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Creating a pharmacy elective course in Indigenous health

Jason Min*, Simon Albon, Larry Leung, Allison Clarke

Faculty of Pharmaceutical Sciences, University of British Columbia, 2405 Wesbrook Mall, Vancouver, BC V6T 1Z3, Canada

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ABSTRACT

Background and purpose: There is a critical need for greater Indigenous health education and cultural safety training for pharmacists. The objective of this paper is to describe the creation, development, and impact of Canada's first offering of an undergraduate elective course specific to pharmaceutical care in Indigenous health.

Educational activity and setting: A three-credit elective course was developed and offered to bachelor of science pharmacy students at the University of British Columbia. A variety of pedagogical approaches including reflection, educational trips, video conferencing with Indigenous communities, and Indigenous community-based projects were used. Evaluation of student learning impact included quantitative and qualitative post-course survey data, student enrollment, and student work.

Findings: From course inception in 2012 to 2017, 101 students participated. Survey respondents rated an average of 4.7 out of 5 on the five core elements of the curriculum design and pedagogical practice (i.e. learning objectives, instructional methods, assessments, organization, and workload). Thematic analysis identified three themes: 1) the qualities of the course instructors, 2) the unique curriculum design and pedagogical practices, and 3) significant personal and professional impact on students.

Summary: This course is one of few opportunities for pharmacy students to learn about cultural safety as it relates to the pharmaceutical care of Indigenous peoples. Extensive engagement with stakeholders and utilization of various teaching and assessment techniques were beyond the expected requirements of course offerings. Students highly rated this course as having personal and professional impact. This course plays a critical role in the overall Indigenization of pharmacy curricula.

Background and purpose

"You don't have to believe that [Indigenous] reconciliation will happen, you need to believe that reconciliation should happen." - Senator Murray Sinclair, Chair, Truth and Reconciliation Commission of Canada, 2015.

"The health inequities among Indigenous peoples [of Canada] require special consideration in curriculum design and delivery." - Association of Faculties of Pharmacy of Canada, 2017.

* Corresponding author.
E-mail addresses: jason.min@ubc.ca (J. Min), simon.albon@ubc.ca (S. Albon), larry.leung@ubc.ca (L. Leung), allison.clarke@alumni.ubc.ca (A. Clarke).

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In Canada as elsewhere, health disparities of Indigenous[1] peoples compared to non-Indigenous peoples continue to exist for many complex reasons including the intergenerational traumas of colonialism and Western ideology.[1–3] Yet despite greater awareness and understanding of the underlying issues, Indigenous peoples across Canada continue to experience a disproportionate burden of disease.[2] While there are encouraging federal and provincial partnerships underway to address this situation,[3] there is clear recognition of the critical need for better training and education of frontline healthcare practitioners as outlined, for example, by the Truth and Reconciliation Commission of Canada (TRC).[4] Established in 2008, the TRC was commissioned as part of the Indian Residential Schools Settlement Agreement and over six years, gathered written and oral histories of approximately 7000 residential school survivors across Canada.[4] The final TRC report was published in June 2015 and among 94 Calls to Action were two identifying the need for better education of healthcare practitioners in Indigenous health and cultural safety and humility in the provision of health care for Indigenous peoples.[4]

Providing culturally safe health care to this rapidly growing, geographically dispersed and often underserved population is of primary importance in Canada today.[2] Canada's Prime Minister, the Honorable Justin Trudeau, has acknowledged that more needs to be done in response to improve the lives of Indigenous Canadians towards reconciliation.[5] Pharmacists, widely regarded as the most trusted, visible, and accessible health care provider,[6] are playing increasingly significant roles in health care, yet pharmacy programs currently provide very little exposure to Indigenous health care or opportunities for students to learn about cultural safety in the provision of pharmaceutical care to this population. Historically among the 10 schools of pharmacy in Canada, the University of Toronto has offered the only pharmacy course in Indigenous health.[7] The course, entitled Indigenous Issues in Health and Healing, is part of the Faculty of Arts and Science, but made available to pharmacy students as a cross-linked course (PHARMACY 325) with the same name.[7] The course curriculum addresses broad and important topics such as Indigenous history, impacts of colonialism, and holistic healing practices, but does not offer any pharmacy-specific content focused on Indigenous health. Today, the situation remains unchanged. For example, results of a literature search utilizing a broad selection of Indigenous and education-focused sources (e.g., the Native Health Database, iPortal: Indigenous Studies Portal, Bibliography of Native North Americans, PubMed, American Journal of Pharmaceutical Education, and Google Scholar) produced no relevant articles on Indigenous health education in the Canadian pharmacy context. Stand-alone Indigenous health course offerings among other health professions programs are also sparse, although targeted topics have existed in some undergraduate and graduate medical and nursing programs across Canada as early as the 1970's.[8–11] With the exception of the course detailed in this article, no other pharmacy-specific courses on Indigenous health are currently offered by Canadian pharmacy schools.

To address this gap in pharmacy education in Canada, our efforts have focused on improving the availability of foundational content on cultural safety and humility and understanding of Indigenous ways of approaching health, healing, and pharmaceutical care. The objective of this paper is to describe the creation, development, and impact of a novel, undergraduate elective course on pharmaceutical care in Indigenous health within the bachelor of science in pharmacy (BSc [Pharm]) program at the University of British Columbia (UBC), Faculty of Pharmaceutical Sciences (the Faculty).

Educational activity and setting

The Faculty at UBC is located on the traditional, ancestral and unceded territory of the Musqueam people. The faculty has a 70-year history of high-quality pharmaceutical education and research. The roots of pharmacy education at UBC draw heavily on colonial influences dating back over 400 years to the practices of the physicians and apothecaries employed by the Hudson's Bay Company.[12] Historically disciplined-based, the BSc (Pharm) program has shifted dramatically in the past 30 years from a drug product focus to patient-centered care to align with the health care needs of Canadians and combines one year of prerequisite science courses with four years of core pharmacy courses, experiential practicums, and electives to train practice-ready graduates. The program enrolls 224 students per year representative of provincial and national population demographics (total enrollment 896 students); the student body includes an average of four Indigenous individuals each year. Like many pharmacy programs, the BSc (Pharm) program has since been replaced by an entry-to-practice doctor of pharmacy program. The results of this paper are exclusive to students registered in the BSc (Pharm) program. The dominant philosophy of the program follows Western medicine focusing on disease causation and remedial measures. Although alternative medicine has been a core part of the curriculum for many years, Indigenous approaches to well-being and traditional medicines have been non-existent. Until the introduction of this elective course, the program provided very little opportunity to explore other worldview perspectives on health care such as the holistic approaches of Indigenous people in Canada.

The elective course described below has been offered eight times in the six-year period between 2012 and 2018. Originally approved for delivery during the 2012 academic year (September to December term) as a pilot, three-credit, elective entitled PHARMACY (PHAR) 450B: Selected Topics, the course has undergone significant and important revisions with each iteration. To better reflect the underlying philosophy and intent, the course has also had two name changes to PHAR 457: Pharmaceutical Care in Aboriginal Health in September 2014 and to PHAR 457: Pharmaceutical Care in Indigenous Health. Regardless of its revisions, the primary goals of the course have remained the same: 1) to fill a gap in the current pharmacy program, and 2) to provide third- and fourth-year pharmacy students with an opportunity to learn about Indigenous health in Canada and the role pharmacists can play in

[1] In this paper, the term Indigenous is used synonymously for “Aboriginal” and refers inclusively to members of First Nations (Indian), Inuit, and Métis peoples in Canada, understanding that many people prefer terms that are specific to their communities. The term “Aboriginal” is a legally imposed definition for all Indigenous peoples of Canada according to the Canadian Constitution Act of 1982.

providing culturally safe pharmaceutical care. The theoretical frameworks used to design the course have attempted to integrate Western approaches to learning-centered course design with Indigenous epistemology and pedagogy. Regarding the former, the heuristic framework of Hubball and Burt[13] has been particularly helpful while the latter has drawn extensively from the work of Sherwood and Edwards,[14] Gaudry and Hancock,[15] and Sinclair.[16] While the course was not designed with an overly-assertive decolonizing[2] and Indigenizing agenda,[17] a critical aspect of the curriculum provides opportunities to explore and challenge students' understanding and perceptions of the history of Indigenous people in Canada, the impacts of colonialism (in particular, the residential school system[3] and the child welfare era involving the 60's Scoop[4]) and how the contemporary cognitive frameworks of colonialism continue to discriminate against and marginalize Indigenous peoples in mainstream society and in the healthcare system.[16] Incorporating the Indigenous patient voice and balancing evidence-based care with traditional Indigenous healing practices underpin the approach to health care delivery. The concept of bridging as espoused by Hogue[18] has been particularly important in the design and development of the course, as both course coordinators (JM and LL) are non-Indigenous instructors of Korean and Chinese ancestry, respectively. The impetus, design, and content of the course is based on their rural pharmacist practice which, since 2010, has been committed to working collaboratively with Indigenous communities in British Columbia (BC).

Particularly important in the evolution of the course was the transition from a pilot course to PHAR 457: Pharmaceutical Care in Aboriginal Health, a designated university course with a unique course number and name. The process, requiring UBC Senate approval, was initiated in October 2012 and required extensive consultation from across the university, including from Indigenous scholars. Feedback, while supportive overall, was critical of the course, suggesting important revisions in five major areas to better reflect Indigenous worldview, epistemology, and approaches to course design and pedagogy: 1) greater alignment of the course syllabus with the UBC Aboriginal Strategic Plan, 2) ensuring tone and use of terminology throughout the course emphasized respectful engagement with Indigenous peoples, 3) including a greater proportion of Indigenous guest speakers, 4) incorporating the Indigenous voice in all areas of the curriculum, and 5) consultation and community-building with Indigenous partners. Addressing these issues required approximately eight months during which time the course was hibernated (the course was not offered during the 2013 January to April term), and a process of relationship building and extensive curriculum consultation undertaken. Advice was sought from and relationships built with a campus-wide group of stakeholders including the Institute for Aboriginal Health (now, the UBC Centre for Excellence in Indigenous Health), the UBC College of Health Disciplines (now, UBC Health), UBC Faculty of Medicine, the UBC First Nations House of Learning, the Aboriginal Initiatives Office at the UBC Centre for Teaching, Learning and Technologies, the UBC Centre for Community Engaged Learning, various faculty colleagues, and UBC's Xwi7xwa Indigenous library. In addition, a 10-member curriculum advisory committee, comprising faculty, Indigenous health scholars, Indigenous health directors, managers, and healthcare providers from Indigenous communities including nurses, counselors, community members, and elders was established to address the course shortcomings and provide ongoing curriculum development, feedback, and support.

PHAR 457: Pharmaceutical Care in Indigenous Health, as it exists today, is offered in at least one term each academic year, has a maximum enrollment of 20 students, and includes three instructional hours once weekly for a total of 36 instructional hours. Prospective students submit a personal statement explaining why they want to take the course and undergo an interview. Although enrollments were low in early iterations of the course (e.g., six in 2012), today students are typically wait-listed. Table 1 provides the global learning objectives for the course.[19]

The weekly schedule for PHAR 457, combining interactive didactic lectures with land-based, hands-on, experiential learning opportunities, can be found in Table 2.[20] Classroom time offers space for Indigenous guest speakers and detailed exploration and discussion of important determinants of Indigenous health such as culture, identity, history, the legacy of colonialism and residential schools, First Nations Health Benefits, traditional medicines and practices, and selected therapeutic topics, among others. Authentic patient cases, derived from the instructors' practice experiences, augment and support classroom activities along with live video conferences into Indigenous communities to speak directly with healthcare providers and patients. Particularly important in the curriculum design are educational trips. Designed and conducted by Indigenous experts as immersive experiences to deepen understanding of Indigenous epistemology and culture, visits to the UBC Museum of Anthropology, the UBC First Nations House of Learning Longhouse, the Vancouver Native Health Society and neighboring community pharmacy, the Musqueam Cultural Centre, and the UBC Farm Indigenous Health Research and Education Garden often engage students in traditional songs, drumming, and other ceremonial and traditional practices. All educational trips are conducted during the regularly scheduled three-hour class time.

Table 3 provides the evaluation profile for the course including the assessment strategies used, learning objectives addressed by each, and their weightings in the overall course grade. Reflection activities weaved throughout the course as formative feedback opportunities included talking circles and an innovative arts-based reflection assignment. Based on the work of Amerson and Livingston,[21] and designed as a pre- and post-course activity by the instructors, the arts-based assignment asked student pharmacists to reflect on what it means to practice cross-culturally, create a visual representation of their understanding using an arts-based medium of their choice, and critique their artistic renditions in small group discussions. Submissions typically included collages, hand-

[2] Decolonization refers to the process of changing existing colonial structures and frameworks in our Western systems and values, contrasted with Indigenization, which refers to the process of integrating Indigenous ways of knowing and learning to current Western knowledge systems, rather than just the addition of new Indigenous content or activities.

[3] Residential schools operated in Canada between the 1870s and the 1990s with the government-imposed goal of assimilating Indigenous peoples into mainstream Canadian society. The last residential school closed in 1996.

[4] The 60's Scoop was a Canadian government program between 1951 and 1991 that took Indigenous children away from their families and placed them with non-Indigenous parents. The goal of the 60's Scoop was to eliminate Indigenous cultural traditions and languages in these children.

Table 1
Global learning objectives for PHAR 457.[a]

On completion of the course, pharmacy students will be able to:

1. Engage and communicate more effectively, respectfully and collaboratively with Indigenous people through appropriate terminology, definitions, awareness of historical and political events, and in a culturally safe manner.
2. Apply self-reflection as a method to identify and address personal beliefs and biases, and your own cultural lens as it applies to practicing pharmacy with cultural safety and humility.
3. Apply the historical context of Canada as a colonizing power on the impacts of colonialism through the Indian Act, the residential school system and the 60's Scoop on current health and wellbeing of Indigenous peoples in BC and Canada.
4. Summarize the history, culture, and current health status of Indigenous people of BC as it relates to the impact of specific Canadian legislation, the First Nations Health Authority, and the Truth and Reconciliation Commission of Canada Calls to Action.
5. Recall principles of ethical community engagement and describe one approach to community collaboration specifically related to the delivery of pharmaceutical care.
6. Explain the purpose, scope and practical application of the First Nations Health Benefits, the interconnectivity with BC PharmaCare, and Non-Insured Health Benefits.
7. Use appropriate library resources and search-strategies available for teaching, learning, and research specific to Indigenous populations to support practice-based initiatives.
8. Differentiate a typical pharmaceutical care process with an Indigenous approach to traditional medicines and healing, the role of traditional healers and healing practices, and the role of the Medicine Wheel.
9. Describe the different trends in selected health topics (e.g. mental health, sexual health, cardiovascular health) as it applies to Indigenous peoples including strengths and disparities, successful health programs, and the use of a holistic approach to pharmaceutical care.
10. Demonstrate the concepts of working effectively, respectfully, and collaboratively as a pharmacist that can be applied in practice upon graduation.

PHAR = PHARMACY; BC = British Columbia.
[a] Developed using a combination of Bloom's Taxonomy of Learning[19] and Fink's Taxonomy of Significant Learning.

drawings, and personal photographs. The assignment aligned well with Indigenous ways of reflection and learning, required high-levels of student engagement and creativity, provided personalized representations of and communication about student's understanding of cultural safety, and helped address the broader challenges of assessing cultural safety learning.[22]

The journal club activities and the midterm exam complemented the reflection activities. The midterm exam, for example, was used early on in the course to reinforce understanding and appropriate use of the terminology, definitions, historical dates and events, and First Nations Health Benefits required for meaningful and deeper discussion about Indigenous health. Deployed online during class time through the faculty's online learning management system, the closed-book exam included approximately 40 predominantly recall-level multiple choice and short-answer questions of the type “compare and contrast the 3 models of intercultural care: cultural sensitivity, cultural competency, and cultural safety, providing at least 1 advantage and disadvantage of each.” The journal club activities, on the other hand, helped students build library searching and critical appraisal skills. Regarding the former, a UBC Xwi7xwa Indigenous library-search workshop facilitated student exploration of databases specific to Indigenous health (e.g., Native Health Database) and the inherent challenges of library searching in a landscape of changing terminology (e.g., Indigenous vs. Native). The format of journal clubs included pairs of students presenting a seven-minute critical appraisal of a primary Indigenous health care article of their choosing using the PICO (i.e. population, intervention, comparison, outcome) format[1]. Examination of Western bias, negative stereotyping and language use in the article, the implications for pharmacy practice, and a question and answer period were required elements of the presentation. Journal club PICO presentations happened weekly and prompted detailed discussions about therapeutic validity, treatment, and portrayal of Indigenous populations in the articles. Grades for journal club were calculated by the average of the instructor marks and peer marks (Appendix 1).

The final summative assessment in PHAR 457 was a presentation project requiring students to develop a proposal for health and wellness services directed at a recognized health need in a specific Indigenous community in BC. The goal of the project was to assess student understanding and application of lessons learned throughout the course in a simulated scenario that students might experience in their future practice. Working in pairs, students were assigned both the community and the pharmacy-specific health need based on the instructors' practice with Indigenous communities. These needs and priorities were identified by each First Nation community for the purposes of a student project. Students were not permitted to contact the community and had to rely on information provided in the course and through publicly available resources. Spanning 10 different communities and 12 recognized health areas of interest, students developed proposals such as a pharmacist-supported diabetes self-management program. Presentation evaluation was based on: 1) learning about the Indigenous community through tertiary and gray (e.g., Google) literature sources; 2) the innovative nature and practical design of a health program, including the role of the pharmacist; 3) developing a step-by-step process for ethical community engagement and implementation; and 4) presentation skills. Indigenous community members and other stakeholders were invited to join the project presentations scheduled at the end of the course.

Evaluation of PHAR 457 has focused on student learning impacts and has been an important aspect of course development and ongoing continuous quality improvement efforts. Data sources in evaluating student learning impact included: 1) course evaluation data, 2) student enrollment, and 3) the quality of student work. Course evaluation surveys, launched at the end of each term using the University's CoursEval online system, gathered quantitative (seven questions using a five-point Likert scale from strongly agree to strongly disagree) and qualitative (student written response questions seeking strengths and areas of improvement) data. CoursEval analytics provided descriptive statistics for numeric answer questions and student comments were analyzed for underlying themes and data discrepancies using the constant comparative method of Lincoln and Guba.[23] Based on Article 2.5 of the Tri-council

Table 2
Typical PHAR 457 weekly schedule.

Week	Course content	Instructional methods
1	-Course overview, context in the curriculum, and introduction to the Musqueam nation -Review of course terminology including social, legal, political, historical, and cultural identity and diversity among Indigenous people in BC from a strength-based perspective -Origins of British Columbia, terminology, language groups, relationship between salmon, resources, and health	First visual reflection activity, ice-breaker quiz, small-group discussion on stereotypes, interactive brainstorming on course relevancy to pharmacy practice today, terminology game
2	-Colonialism and Canada as a colonizing power, the Indian Act and institutions of control, Residential school system and the impact on health -Indigenous populations, health and well-being in BC, Tripartite First Nations Health plan, health trends and indicators, and socio-economic determinants -Past and present Canadian Legislation, political landscape and the role of the BC Health Authorities, and health transfer	Online podcast, mini case-based activity, trivia and political funding game, appraisal of older health articles from 1948, journal club activity #1
3	-Museum of Anthropology tour, West Coast First Nations Exhibit at UBC[a]	Guided tour, think-pair-share activity, journal club activity #2
4	-Reconciliation, Decolonizing, the Truth and Reconciliation Commission of Canada, and the role of the pharmacist in the Calls to Action	Small-group discussion, journal club activity #3
5	-Midterm Exam -Xwi7xwa library tour, review of resources, Indigenous primary literature search strategies, Indigenous approaches to teaching, learning, and research[a,b] -UBC Longhouse tour, review of longhouse history and significance, support and resources for Indigenous students[a,b]	Midterm exam, library search strategy workshop, guided tour, journal club activity #4
6	-UBC Farm Indigenous Health Research and Education Garden tour[a] -Traditional Medicines, the role of traditional healers, the Medicine wheel, traditional healing practices and spiritual teachings -History and impact on health of the First Nations Health Benefits program, Pharmacare, and Non-Insured Health Benefits	Smudge and drumming ceremony, case-based funding activity, formulary search activity, interactive indigenous plant activity and sample harvest, guided tour, journal club activity #5
7	-Cultural Competency and Ethical Community Engagement, exploring the cultural context of pharmacy in Indigenous health, working collaboratively with Communities, stereotypes and discrimination in Indigenous health and pharmacy practice, ethics of community-based research	Online live-streaming telehealth visit at patient home with nurse or pharmacist, LEARN model for cross-cultural communication,[c] geo-mapping activity, journal club activity #6
8, 9, 10, 11	-Vancouver Native Health Society and Downtown Eastside community pharmacy visit[a] -Health areas of interest including osteoporosis and falls prevention, sexual health, mental health, pain management, respiratory health, cardiovascular health and diabetes	Online live-streamed patient and healthcare provider interaction, appraising successful health programs activity, critical reflection of practice site, journal club activity #7–10
12–13	Final Project	Final project presentation, final visual reflection activity small-group debrief

PHAR = PHARMACY; BC = British Columbia; UBC = University of British Columbia.
[a] Educational trips are scheduled based on availability; will vary each year.
[b] Xwi7xwa library is located at the UBC Longhouse.
[c] The LEARN model (Listen, Explain, Acknowledge, Recommend, Negotiate) is one method for cross-cultural communication used.[20]

Table 3
Evaluation profile for PHAR 457.

Assessment strategy	Learning objectives addressed	Evaluation weight (%)
Journal club	2, 7, 9	10
Reflection activities and participation in educational trip activities	1, 2, 5, 8–10	25
Midterm exam	3–6, 8, 9	25
Group project and presentation	1–10	40

PHAR = PHARMACY.

requirements for human research in Canada, this program evaluation quality improvement activity was exempt from formal ethics approval. Regardless, we followed protocols of an ethics-approved study including respecting confidentiality and anonymity.

Findings

Table 4 provides course evaluation and enrollment data for PHAR 457 from inception to 2017. As shown in the last row of the

Table 4
Course evaluation survey and enrollment data for PHAR 457.

Question	Mean scores (standard deviation)[a]							
	2012–13 Term 1	2012–13 Term 2	2013–14 Term 1	2014–15 Term 1	2014–15 Term 2	2015–16 Term 1	2016–17 Term 1	Average Scores
The learning objectives for this course were clear	4.6 (0.49)	4.5 (0.50)	4.7 (0.45)	4.6 (0.79)	4.7 (0.47)	4.7 (0.48)	4.6 (0.49)	4.6 (0.52)
The instructional methods (lectures, case studies, activities, etc.) facilitated achievement of the learning objectives	4.9 (0.35)	4.5 (0.50)	4.6 (0.48)	4.9 (0.33)	4.7 (0.45)	4.6 (0.49)	4.8 (0.40)	4.7 (0.43)
The assessments of learning in this course were related to the learning objectives	4.9 (0.35)	4.2 (0.69)	4.7 (0.45)	4.8 (0.43)	4.7 (0.47)	4.6 (0.50)	4.8 (0.40)	4.7 (0.47)
The assessments of learning in this course were fair	4.9 (0.35)	4.3 (0.75)	4.8 (0.41)	4.8 (0.39)	4.8 (0.42)	4.5 (0.80)	4.6 (0.49)	4.7 (0.52)
The course was organized in a logical fashion	5.0 (0)	4.8 (0.37)	4.6 (0.49)	4.6 (0.49)	4.7 (0.47)	4.5 (0.59)	4.6 (0.49)	4.7 (0.41)
Overall, the amount of work expected in this course was appropriate for its credit value	4.7 (0.45)	4.7 (0.47)	4.6 (0.62)	4.8 (0.43)	4.7 (0.45)	4.6 (0.49)	4.8 (0.40)	4.7 (0.47)
Considering everything, I learned a great deal in this course	4.9 (0.35)	4.7 (0.47)	4.6 (0.48)	4.8 (0.39)	4.7 (0.47)	4.7 (0.46)	4.8 (0.40)	4.7 (0.43)
Course enrollment/student response data (Survey response rate)	7/8 (87.5%)	6/6 (100%)	14/16 (87.5%)	16/16 (100%)	18/19 (94.7%)	20/20 (100%)	5/16 (31.2%)	86/101 (85.1%)

PHAR = PHARMACY.
[a] Data obtained was based on a five-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

table, 101 students completed the course during the 2012 to 2017 academic years, representing 9% of the total BSc (Pharm) program enrollment (101/1120 students). Although enrollments were capped at 20 students, positive student and faculty perceptions of the course and its reputation as a unique and relevant learning experience resulted in steady enrollment increases from a minimum of 6 in 2012 to full pre-course registrations from 2013 onwards; waiting lists for post-2013 offerings typically ranged from 5 to 10 students, but reached as high as 30. Final course enrollments averaged 17 students (ranging from 16 to 20) due to last-minute drop-outs and course policy stating that students must attend all classes. Those students that did complete the course rated it highly. Student respondents to course evaluation surveys (86/101, response rate: 85%) scored the five core elements of the curriculum design and pedagogical practice (e.g., learning objectives, instructional methods, assessments, organization and workload) at approximately 4.7/5 year over year. Exceptions were the evaluations of assessments during the 2012, Term 2 iteration of the course. Students in this cohort wanted more information and guidance on the final project that comprised the majority (40%) of their final course mark; in particular, greater clarity on the use of the grading rubric was requested (Appendix 2). Once adjusted, course assessments were rated consistently high in all subsequent course offerings. Similarly, high scores (4.7/5) were also received for evaluation question seven, "Considering everything, I learned a great deal in this course." While high response rates and positive numeric course evaluation scores are not unusual for electives within the BSc (Pharm) program (i.e. four-year faculty averages for elective course evaluation response rates and question seven ratings are 85% and 4.6, respectively), analysis of student comments (totaling 14 pages over the six iterations of the course) were particularly insightful regarding the impact of the course on their learning.

Three major themes emerged in support of the numeric evaluation findings. Firstly, the qualities of the course instructors (JM and LL) as educators and practitioners had a significant impact on student learning and the student experience in the course. Not only did the students find the instructors knowledgeable and experienced but their passion and enthusiasm for the topic as well as their ability to create a safe and inclusive learning environment in the classroom helped to engage and motivate students. Being able to draw on first-hand practice experiences with Indigenous peoples and communities was particularly important for building credibility with students. Said one student, "[the course instructors] carry a lot of legitimacy in terms of why THEY are the ones teaching this course (i.e. they teach from experience, not just from the theoretical)." While most students spoke highly of the course coordinators, many were clearly inspired: "having role models like [the course coordinators] show us how they have managed to be successful in a new field of practice is exactly what students like myself need to see to actually believe we can do it too."

Secondly, students were very impressed with the curriculum design and the pedagogical practices employed in the course; many felt the combination was "highly effective for achieving the learning objectives." Weaving together lectures with field trips, journal club activities, guest speakers, live video-conferencing, critical appraisal of authentic case studies drawn from the instructor's Indigenous practice, library workshops, reflections, and the final course project created a highly interactive learning environment that kept students interested and engaged: "very dynamic course…you get outside of the classroom, there is some discussion activities, some presenting, some FaceTime, guest speakers and then regular lecture…the interactive atmosphere greatly stimulated my learning." The educational field trips blending Indigenous experts, hands-on activities and ceremonial practices were particularly powerful learning experiences for students: "I found the field trips to be one of the most wonderful experiences I have had in my eight

years of university… to participate in the smudging ceremony as well as hear an Indigenous woman speak about it was really valuable. It helped me appreciate Indigenous culture and healing practices." While the final course project" was a fantastic way to learn more about Indigenous culture and what it's actually like to research and implement a health program in an Indigenous community," surprisingly, there was no mention of the benefits and/or value of the arts-based reflection activity from students. Ssuggestions for improving the course included adding more Indigenous speakers and storytelling (in particular, about the interactions of Indigenous community members with pharmacists), ceremonial practices (i.e. a sweat), FaceTime interactions (with Indigenous communities, patients and health care practitioners), case studies, and guidance on the course assessments (e.g., the midterm exam and the final project). Many students felt the course should be longer stating "I did not want it to end."

Lastly the course appeared to have considerable impact on student knowledge and self-awareness. Student understanding, appreciation and respect for Indigenous history, how Westernized medicine continues to marginalize Indigenous people, and the complexities of implementing pharmaceutical care programs in Indigenous communities, were positively influenced. For example, while students were generally passionate about taking the course, most had little prior knowledge or understanding of colonialism and related effects on Indigenous families and health. Many students claimed, "I now realize how much my public school education lacked in teaching Indigenous history and the related health issues…this course really changed and expanded my perspectives on why health issues exist in Indigenous communities." For most, the course was more than attending lectures and going on field trips; student conceptions of who they are as pharmacists, their critical appraisal skills, and the type of practice they wanted to have when they graduate were challenged. "I came away from this course feeling more prepared for professional life, it sparked a newfound interest in community residency…the cases really helped us think outside the box and what can make patient-care grey…this course encouraged us to be proactive about improving practice as individuals and reaching un-met needs in the public…I cannot imagine not having this knowledge now that I do." Whether they intended to practice in Indigenous communities or not, a deeper understanding of cultural safety was also apparent: "This course helped me become more culturally competent…to think critically about my behaviors and attitudes when facing real patients…and to find compromises with them rather than assuming they will take our word as gold."

Student commitment to learning and growth was also evident in the quality of their work. Throughout the course, the instructors consistently noted a significant shift in the students' acknowledgement, appreciation, and respect for Indigenous reconciliation. Student perspectives and ways of thinking about Indigenous health appeared transformed as evidenced by the types of questions generated, rich in-class discussions, and reflection activities. In particular, students transitioned from Westernized notions of health care to more holistic views of healing focused on the importance of a community-based approach, Nation-based needs, and individual, family and community health. The quality in the student's work was also demonstrated in their final projects, where indicators such as positive language, community-centered approaches, utilization of existing Indigenous resources, and focus on positive community strengths were all showcased. Students met course objectives by incorporating culturally safe practices and receiving course grades averaging above 90% with each cohort.

Discussion

The objective of this paper was to describe the creation, development, and impact of a novel, undergraduate elective course on Indigenous health in our faculty. The primary goal of the course was to provide opportunities for third- and fourth-year pharmacy students to learn about Indigenous health in BC and Canada and the role of the pharmacist in providing culturally safe, collaborative, and respectful care to Indigenous people in Canada. Currently, PHAR 457: Pharmaceutical Care in Indigenous Health fills a gap in the pharmacy education landscape locally and nationally and provides Canada's first pharmacy-specific Indigenous health course.

The curriculum design and pedagogical practices utilized in the course were effective for engaging students and providing an authentic learning experience. Integrating Western theories of learning-centered course design[13] and Indigenous epistemology and culturally relevant pedagogies[14–16] not only provided a coherent curriculum design, but offered an experiential land-based, safe and inclusive learning environment. Students were free to explore, experience, and challenge their understanding and perceptions of Indigenous history, the impacts of colonialism on Indigenous peoples in mainstream society and in the health care system,[17] and themselves as pharmacists and health professionals.[14] The variety of assessment practices provided ample opportunity for student self-assessment and to track student learning progress throughout. For pharmacy educators interested in creating pharmacy-specific courses in Indigenous health and/or Indigenizing pharmacy education more broadly, the time and commitments required for development and ongoing improvement of PHAR 457 were substantial and in our experience, disproportionate compared to the core BSc (Pharm) courses we have developed. As non-Indigenous course coordinators, the learning curve was steep. While well-intentioned, our experiences transitioning from pilot to a formalized course were critical for our growth as Indigenous health curriculum designers and educators. Awareness of, sensitivity towards, and respect for Indigenous history, healing practices, relationship building, and language biases in course development and our continuous quality improvement efforts were particularly important. Hogue's[18] notion of bridging provided valuable guidance for navigating our curriculum and pedagogical practices.

As evidenced by the evaluation feedback, quality of their work, and final course grades, students met the learning objectives for the course, representing, for many, their first in-depth exposure to the determinants of Indigenous health. The level of student interest and engagement with the course content, and active learning strategies was impressive. Attributed largely to the curriculum design and the variety of teaching modalities practiced, students voiced greater knowledge and awareness of the complex issues affecting Indigenous health historically and in the health care system today. As student pharmacists, they also noted greater understanding of the concept of cultural safety and its importance in their interactions with patients generally and Indigenous people in Canada specifically. In terms of their role as pharmacists, cultural safety was rated as highly applicable to their future practice.

While this course can provide guidance for others seeking reconciliation, de-colonization and Indigenizing pharmacy curricula, several broader challenges persist. The lack of program content on rural and remote practice, the need to better identify ways faculty can engage in meaningful collaboration with Indigenous partners, and the need to build faculty development opportunities to scale efforts are important examples. Engaging with Indigenous communities and partners can be a daunting task for faculty without experience in ethical engagement and partnership, which can hinder progress. Finally, many university policies further impose colonial views of power and knowledge transfer when collaborating with Indigenous communities and experts.

For non-Indigenous pharmacy educators, the role of allyship in enhancing the learning of non-Indigenous students and contributing meaningfully to the process of reconciliation and decolonizing curricula is particularly valuable. Being an ally means practicing cultural safety and humility, engaging in meaningful self-reflection, and being able to identify and address your own biases.[24] Allyship can take various forms including as an advocate, a collaborator, a care provider, and a scholar. Further integration and scaffolding of Indigenous cultural safety content in core programming is necessary to build scale and continue advocating and amplifying the Indigenous voice through curricular design and course delivery. To address the Calls to Action by the TRC, reconciliation, de-colonization, and Indigenizing curriculum is needed to better train and support future pharmacist practice.

In terms of limitations, this study utilizes course evaluations as a primary data source for evaluating the curriculum design and learning impacts of the course. While responses rates were appropriate for this elective course, this data source represents student's self-report and may include selection bias. In addition, it is not unusual for the learning impacts of elective course to be rated highly by students. Regardless, for most students the course was a highly rated learning experience. The lack of feedback on the arts-based assignment was surprising, particularly since we spent time in class specifically focused on this exercise and in class discussion. We feel this is a gap in our current understanding of the learning impacts of the course which we are addressing in a research project focused specifically on the assessment of cultural safety learning with arts-based activities. In addition, this course enables further exploration of several important gaps in our scholarship, including better understanding the impact that this content has on overall performance as a pharmacist, how this course could impact career decisions, and faculty development opportunities.

Summary

The creation of this new pharmacy-specific Indigenous health course required extensive development and employed a variety of pedagogical approaches to ensure a culturally safe approach throughout. Students were highly positive about the course experience overall and learning impact personally and professionally. Many critical gaps remain in efforts to decolonize and Indigenize pharmacy curricula in Canada including the scalability and scaffolding of content within core programming, determining the role of faculty and the university as allies in Indigenous education, building meaningful reciprocity to collaborations, and how to approach Indigenous partners from a strength-based perspective in curricula.

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None.

Author statement

Jason Min: Conceptualization, Methodology, Formal Analysis, Investigation, Data Curation, Writing – Original Draft Preparation, Writing – Review & Editing Preparation, Visualization, Supervision, Project Administration. Larry Leung: Conceptualization, Methodology, Formal Analysis, Investigation, Data Curation, Writing – Original Draft Preparation, Writing – Review & Editing Preparation, Visualization, Supervision, Project Administration. Simon Albon: Conceptualization, Methodology, Formal Analysis, Resources, Writing- Original draft preparation, Visualization. Allison Clarke: Formal Analysis, Data Curation, Writing – Original Draft Preparation.

Declaration of competing interest

None.

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Appendix 1. Journal club marking criteria for PHAR 457

Criteria		Not met (0 marks)	Needs improvement (1 mark)	Met (2 marks)
Article is presented with good verbal communication (e.g., appropriate volume, pace).	Student 1			
	Student 2			
Article is presented with good non-verbal communication (e.g., eye-contact, body language).	Student 1			
	Student 2			
Student demonstrates sensitivity, respect, and empathy.				
Article is presented in a PICO format.				
PowerPoint slide outlining PICO is clear and concise.				
Appropriate critical appraisal and recognition of study limitations (e.g., biases, presence of surrogate markers).				
Student demonstrates the practical pharmacy implications of the article findings and its importance to Indigenous Health.				
Student provides thoughtful feedback and insight into the issues and solutions presented in the article.				
Student responds to questions appropriately.				

PHAR = PHARMACY; PICO = population, intervention, comparison, outcome.

Appendix 2. Final project marking criteria for PHAR 457

	Mark				
	Incomplete	Minimally meets expectations	Moderately meets expectations	Fully meets expectations	Exceeds expectations
	0	1	2	3	4
Part 1: Collaborate with an Indigenous community					
1) Discuss your current Indigenous health area of interest and an Indigenous community in BC. (e.g., prevalence of a chronic disease, history behind the health concern, what community-specific characteristics exacerbate the concern or is this a concern across all of BC, where is the community located)					
Instructor comments:					
2) Assess the patient-specific demographics and needs that contribute to your chosen health concern (e.g., what components of an environmental scan will you investigate, rural/urban or reserve/non-reserve, are there any at-risk groups such as age/gender, will this be a growing concern as the population changes)					
Instructor comments					
3) Identify any previous attempts to address the health concern, if any. Support your finding with one primary literature article. (e.g., how did you research this – search terms, what can you learn from previous attempts or how can you improve on them, what existing programs could you work with, what difficulties did you come across, why do you think no other attempts have been made)					
Instructor comments:					
Part 1 total: /12					
Part 2: Design a health program					
4) Develop a concept for a pharmacist-led health program to address the selected health area of interest (e.g., description of the service or program, what population group will you target, will your program address any other social determinants of health, what format have you chosen for your program – daily clinics, weekly teleconferences, monthly, how are you incorporating resources available in the community)					
Instructor comments:					
5) Design a step-by-step approach on how you might work collaboratively with members of the community to implement your program. (e.g., is your solution better implemented over a long timeline or will you attempt a quick and efficient method of rolling it out, logistically how					

practical will your program be, how will you incorporate culturally-sensitive methods/materials/logistics into your program)
Instructor comments:
6) Indicate what healthcare professionals are involved and what their roles/responsibilities would be, including the Pharmacist position
Instructor comments:
Part 2 total: /12

Part 3: Communication skills and discussion period
7) Good verbal communication
(e.g., speaking volume and pace are appropriate, overall ideas are communicated effectively and clearly)

Separate marks for each student.
Instructor comments:
8) Good non-verbal communication (e.g., well organized and managed between the group members, PowerPoint slides are accurate/well-designed/complement what is being verbally presented)

Separate marks for each student.
Instructor comments:
9) Effectively answers or addresses issues brought up during the discussion period
(e.g., answers are logically presented, accurate, have an appropriate amount of depth and detail that indicate student understanding of the topic)

Separate marks for each student.
Instructor comments:
Part 3 total: /12
Grand Total: /36

PHAR = PHARMACY; BC = British Columbia.

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