dealer in securities for the purpose of transferring stocks, bonds and other securities owned by the Corporation. All monies, securities and other valuable effects of the Corporation shall be deposited in the name and to the credit of the Corporation in such banks or trust companies, or in the case of securities, in such registered dealers in securities as may be designated by the board.

1.8 Books and Records

The board shall ensure that the Corporation regularly and properly maintains at the Corporation's registered office all the books and records required by its by-laws or by any applicable statute or law, which include proper books of account and accounting records, the

minutes of all meetings of members, directors and the Executive Committee (if any), copies of the articles, by-laws and special resolutions of the Corporation and registers of its members and directors.

1.9 Rules and Regulations

The board may by resolution prescribe rules and regulations consistent with the by-laws relating to the management of the Corporation, provided that such rules and regulations have effect only until confirmed by the members at the next meeting of members, and if not so confirmed, such rules and regulations from that time cease to be effective.

1.10 Rules of Order at Meetings

Any question of procedure at a meeting of the members, the board, the Executive Committee (if any) or other committee (if any), which has not been addressed in this by-law, or in the Act, shall be determined by the chair of the meeting in question in accordance with a procedural text of his or her choice, and once determined by the chair, shall govern all following meetings until amended.

1.11 Enactment, Repeal and Amendment of By-laws

The by-laws of the Corporation shall be enacted by the board at a meeting of the board and sanctioned by an affirmative vote of at least 66 2/3% of the members present or represented by proxy at a meeting of members duly called for the purpose of considering the said by-law. By-laws so enacted by the board shall, unless confirmed at a meeting of the members duly called for that purpose, have force only until the next annual meeting of members of the Corporation, and in default of confirmation at such annual meeting shall from that time cease to be in effect.

The by-laws of the Corporation may be repealed or amended by resolution of the board if confirmed by the members at a meeting duly called to consider such repeal or amendment.

PART TWO

MEMBERSHIP - MATTERS REQUIRING SPECIAL RESOLUTION

2.1 Membership Conditions

Subject to the articles, there shall be one (1) class of membership in the Corporation. Membership in the Corporation shall be restricted to the University of Toronto.

The members shall be entitled to receive notice of and to attend all meetings of the members of the Corporation, and each member shall have one (1) vote at each such meeting.

Pursuant to subsection 197(1) of the Act, a special resolution of the members is required to make any amendments to this section of the by-laws if those amendments affect membership rights and/or conditions described in paragraphs 197(1)(e), (h), (l) or (m).

2.2 Notice of Meeting of Members

Notice of the time and place of a meeting of members shall be given to each member entitled to vote at the meeting by the following means:

- (a) by mail, courier or personal delivery to each member entitled to vote at the meeting, during a period of twenty-one (21) to sixty (60) days before the day on which the meeting is to be held; or
- (b) by telephonic, electronic or other communication facility to each member entitled to vote at the meeting, during a period of twenty-one (21) to thirty-five (35) days before the day on which the meeting is to be held.

Notice of each meeting of members shall remind each member of the right to vote by proxy. A member may, by means of a written proxy, appoint a proxyholder to attend and act at a specific meeting of members, in the manner and to the extent authorized by the proxy and any such proxy is valid for one (1) year from its date.

Pursuant to subsection 197(1) of the Act, a special resolution of the members is required to make any amendment to the by-laws of the Corporation to change the manner of giving notice to members entitled to vote at a meeting of members.

2.3 Absentee Voting by Mail Ballot

Pursuant to section 171(1) of the Act, a member entitled to vote at a meeting of members may vote by mailed-in ballot if the Corporation has a system that:

- (a) enables the votes to be gathered in a manner that permits their subsequent verification, and
- (b) permits the tallied votes to be presented to the Corporation without it being possible for the Corporation to identify how each member voted.

Pursuant to subsection 197(1) of the Act, a special resolution of the members is required to make any amendment to the by-laws of the Corporation to change this method of voting by members not in attendance at a meeting of members.

PART THREE

MEMBERSHIP DUES AND FEES, TERMINATION AND DISCIPLINE

3.1 Membership Dues and Fees

There shall be no dues or fees payable by members for membership except such dues and fees, if any, as shall from time to time be fixed by resolution of the Board and such resolution may set different rates for members based on age, education status or affiliation, past contributions to the Corporation and other relevant criteria. Assignment of a fee rate to a member pursuant to this section does not constitute that member to form part of a separate class or group of members under the Act.

3.2 Termination of Membership

A membership in the Corporation is terminated when:

- (a) the member dies;
- (b) a member fails to maintain any qualifications for membership described in Section 2.1 or Section 3.1 of these by-laws;
- (c) the member resigns by delivering a written resignation to the Chair of the Board of the Corporation in which case such resignation shall be effective on the date specified in the resignation;
- (d) the member is expelled in accordance with Section 3.5 below or is otherwise terminated in accordance with the articles or by-laws;
- (e) the member's term of membership expires; or
- (f) the Corporation is liquidated or dissolved under the Act.

Subject to the articles, upon any termination of membership, the rights of the member, including any rights in the property of the Corporation automatically cease to exist and a member is not entitled to a refund of any membership fee, if applicable, in whole or in part.

3.3 Membership Not Transferable

The interest of a member in the Corporation is not transferable and lapses and ceases to exist upon the member's death or when he or she ceases to be a member by resignation or otherwise in accordance with the by-laws of the Corporation.

3.4 Access to Information

No member may have access to information respecting the details of the business of the Corporation which, in the opinion of the board, would be detrimental to the interests of the Corporation to communicate to the public.

3.5 Discipline of Members

The board shall have authority to suspend or expel any member from the Corporation for any one or more of the following grounds:

- (a) violating any provision of the articles, by-laws, or written policies of the Corporation;
- (b) carrying out any conduct which may be detrimental to the Corporation as determined by the board in its sole discretion; or

- (c) for any other reason that the board in its sole and absolute discretion considers to be reasonable, having regard to the purpose of the Corporation.

In the event that the board determines that a member should be expelled or suspended from membership in the Corporation, the President, or such other officer as may be designated by the board, shall provide twenty (20) days notice of suspension or expulsion to the member and shall provide reasons for the proposed suspension or expulsion. The member may make written submissions to the President, or such other officer as may be designated by the board, in response to the notice received within such twenty (20) day period. In the event that no written submissions are received by the President, the President, or such other officer as may be designated by the board, may proceed to notify the member that the member is suspended or expelled from membership in the Corporation. If written submissions are received in accordance with this section, the board will consider such submissions in arriving at a final decision and shall notify the member concerning such final decision within a further twenty (20) days from the date of receipt of the submissions. The board's decision shall be final and binding on the member, without any further right of appeal.

PART FOUR

MEETINGS OF MEMBERS

4.1 Annual Meetings

(a) Subject to the provisions of subsection 4.1(b) hereof, the annual meeting of members shall be held at the registered office of the Corporation or at any other place inside of Canada and at such time as determined by resolution of the board. The Corporation shall hold its first annual meeting not later than eighteen (18) months after its incorporation and subsequently not more than fifteen (15) months after the holding of the last preceding annual meeting.

(b) Pursuant to subsection 159(2) of the Act, the members may meet at a place outside of Canada if (i) the place is specified in the articles, or (ii) the members entitled to vote at the meeting unanimously agree that the meeting is to be held at that place.

4.2 Place, Frequency and Mode

(a) Subject to the provisions of subsection 4.2(b) hereof, meetings of the members shall be held at the registered office of the Corporation or at any other place inside of Canada and at such time as determined by resolution of the members.

(b) Pursuant to subsection 159(2) of the Act, the members may meet at a place outside of Canada if (i) the place is specified in the articles, or (ii) all of the members entitled to vote at the meeting unanimously agree that the meeting is to be held at that place.

(c) A member may participate in a meeting by telephone or by any other electronic or communication facility that permits all persons participating in the meeting to communicate adequately with each other during the meeting, and a member so participating in a meeting by this means is deemed to be present at the meeting.

4.3 Persons Entitled to be Present

The only persons entitled to be present at a meeting of members shall be those entitled to vote at the meeting, the directors and the public accountant of the Corporation and such other persons who are entitled or required under any provision of the Act, articles or by-laws of the Corporation to be present at the meeting. Any other person may be admitted only on the invitation of the chair of the meeting or by resolution of the members.

4.4 Chair of the Meeting

In the event that the Chair of the Board and the Vice-Chair of the Board are absent, the members who are present and entitled to vote at the meeting shall choose one of their number to chair the meeting.

4.5 Quorum

Where there is only one member, that member shall constitute a quorum for the transaction of business at any meeting of members, otherwise a quorum at any meeting of the members (unless a greater number of members are required to be present by the Act) shall be ten per cent (10%) of the members entitled to vote at the meeting. If a quorum is present at the opening of a meeting of members, the members present may proceed with the business of the meeting even if a quorum is not present throughout the meeting.

4.6 Annual Financial Statements

The Corporation may, instead of sending copies of the annual financial statements and other documents referred to in subsection 172(1) of the Act to the members, publish a notice to its members stating that the annual financial statements and documents provided in subsection 172(1) are available at the registered office of the Corporation and any member may, on request, obtain a copy free of charge at the registered office or by prepaid mail.

4.7 Votes to Govern

At any meeting of members every question shall, unless otherwise provided by the articles or by-laws or by the Act, be determined by a majority of the votes cast on the question. In case of an equality of votes either on a show of hands or on a ballot or on the results of electronic voting, the chair of the meeting in addition to an original vote shall not have a second or casting vote.

4.8 Resolution in Lieu of Meeting

A resolution in writing signed by all the members entitled to vote on that resolution at a meeting of members is as valid as if it had been passed at a meeting of the members. A copy of every such resolution shall be kept with the minutes of the proceedings of the members.

PART FIVE

DIRECTORS

5.1 Size and Composition of Board

The affairs of the Corporation shall be managed by the board whose members may be known and referred to as directors and who may exercise all such powers and do all such acts and things as may be exercised or done by the Corporation that are not by the by-laws or by statute expressly directed or required to be done in some other manner. Until changed in accordance with the Act, the board shall consist of not fewer than the minimum number and not more than the maximum number of directors provided in the articles.

5.2 Qualifications

Each director shall be an individual who is not less than 18 years of age. No person shall be a director who has been found by a court in Canada or elsewhere to be incapable, who has the status of a bankrupt, or, if the Corporation is a registered charity, who is an "ineligible individual" as defined in the *Income Tax Act* (Canada).

5.3 Election and Term

Subject to the articles, the members shall elect the directors at the first meeting of members and at each succeeding annual meeting at which an election of directors is required. Each director shall be elected to hold office until the first annual meeting after such director is elected, at which time, each such director shall retire as a director, but, if qualified, shall be eligible for re-election.

5.4 Composition

Subject to the Act and unless otherwise modified by the member of the Corporation, the board may consist of the following individuals:

- (a) Four (4) directors shall be faculty or staff of the Faculty of Pharmacy, University of Toronto
- (b) One (1) director shall be the dean of the Faculty of Pharmacy, University of Toronto; and
- (c) Two (2) directors shall be deans or designates from other health science faculties at the University of Toronto.

PART SIX

MEETINGS OF DIRECTORS

6.1 Place, Frequency and Mode

Meetings of the board shall be held at the registered office of the Corporation or elsewhere (inside or outside Canada) as the board determines. There shall be at least one meeting of the board each year. No business of the Corporation may be transacted by the board except at a meeting of directors at which a quorum of the board is present.

Where all directors participating in a meeting consent, a director may participate in a meeting of the board by telephone or by any other electronic or communication facility that permits all persons participating in the meeting to communicate adequately with each other during

the meeting, and a director so participating in a meeting by this means is deemed to be present at the meeting.

6.2 Calling of Meetings

Meetings of the board may be called by the Chair of the Board, the Vice-Chair of the Board or any two (2) directors at any time; provided that, for the first organization meeting following incorporation, such meeting may be called by any director or incorporator. If the Corporation has only one director, that director may call and constitute a meeting.

6.3 Notice of Meeting

Notice of the time and place for the holding of a meeting of the board shall be given in the manner provided in Section 8.1 of this by-law to every director of the Corporation not less than seven (7) days before the time when the meeting is to be held. Notice of a meeting shall not be necessary if all of the directors are present, and none objects to the holding of the meeting, or if those absent have waived notice of or have otherwise signified their consent to the holding of such meeting. Notice of an adjourned meeting is not required if the time and place of the adjourned meeting is announced at the original meeting. Unless the by-law otherwise provides, no notice of meeting need specify the purpose or the business to be transacted at the meeting except that a notice of meeting of directors shall specify any matter referred to in subsection 138(2) of the Act that is to be dealt with at the meeting.

6.4 Regular Meetings

The board may appoint a day or days in any month or months for regular meetings of the board at a place and hour to be named. A copy of any resolution of the board fixing the place and time of such regular meetings of the board shall be sent to each director forthwith after being passed, but no other notice shall be required for any such regular meeting except if subsection 136(3) of the Act requires the purpose thereof or the business to be transacted to be specified in the notice.

6.5 Quorum

A majority of the number of directors constituting the board and who are present at the meeting constitutes a quorum for the transaction of business by the board.

6.6 Votes to Govern

At all meetings of the board, every question shall be decided by a majority of the votes cast on the question. In case of an equality of votes, the chair of the meeting in addition to an original vote shall not have a second or casting vote.

6.7 Resolution in Lieu of Meeting

A resolution in writing, signed by all the directors entitled to vote on that resolution at a meeting of directors or of a committee of directors, if any, is as valid as if it had been passed at a meeting of directors or of a committee of directors, if any. A copy of every such resolution shall be kept with the minutes of the proceedings of the directors or committee of directors, if applicable.

6.8 Committees

The board may from time to time appoint any committee or other advisory body, as it deems necessary or appropriate for such purposes and, subject to the Act, with such powers as the board shall see fit. Any such committee may formulate its own rules of procedure, subject to such regulations or directions as the board may from time to time make. Any committee member may be removed by resolution of the board of directors.

PART SEVEN

OFFICERS

7.1 Description of Offices

Unless otherwise specified by the board which may, subject to the Act modify, restrict or supplement such duties and powers, the offices of the Corporation, if designated and if officers are appointed, shall have the following duties and powers associated with their positions:

- (d) **Chair of the Board** - The Chair of the Board, if one is to be appointed, shall be a director. The Chair of the Board, if any, shall, when present, preside at all meetings of the board and of the members. The chair shall have such other duties and powers as the board may specify.
- (e) **Vice-Chair of the Board** - The Vice-Chair of the Board, if one is to be appointed, shall be a director. If the Chair of the Board is absent or is unable or refuses to act, the Vice-Chair of the Board, if any, shall, when present, preside at all meetings of the board and of the members. The Vice-Chair of the Board shall have such other duties and powers as the board may specify.
- (f) **President** - If appointed, shall be the chief executive officer of the Corporation and shall be responsible for implementing the strategic plans and policies of the Corporation. The President shall, subject to the authority of the board, have general supervision of the affairs of the Corporation.
- (g) **Secretary** - If appointed, the Secretary shall attend and be the secretary of all meetings of the board, members and committees of the board. The Secretary shall enter or cause to be entered in the Corporation's minute book, minutes of all proceedings at such meetings; the Secretary shall give, or cause to be given, as and when instructed, notices to members, directors, the public accountant and members of committees; the Secretary shall be the custodian of all books, papers, records, documents and other instruments belonging to the Corporation.
- (h) **Treasurer** - If appointed, the Treasurer shall have such powers and duties as the board may specify.

The powers and duties of all other officers of the Corporation shall be such as the terms of their engagement call for or the board or the President requires of them. The board may, from time to time and subject to the Act, vary, add to or limit the powers and duties of any officer.

7.2 Manager

The Corporation may employ a full-time manager (the "**Manager**") who shall be the chief operating officer of the Corporation and shall exercise such powers as may be delegated to him or her by the board with respect to managing and directing the affairs of the Corporation and employing and discharging agents or employees of the Corporation. The Manager shall be subject to the authority of the Chair of the Board, the Vice-Chair of the Board or the President, as applicable and the board.

7.3 Vacancy in Office

In the absence of a written agreement to the contrary, the board may remove, whether for cause or without cause, any officer of the Corporation unless so removed, an officer shall hold office until the earlier of:

- (a) the officer's successor being appointed,
- (b) the officer's resignation,
- (c) such officer ceasing to be a director (if a necessary qualification of appointment) or
- (d) such officer's death.

If the office of any officer of the Corporation shall be or become vacant, the directors may, by resolution, appoint a person to fill such vacancy.

PART EIGHT

NOTICES

8.1 Method of Giving Notices

Any notice (which term includes any communication or document) to be given (which term includes sent, delivered or served), other than notice of a meeting of members or a meeting of the board, pursuant to the Act, the articles, the by-laws or otherwise to a member, director, officer or member of a committee of the board or to the public accountant shall be sufficiently given:

- (a) if delivered personally to the person to whom it is to be given or if delivered to such person's address as shown in the records of the Corporation or in the case of notice to a director to the latest address as shown in the last notice that was sent by the Corporation in accordance with Section 128 or 134; or
- (b) if mailed to such person at such person's recorded address by prepaid ordinary or air mail; or

- (c) if sent to such person by telephonic, electronic or other communication facility at such person's recorded address for that purpose; or
- (d) if provided in the form of an electronic document in accordance with Part 17 of the Act.

A notice so delivered shall be deemed to have been given when it is delivered personally or to the recorded address as aforesaid; a notice so mailed shall be deemed to have been given when deposited in a post office or public letter box; and a notice so sent by any means of transmitted or recorded communication shall be deemed to have been given when dispatched or delivered to the appropriate communication company or agency or its representative for dispatch. The Secretary may change or cause to be changed the recorded address of any member, director, officer, public accountant or member of a committee of the board in accordance with any information believed by the Secretary to be reliable. The declaration by the Secretary that notice has been given pursuant to this by-law shall be sufficient and conclusive evidence of the giving of such notice. The signature of any director or officer of the Corporation to any notice or other document to be given by the Corporation may be written, stamped, type-written or printed or partly written, stamped, type-written or printed.

8.2 Invalidity of any provisions of this by-law

The invalidity or unenforceability of any provision of this by-law shall not affect the validity or enforceability of the remaining provisions of this by-law.

8.3 Omissions and Errors

The accidental omission to give any notice to any member, director, officer, member of a committee of the board or public accountant, or the non-receipt of any notice by any such person where the Corporation has provided notice in accordance with the by-laws or any error in any notice not affecting its substance shall not invalidate any action taken at any meeting to which the notice pertained or otherwise founded on such notice.

PART NINE

DISPUTE RESOLUTION

9.1 Mediation and Arbitration

Disputes or controversies among members, directors, officers, committee members, or volunteers of the Corporation are as much as possible to be resolved in accordance with mediation and/or arbitration as provided in Section 9.2 of this by-law.

9.2 Dispute Resolution Mechanism

In the event that a dispute or controversy among members, directors, officers, committee members or volunteers of the Corporation arising out of or related to the articles or by-laws, or out of any aspect of the operations of the Corporation is not resolved in private meetings between the parties, then without prejudice to or in any other way derogating from the rights of the members, directors, officers, committee members, employees or volunteers of the Corporation as set out in the articles, by-laws or the Act, and as an alternative to such person instituting a law suit or legal action, such dispute or controversy shall be settled by a process of dispute resolution as follows:

- (a) The dispute or controversy shall first be submitted to a panel of mediators whereby the one party appoints one mediator, the other party (or if applicable the board of the Corporation) appoints one mediator, and the two mediators so appointed jointly appoint a third mediator. The three mediators will then meet with the parties in question in an attempt to mediate a resolution between the parties.
- (b) The number of mediators may be reduced from three to one or two upon agreement of the parties.
- (c) If the parties are not successful in resolving the dispute through mediation, then the parties agree that the dispute shall be settled by arbitration before a single arbitrator, who shall not be any one of the mediators referred to above, in accordance with the provincial or territorial legislation governing domestic arbitrations in force in the province or territory where the registered office of the Corporation is situated or as otherwise agreed upon by the parties to the dispute. The parties agree that all proceedings relating to arbitration shall be kept confidential and there shall be no disclosure of any kind. The decision of the arbitrator shall be final and binding and shall not be subject to appeal on a question of fact, law or mixed fact and law.
- (d) All costs of the mediators appointed in accordance with this section shall be borne equally by the parties to the dispute or the controversy. All costs of the arbitrators appointed in accordance with this section shall be borne by such parties as may be determined by the arbitrators.

PART TEN

PROTECTION OF DIRECTORS AND OFFICERS

10.1 Limitation of Liability

No director or officer of the Corporation shall be liable for damages caused by any other director or officer or other person acting on behalf of the Corporation

10.2 Indemnity

Every director, officer or other person who has undertaken a liability on behalf of the Corporation and his or her heirs and legal representatives may, with the consent of the Corporation given at a meeting of members, be indemnified out of the funds of the Corporation against:

- (a) all losses which that director, officer or other person suffers in proceedings that are brought or threatened to be brought against him or her or resulting from something done or omitted to be done by him or her in the execution of his or her duties of office; and
- (b) all other losses which he or she suffers in relation to the affairs of the Corporation

except such losses resulting from his or her own willful neglect or default.

10.3 Insurance

Subject to the limitations contained in the Act, the Corporation may purchase and maintain insurance for the benefit of an individual referred to in subsection 151(1) of the Act against any indemnity incurred by the individual:

- (a) in the individual's capacity as a director or officer of the Corporation; or
- (b) in the individual's capacity as a director or officer, or similar capacity, of another entity, if the individual acts or acted in that capacity at the Corporation's request.

PART ELEVEN

OTHER

11.1 Borrowing and Giving of Security

The Board may from time to time:

- (a) borrow money upon the credit of the Corporation in such amounts and on such terms as may be deemed expedient by obtaining loans or advances or by way of overdraft or otherwise;
- (b) pledge or sell such debentures or other securities for such sums and at such prices as may be deemed expedient; and

- (c) mortgage, hypothecate, charge or pledge or give security in any manner whatever upon, all or any of the property, real or personal, immovable and moveable, undertaking and rights of the Corporation, present and future, to secure any debentures or other securities of the Corporation, present or future, or any money borrowed or to be, borrowed or any obligation or liability of the Corporation, present or future.

From time to time, the Board may authorize any director or officer of the Corporation to make arrangements with reference to the monies borrowed as aforesaid and as to the terms and conditions of the loan thereof and as to the securities to be given therefor, with power to vary or modify such arrangements, terms and conditions and to give such additional securities for any monies borrowed or remaining due by the Corporation as the Board may authorize, and to generally manage, transact and settle the borrowing of money by the Corporation.

PART TWELVE

EFFECTIVE DATE

12.1 Effective Date

Subject to matters requiring a special resolution, this by-law shall be effective when made by the board.

DATED as of

President: