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The peer-reviewed abstracts accepted for presentation at CPERC 2023 as oral concurrent or poster sessions are published in this special supplement of the *Canadian Pharmacists Journal*. The primary author has provided permission for publication of their abstract.

The abstracts are grouped by oral or poster sessions, under the following categories: Pharmacy Education, Pharmacy Practice, Pharmaceutical Science, and Teaching and Learning.

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ORAL PRESENTATIONS
M1-1

Pharmacists and the environment – Creation of a novel asynchronous educational module

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Background: The healthcare system, including pharmaceuticals have a large impact on the environment and climate of our planet. There is growing interest by pharmacy students in understanding this impact, and identifying opportunities to reduce, mitigate, and adapt to the negative effects caused by the health care system. The amount of education being provided on the topic within the University of British Columbia's (UBC) Entry to Practice (E2P) PharmD current curriculum is limited.

Goals: To develop and produce an educational module on the health care system's impact on the environment, targeted toward Professional Year 4 (PY4) E2P PharmD students at UBC.

Description: A passionate Professional Year 3 E2P PharmD student performed an environmental scan and literature search on the topic and identified content experts to present on the following areas: 1) Introduction to Climate Change, Health and Health systems, 2) Pharmacists' role in planetary health, 3) Medication Waste in Hospitals and 4) Management of pharmaceutical waste in the community. Presentations were recorded and edited for clarity and time. The final presentations will be incorporated into an asynchronous PY4 E2P course starting in 2023. Supplementary resources (flow diagrams, links to reputable organizational resources and peer reviewed journal articles) were also created and collected to further students' self-education and engagement on the topic.

Relevance to Pharmacy Education: The impact of the healthcare industry, and specifically pharmaceuticals on the environment is of increasing relevance and interest to pharmacy professionals. This educational module provides introductory information for pharmacy students and will become a component of a mandatory course within UBC's E2P program. Student and Faculty evaluation of this content will occur and may support an expansion into an elective course.

ORAL PRESENTATIONS
M1-2

A longitudinal, narrative case-study of interprofessional socialization among pharmacy students

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Purpose: Despite growing evidence that interprofessional education (IPE) develops students' attitudes and competencies towards collaboration, there is a lack of theoretical, longitudinal research to inform the development of IPE initiatives. Within pharmacy and other health care professions there is a movement to reframing education considering professional identity formation. The notion of 'interprofessional identity' has appeared more recently in the literature, defined as a sense of belonging to one's own profession and the interprofessional community. The purpose of this study is to examine pharmacy student interprofessional identity development during professional socialization experiences in the pharmacy curriculum and at entry into practice.

Methods: Narrative case study of three pharmacy student participants involved as part of a longitudinal investigation of professional socialization among five different cohorts of health professional students. One-on-one, semi-structured interviews were conducted at four-time points; at pre-entry, end of first term and at the end of first year of study, and at two years post graduation. Data was analyzed by narrative analysis.

Results: Four main themes were identified from the participants narratives that spanned longitudinally from pre-entry into the program through to two years into professional practice. 'The beginning': Narratives revealed that within early professional socialization, participants focused on understanding the scope of pharmacy practice and roles of other health professionals during early pharmacy curriculum and IPE experiences. 'First steps': Expansion of profession specific role understanding, and confronting pre-existing views or stereotypes were an emphasis early in the curriculum. 'Major strides': Participants most valued IPE opportunities that allowed them to enact their own role while working with others in authentic case-based, simulated, or experiential experiences that enabled the development of professional relationships. 'In practice': Interprofessional identity development in early entry into pharmacy practice, varied based on the practice setting context and their individual ability to enact a collaborator role depended on their ability to form relationships with other health care providers.

Conclusion: This study provides insight into the impact of professional socialization on interprofessional identity development. Findings can help to inform future IPE curriculum development. Future exploration of interprofessional identity development in pharmacy curriculum and practice is warranted.

ORAL PRESENTATIONS
M1-3

Pharmacy students engagement with clinical decision making: How do they handle ambiguity and uncertainty?

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Background: Working effectively in a clinical setting requires pharmacists to engage with messy and unpredictable situations that may have many reasonable solutions. Unfortunately, uncertainty in clinical decision making is infrequently addressed in pharmacy education. Acting with confidence while simultaneously remaining uncertain is very challenging for pharmacy students as they often conceptualize certainty to be a necessary precursor for action. As such, educators need to think deeply about how to help our students prepare for messiness and unpredictability in practice.

Goals: To engage students in a two-part simulation and subsequent structured reflection that may develop their skills in clinical decision making in ambiguous situations.

Description: Students interacted with a standardized patient who presented with depression. The objective of the interaction was to help the patient choose an appropriate medication. The interaction was assessed by a trained clinical instructor (CI) as part of a simulation course. After this interaction the student was asked to complete their first reflection, a modification of the Student Generated Reasoning Tool (SGRT). This tool prompted the student to think about outcomes that would influence the likelihood of changing their mind about the medication therapy they chose in the simulation. The next week the students returned to the simulation lab and had a follow-up simulation where the student had the opportunity to see the downstream effects of their decision. Each patient had experienced a bad outcome, unexpectedly, and the student needed to deal with the consequences. The consequence was purposefully negative to demonstrate that even good decisions can lead to poor outcomes. After this simulation, the student filled out a guided reflection which asked them to reflect on what they learned or experienced during the pair of simulations and explored the factors that made them comfortable/uncomfortable in deciding what to do**.**

Relevance to Pharmacy Education: The purpose of this educational intervention was to assess whether introducing students to ambiguous patient scenarios in a simulation setting, and then following up with a semi-structured reflection, could help students understand that uncertainty is common in clinical practice, and that clinicians can still act and make decisions even if they are uncertain.

ORAL PRESENTATIONS
M2-1

Evidence-based data for the use of newly approved medications in older adults: A descriptive analysis from clinical trials to product monographs

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Purpose: Older adults have historically been excluded from clinical trials, limiting evidence-based data for pharmacy practice. It is unclear whether the situation is similar with newly marketed medications. We aimed to describe 1) the recommendations specific to older adults in monographs of newly marketed medications; 2) the representation of older adults in clinical trials of those medications.

Methods: We listed all medications that received a notice of compliance from Health Canada in 2006-2020, excluding those with indications irrelevant to geriatrics or only used in hospital. Based on the most recent product monographs available, we assessed the availability and clarity of recommendations regarding older adults, as well as those related to renal and hepatic impairment. We selected 30 medications widely used in older adults and found their associated National Clinical Trial (NCT) numbers on ClinicalTrials.gov. Phase III and IV randomized controlled double-blind trials led in Canada and/or United States were included. For each NCT, we extracted information on study design (e.g., trial's phase, inclusion criteria based on age), participants (e.g., mean age, number/proportion aged ≥ 65 and ≥75, number of concomitant medications/health issues), as well as efficacy and/or safety analysis specific to older adults.

Results: We included 195 monographs. A quarter (n=47;24%) reported a lack of data to evaluate efficacy and/or safety in older adults. More than half reported either unclear, uncertain or no recommendation for at least one stage of renal (n=101;52%) or hepatic (n=120;62%) impairment. From the 373 trials included most (n=217;58%) did not limit inclusion based on age, but only 93 (25%) included a proportion of older adults similar or above the proportion found in real-life setting and 90 (24%) included more than 100 older adults, as recommended by the International Conference on Harmonisation guideline on geriatrics. Only 2 studies (0.5%) reported the number of concomitant medications and 3 (0.8%), the number/score of comorbidities. Most studies (78%) did not provide any efficacy or safety data specific to older adults.

Conclusion: Clinical trials still appear to under-represent older adults. The resulting lack of clear recommendations in monographs compromises evidence-based practice in pharmacy.

ORAL PRESENTATIONS
M2-2

Beyond injection technique: Equipping pharmacy students with knowledge and skills to improve vaccination experiences

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Background: Pharmacists are administering more vaccines and vaccinating younger clients in community settings. As this service expands, pharmacy students require skills to promote vaccine uptake and improve vaccination experiences for their clients. In a data informed iterative step-wised approach over three years, we expanded our injections training at the University of Toronto to incorporate new approaches to building vaccine trust and improving immunizations experiences by reducing immunization stress responses. We introduced a vaccine delivery frame that promotes coping interventions called CARD (C-Comfort, A-Ask, R-Relax, D-Distract). The CARD system encourages collaboration between healthcare providers and clients in the selection of interventions to improve vaccination experiences.

Goals: To describe implementation and evaluation of new curricular approaches designed to nurture care provider and immunization competencies.

Description: We enhanced our PharmD vaccination curriculum through 1) course-based instructional approaches including didactic, online and workshop content, and 2) co-curricular activities in vaccine clinics. In 2021, we introduced content on building vaccine confidence including the CARD system for Year 2 PharmD students. Students applied this content through role playing in a video assignment. In 2022, an interactive online asynchronous CARD e-module was incorporated and students (n=232) applied their knowledge in a workshop-based discussion and video assignment. Focus groups (n=18 students) conducted after summer experiential placements demonstrated students valued CARD training and reported enhanced self-efficacy to support clients. They identified lack of resources and preceptor modeling as implementation challenges. In 2022-2023, we incorporated a role play simulation of the CARD system, using a checklist, for the assessment of each students' injection technique. We also developed and piloted a co-curricular activity whereby students participated in campus-based influenza vaccine pop-up clinics through Discovery Pharmacy. Over the course of 4 clinics, 27 students participated in vaccinating 476 clients. Students participated with preceptors and clinic staff in quality improvement huddles after each clinic, including related to CARD implementation.

Relevance to Pharmacy Education: Students value additional training in CARD to support their care provider role. Partnerships have expanded this training to other Canadian Universities, and pharmacy technician programs. Future directions include development of model case scenarios and continuous professional development programs for preceptors.

ORAL PRESENTATIONS
M2-3

Stakeholder value of real-time medication intake monitoring: A qualitative analysis

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Purpose: Smart medication adherence devices can track medication intake data in real-time, which allows caregivers and clinicians to monitor a patient's medication intake and optimize medication adherence. However, the value of real-time medication-taking data availability for different stakeholders is not well understood. This study aimed to investigate the value various stakeholders place on smart adherence products and real-time medication intake data.

Methods: Different stakeholders, including patients, caregivers, community pharmacists, pharmacy owners, physicians, and insurance providers, were recruited using a purposive sampling strategy. Stakeholders participated in one-on-one semi-structured virtual interviews. Value was defined as "the worth, usefulness, or importance of someone or something." The interview guide was guided by the ten values of Schwartz's value theory. All interviews were recorded and transcribed verbatim. Data were analyzed using Braun & Clark's Thematic Analysis framework, and codes were mapped back to Schwartz's value theory.

Results: Of the 31 participants interviewed, five each were patients, caregivers, insurance providers, and pharmacy owners, while seven were pharmacists and four were physicians. Qualitative analysis identified three themes and ten sub-themes, including (1) Perceptions of integrating smart medication adherence technologies and real-time monitoring (sub-themes: benefits expected from product use, valuable product features, potential users), (2) Technology adoption factors (sub-themes: social influence, user characteristics, healthcare system factors) and (3) Data management (sub-themes: privacy, data sharing, data reporting, liability).

Conclusion: Different individuals have different motivations and goals influencing their use of these products for daily medication management, leading to varying levels of value placed on them. Stakeholders expressed a desire for smart adherence products and real-time medication intake data, recognized the potential benefits, such as improved medication management and reduced caregiver burden. However, stakeholders acknowledged that certain product features and user characteristics could either hinder or promote the adoption of these technologies.

ORAL PRESENTATIONS
M3-1

Challenging the purpose, functions, and values of grading systems

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Background: The tiered grading system used in most North American universities is frequently questioned. Tiered grading systems are said to induce a culture of competition that values performance at the expense of learning, commitment, and cooperation. As a result, tiered grading systems would fail to nurture students' intrinsic motivation and empower them as hoped.

These concerns have led many universities and academic programs to consider changes in their grading systems. However, the literature remains ambiguous about the benefits of such changes and the generalizability of those benefits and invites us to question the rationale and confront our assumptions about grading systems. What functions should grade fulfill? What values should they convey? What effects should grades induce? In which aspects grading systems differ? How can the validity of a grading system be established?

Goals: The presentation will focus on the process undertaken by the Faculty of Pharmacy of the Université de Montréal to critically appraise its current grading system. The methodology used, the steps taken, and the challenges encountered will be discussed.

Description: By seeking to understand the underlying culture, a joint working group undertook to evaluate the Faculty of Pharmacy of the Université de Montréal current grading system. Through a questionnaire, focus groups and individual interviews, students, recent graduates, faculty, lecturers, and associate-deans were invited to share their perceptions and expectations of the grading system. These results were benchmarked against reported experiences in other Canadian faculties of pharmacy and other health sciences programs at the Université de Montréal.

Relevance to Pharmacy Education: Grading is a pervasive process in education. Seeking to understand the rationale of grading systems as well as latent assumptions about them will help implement valid, reliable, and fair grading systems in pharmacy education.

Testing: Revisiting best practices through the lens of cognitive load theory

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Background: Test or exam is a widely used assessment method that has several strengths. It enables the integration and sampling of a range of learning domains and facilitates collaboration among teachers in its development, administration, and scoring. A test is generally simple to administer to large groups. It allows for standardized passing requirements and uniform restrictions or constraints for all. For many, the benefits of testing provide an objective and reliable assessment of the skill level of learners.

Based on theoretical foundations such as classical test theory and latent variable theory, methods, scores and indexes have been developed specifically to analyze and establish the validity, reliability and fairness of tests and examinations.

However, for many, writing quality items and designing quality examinations remains difficult and complex, although good practices have been published. Some of these difficulties arise from the fact that many aspects of item interpretation and student interaction with items remain unknown or beyond our understanding.

Goals: This presentation proposes to revisit good practices in item writing and test design by drawing on recent advances in cognitive psychology, particularly around cognitive load.

Description: In cognitive psychology, the cognitive effort required to perform a task refers to the concept of cognitive load. Cognitive load theory suggests that one's capacity to process information is in fact limited. The characteristics of a task (exam and items), the layout of the information, the conditions imposed to perform it and the level of expertise of the learner appear to influence one's ability to process information. Students' performance on an exam can thus be altered, as can the validity of exams and the reliability of assessments of students' skill levels. Addressing these effects when writing items and developing tests or exams should be paramount.

Relevance to Pharmacy Education: Testing and its challenges are widely present in pharmacy education. Taking into account the characteristics of a task, the layout of the information, the conditions imposed to perform it, and the level of expertise of the learner would increase the validity of the tests and the reliability of the results.

ORAL PRESENTATIONS
M4-1

PharmD 2.0: Stakeholder engagement in an iterative process yields revitalized curriculum

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Background: Having introduced its entry-to-practice PharmD curriculum in 2014 with full implementation for the 2017 cohort, University of Waterloo School of Pharmacy had established a strong curricular foundation. Informed by stakeholders and guided by the school's strategy, in 2020 Waterloo Pharmacy opted to examine its curriculum for ways to offer students a more cohesive experience for a dynamic practice environment.

Goals: The goal of our curricular renewal process was to enrich student learning by drawing synergies between courses within and across semesters, by making explicit connections between classroom and experiential components of our curriculum, by eliminating redundancies and by introducing new content where warranted.

Description: Sources of evidence used to guide change included feedback from graduating student and alumni surveys, curricular mapping, and information collected from stakeholder groups as part of the school's strategic planning process. We developed a "straw man" based on this feedback. To promote buy-in, we held regular meetings with instructors teaching in affected areas. In a deliberately iterative process, we consistently incorporated their feedback. The proposal was then presented to larger groups, including students, instructors, and the wider School of Pharmacy community for further refinement and finalization. Approval at the faculty and university level followed. Key changes included new courses in pharmacy management, leadership, and culturally safe patient care; merging of courses with overlapping content related to health systems; reduced elective weight; concentration of institutional course material in a third year term; and revised fourth year structure that allowed the inclusion of "flex weeks" and academic periods interspersed between clinical rotations. We began offering renewed courses January 2023; implementation will continue through 2025.

Relevance to Pharmacy Education: As scope of practice, desired educational outcomes, and accreditation standards continue to evolve, pharmacy programs must regularly review and update curricula. This overview or the curricular renewal process at Waterloo Pharmacy provides a roadmap for other institutions looking to reinvigorate their programs.

ORAL PRESENTATIONS
M4-2

Feeling the burn: A qualitative study on the precepting perceptions of pharmacists in a tertiary care site

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Purpose: Experiential education as an integral part of the learning and training of future pharmacists. A positive clinical placement is rewarding and meaningful for both student and preceptor, but there are often challenges that can lead to preceptor fatigue and with prolonged stress, eventually burnout. Identifying pharmacist's perceptions and experiences with precepting in tertiary care setting is important in order to mitigate the precepting strain and also help to foster positive experiences. Understanding these challenges and solutions identified to address them provides pharmacy managers and experiential education teams with strategies to better support preceptors and the learning experience.

Methods: Data was obtained from 3 focus group sessions (N=12) over 1 week with voluntary pharmacist preceptors from a tertiary care site. An inductive thematic analysis was performed from the transcribed conversations by primary investigator, with a second opinion obtained by two pharmacist preceptors. Data saturation was deemed achieved when no new themes or ideas are generated in the focus groups. Focus group findings were shared with the pharmacy leadership team and pharmacists in a facilitated team meeting by faculty liaisons where the setting of priorities and a collaborative action plan was identified with strategies to address the needs.

Results: Four main themes were identified with several subthemes within. Firstly, pharmacist preceptors feel that it is difficult to balance the responsibilities between clinical duties and precepting tasks during the workday (Time Constraint). Secondly, Mismatched Expectations contributed to challenging placements and this occurred between student and preceptor, between different preceptors or of preceptor's image of themselves. Preceptors noted that seeing positive progress in students and being acknowledged by management is important (Preceptor Engagement). Lastly, pharmacists feel the emotional burden of precepting is often overlooked in general (Preceptor Burnout). Pharmacists prioritized to address Mismatched Expectations and identified strategies to communicate together and have consensus on expectations. An action plan was created to implement strategies over time.

Conclusion: Pharmacist preceptors share feelings of precepting fatigue, driven by time constraints, mismatched expectations and lack of engagement. Developing strategies that can target these areas may improve the overall precepting experience for both students and preceptors and reduce preceptor burnout.

ORAL PRESENTATIONS
M5-1

Optimizing our skills lab to improve quality of learning

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Background: New pharmacy regulations adopted by the Quebec government (bills 41 and 31) expanded the pharmacists' scope of practice with added responsibilities. To fully develop students' abilities and competencies to practice these new activities with confidence and efficiency, a working group analyzed how to enhance skills lab experience.

Goals: The working group identified the following objectives: i) recognize the need for abilities and competencies enhancement or development, ii) review best practices and pedagogical innovations in healthcare skills labs, iii) propose techno-pedagogical methods likely to fit learning needs, iv) evaluate the need for additional resources (material, space, IT solutions).

Description: A literature review summarizing best practices in pharmacy skills lab was conducted. Competency enhancement needs were discussed during focus groups with over 80 participants including students, recent graduates, professors, preceptors, instructors, and other stakeholders. Competency needs were classified into seven categories: communication, teamwork and interdisciplinary collaboration, ethical practice, physical and mental assessments, supervision and management of pharmacy services, professional role, and personal behaviour (stress management, reflective thinking, and empathy). Members of the working group visited three simulation labs and held nine semi-structured interviews with Canadian, American, and Australian skills lab directors to discuss their practices, organization, facilities, resource allocation, and overall challenges. A critical appraisal of the data collected led the working group to propose an updated skills lab educational model. To optimize quality of learning, a new *Simulation and Virtual Reality Center* will provide virtual simulation, simulations in "mocked" community pharmacies, interprofessional telesimulation, and a hospital environment discovery room. New physical facilities and IT support are planned. Details on the development of the project will be presented.

Relevance to Pharmacy Education: Pharmacy students' work in skills lab is central to their professional development. The new skills lab educational model is intended to provide pharmacy students with an optimal learning experience in a progressive learning atmosphere using new technologies and emphasizing interdisciplinary practice.

ORAL PRESENTATIONS
M5-2

Skills-based semi-immersive virtual reality (SIVR) scenarios in community pharmacy to support experiential learning

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Background: Authentic (real-life) situations are an important foundation of pedagogy in our skills-based pharmacy bridging program for international graduates. _Written_ case studies are the default format from which students are asked to solve problems or resolve situations. Role-play is a core learning activity in practice laboratories.

Goals: Our objective was to explore the utility of semi-immersive virtual reality (SIVR) as a complementary approach to support experiential learning.

Description: By impersonating a pharmacy apprentice in a first-person on-screen experience, students are challenged with commonly encountered real-life situations to achieve specific learning outcomes. After a greeting by the preceptor leading to a dashboard (menu), the user may explore the enriched environment at-will (virtual tour) or enter different interconnected scenarios (four clinical situations and two medication preparation procedures). Contents were created in collaboration with community pharmacists who actively contribute to student learning at the faculty. Photos and videos in 360° format were shot in a pharmacy near campus and assembled using WondaVR. Multiple quizzes and some decision points make the experience highly interactive. Isolated segments are the basis of stand-alone activities to support more targeted learning outcomes.

Relevance to Pharmacy Education: SIVR requires a significant investment upfront but then becomes much less resource-intensive than practice laboratories, while still exposing students to credible real-life situations and generating significant engagement. It may serve as a bridge between the classroom, the practice laboratory and the clinical rotation. Expert support from our university teaching center was instrumental in achieving effective SIVR design, through assistance writing and reviewing scenarios, on-site shooting, editing and WondaVR assembly. The use of SIVR to support experiential learning must be anchored in a limited number of learning outcomes. The level of difficulty encountered in the scenarios should not discourage or impede a fluid progression. Teachers and instructors must guide students adequately (scaffolding) when integrating SIVR in their contents. Debriefing is essential to maximise its value, while also alleviating the need for perfection, through critical thinking, and suggesting acceptable or better alternatives. The lifespan of scenarios may be increased by highlighting, or asking students to identify prospectively, updates in knowledge or best practices.

ORAL PRESENTATIONS
M5-3

PRIDE-RX progress updates: Navigating the straights and narrow of higher education

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Background: Promoting 2SLGBTQQIA+ Inclusion, Diversity and Equity in Pharmacy Education (PRIDE-RX) is a faculty-led, three-year initiative that seeks to integrate contents related to Sexual Orientation, Gender Identity and Expression (SOGIE) throughout the four-year UBC Entry-to-Practice Doctor of Pharmacy program. Upon completion of the program, pharmacy graduates will gain the knowledge and skills to provide quality care to 2SLGBTQ+ clients.

Goals: This presentation will describe (a) the evaluation data to date (April 2022 to March 2023), (b) the third-year elective course, and (c) next steps.

Description: Project Year One focused on the creation of the Queer Curriculum Advisory Committee (QCAC), the development and delivery of Professional Year (PY) 1, 2, and 4 mandatory contents, and the planning of the PY3 elective course. Evaluation was conducted on the following: QCAC members' self-assessment of the committee's performance and; student/instructor feedback on the SOGIE content delivered thus far. The evaluation data will inform the ongoing operations of the project and refinement of the course materials. We will discuss the PY3 elective planning process and highlight innovative learning activities. Amongst these activities, students will participate in the Ideathon challenge where they will be tasked to address a social justice problem provided by the City of Vancouver.

Relevance to Pharmacy Education: While it is well-documented in literature of siloed approaches in delivering 2SLGBTQ+ health content, there is a lack of a comprehensive and longitudinal approach to embed SOGIE education in pharmacist training in North America. We take a strength-based, community-driven, reflexive approach to inform our framework for curricular reform. The findings and lessons learnt from the PRIDE-RX initiative can guide other pharmacy programs across Canada.

Inclusive leadership: Multi-perspective "deliberative dialogues" in a leadership class

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Background: Coined a critical 21st century leadership skill, inclusive leadership (IL) *entails* leading a heterogeneous group in an empathetic, bias-free way, appreciating everyone's uniqueness while *elevating* differences of opinion. Since diversity is a core value in today's workplace, developing the next cadre of healthcare leaders who embody inclusivity is key. A "deliberative dialogue" is a facilitated discussion amongst a group of diverse individuals aimed at examining an issue and sharing perspectives, while expanding ideas, with the ultimate goal of understanding the complexities of the topic and coming to *informed opinions* (*not consensus*) about it. Multi-perspective deliberative dialogues about IL facilitated by pharmacists from marginalized populations and by volunteer senior pharmacy students who had previously completed the course, were implemented in a leadership course.

Goals: This initiative engaged students in a multi-perspective exploration of: differences between diversity and inclusion, challenges of free expression and diversity co-existing, how inclusive leaders lead, what it means to lead a safe vs. a brave space, what is needed to establish inclusivity, and intended/unintended outcomes of workplace inclusivity. The goal of this project was to bring awareness to and expand students' perspectives on these issues.

Description: A discussion between the course coordinator and the participating facilitators was held to review details of the course and objectives for the session. In a subsequent meeting, the facilitators themselves participated in a deliberative dialogue about IL via a deep-dive on the topic, sharing perspectives and examining its complexities. Following this, the facilitators co-led the session in the leadership course. Delivered online to enable the use of breakout rooms, the session enabled student to explore various aspects of IL. After the session, students completed a written assignment where they reflected about the session, the topic, and their learning.

Relevance to Pharmacy Education: This collaborative initiative is of relevance to pharmacy programs given the importance of graduating leaders who can model and promote inclusivity in the profession and in the workplace. We will share our experience and propose strategies to enhance student understanding of the importance of adopting inclusivity as a critical element in the workplace and in leadership roles.

ORAL PRESENTATIONS
SIG-1

Implementation and evaluation of experiential site outreach visits

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Background: Experiential learning is a significant component of our PharmD program and we utilize over 450 sites and 1100 preceptors annually. Maintaining quality experiential sites is essential to ensure academic rigor and support achievement of educational outcomes. Outreach visits are a way to confirm that preceptor and site qualifications and practices fulfill CCAPP standards and are aligned with the pedagogical objectives of our experiential program.

Goals: This presentation will describe the design, implementation and evaluation of our outreach visits program. We will summarize faculty and preceptor perspectives on the perceived value of the visits and present recommendations for continual improvement.

Description: Criteria were developed to identify and prioritize sites to visit during the academic year. Prior to each visit, an introductory message outlines the purpose and scope of the visit. Past student evaluations of the preceptor and site are anonymized and collated in a report and shared with the preceptor in advance of the visit. Visits are conducted onsite by Experiential Course Coordinators and Office of Experiential Education staff. Video-conferencing is utilized for out-of-province sites. An electronic form with questions relating to precepting and experiential rotation requirements is used to guide discussion and document findings. A post-visit survey is used to gather feedback from sites and faculty about the process and their experiences.
After an initial pilot, the program was implemented in the 2022/23 academic year. We will present our findings and lessons learned. Feedback indicates that preceptors perceive the visits as positive and are appreciative of the resources and expertise shared by the faculty, particularly regarding clarifying expectations of the different types of students and rotations. Faculty indicated that visits are a valuable means to verify there are opportunities for students to demonstrate all required educational components and assist sites with identifying areas of growth. Sharing best practices in precepting and experiential education and being able to observe exemplary teaching models were other perceived benefits.

Relevance to Pharmacy Education: Connecting with sites through regular outreach visits is a quality assurance mechanism that fosters high quality experiential opportunities for our students, provides 1:1 support to preceptors and strengthens faculty/site relationships.

ORAL PRESENTATIONS
SIG-2

Critical events shaping pharmacy student professional identity formation in introductory pharmacy practice experiences

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Purpose: Professional identity formation (PIF) is the process of internalizing a profession's core values and beliefs so that one begins to think, act, and feel like a member of that profession. Experiential learning plays a fundamental role in supporting students' PIF. There is a gap in understanding of the critical events that occur during experiential learning placements and their influence in shaping pharmacy student PIF. This study explores critical events for pharmacy students' PIF during introductory rotations in community and hospital settings.

Methods: Critical event narrative inquiry methodology was utilized. A critical event is defined as an experience that creates a change in understanding or worldview that impacts the performance of an individual in a professional or work-related role. Semi-structured interviews were conducted with pharmacy students who completed introductory pharmacy practice experiences (IPPEs) rotations in community (first year) and hospital (second year). Interviews were coded and analyzed using narrative analysis.

Results: Twelve first year and ten second year students participated in the study. Critical events varied between participants and involved both observation (e.g., preceptor actions) or individual experiences (e.g., patient interactions, assessing patients, making decisions). Critical events were associated with a transformed understanding of core concepts related to the pharmacist's role, actions, and scope of practice. These concepts included patient-centred care, trust, clinical decision-making, professional autonomy, responsibility, accountability, and interprofessional collaboration. Preceptors acted both as a role model and a safety net allowing students the opportunity to assume responsibility for some activities during rotations. As a result of the critical event, participants were able to: develop confidence, expand their understanding of or uncover what they need to do to fulfil the pharmacist's role, or affirm that they were on track to having what it takes to be a pharmacist. Some students were able to begin seeing themselves in the role.

Conclusion: This study provides insight into critical events that may influence and shape pharmacy students' PIF in early experiential experiences. Key learnings from this study help to inform faculty or preceptor led debriefings to further support PIF.

ORAL PRESENTATIONS
SIG-3

Preparing students in a bridging PharmD program for advanced pharmacy practice experiences (APPE)

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Background: Learners in our PharmD bridging program have diverse practice experience, educational background and are geographically diverse. The diversity is enriching but poses challenges with experiential education. Learners may experience difficulty during their APPE's for a variety of reasons. Some have been in one practice setting for so long that they are not prepared for the evolution of pharmacy practice in a different setting. Many learners practising in non-direct patient care settings are not prepared to assume the identity of a pharmacist/student in a clinical setting. Furthermore, there may be a discordance in expectations (from self or preceptor) for learners in this program as they are pharmacists.

Goals: Grounded in the social constructivist theory and adult learning principles, this mandatory non-credit course was designed to help prepare learners for their first APPE based on common domains of struggle identified from previous learner assessments and a program evaluation initiative. A post course survey was used to evaluate the course. Targeted focus group interviews planned will provide qualitative feedback to guide revisions and addition of topics.

Description: Based on the results of a program evaluation indicating areas of academic struggle, three domains including professionalism as well as knowledge of the healthcare system and pharmacy practice were identified. Previous learner assessments identified an additional two domains including knowledge of APPE course requirements (expectations) and skills related to conducting a best possible medication history (BPMH) and medication reconciliation. Together, these formed the five modules of the Pre-APPE curriculum. An additional module containing mandatory faculty-wide pre-experiential COVID-19 learning was included as the final component. The Pre-APPE course was approved through the Program Committee and completed by 80 students. Fifty-seven students (71%) completed a post course survey where 74% found the course to be helpful and 84% indicated they would recommend the course to others.

Relevance to Pharmacy Education: Learners in a PharmD bridging program bring a diversity of professional and personal experiences, education and training. A curriculum informed by evidence can help to narrow any fundamental knowledge or skills gaps to prepare learners who may not be familiar with the healthcare system, pharmacy practice or the identity of the pharmacist in Canada.

ORAL PRESENTATIONS
SIG-4

Virtual simulation in skills labs: Developing a Canadian version of MyDispense

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Background: A working group from the Faculty of Pharmacy at the _Université de Montréal_ recently proposed an updated educational model for the skills labs, including virtual simulation as one of the new techno-pedagogical approach to provide students with basic skills within the safety of the simulated environment. Following a pilot project where two softwares were tested, _MyDispense_ was selected for further development. The open-source cloud software developed by Monash University is used by more than 200 universities worldwide. A team including professors and instructors was mandated to adapt the software to the French-Canadian environment and to propose an integration to the curriculum.

Goals: The working group's goal is to ensure an optimal integration of the software in the curriculum. The objectives for virtual simulation are to: i) provide more training on OTCs and herbal medications and related counselling, ii) expose students to more prescription validation and dispensing activities, iii) adapt some first year communication learning activities to online delivery mode to cope with larger cohorts, iv) offer more feedback, and v) suggest facultative revision activities prior to exams and OSCEs.

Description: A development plan including the type of cases and activities was established in May 2022 and is ongoing. For validation, dispensing and OTC exercises, approximately 600 Canadian medications were selected, photographed and integrated in the software. Translation into French of all phrases, titles and idioms was performed. Canadian templates for prescriptions, label and auxiliary labels were created or identified. A list of fictitious prescribers from various health professions was prepared and integrated. Using a template, more than 30 patient cases have been created and reviewed, then mapped in a spreadsheet. These cases have been progressively integrated in the skills labs. This project was subsidized by a fund from the vice-rectorate for academic affairs, making it possible to engage summer students and community pharmacists in this initiative.

Relevance to Pharmacy Education: The _Université de Montréal_ is the first Canadian university, and the first francophone faculty worldwide, to implement _MyDispense_. It is now successfully used by first, second and third year PharmD students. Future projects will aim to evaluate the impact of this technology on competency development.

ORAL PRESENTATIONS
SIG-5

Assessment of social determinants of health: Implementation and evaluation of a skills lab activity for pharmacy students

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Purpose: Social Determinants of Health (SDoH) are conditions in which individuals are born, live, work, and age, and account for up to 90% of health outcomes. Pharmacists have regular interactions with patients that present them with the opportunity to identify, assess, and offer assistance to individuals with social risk factors. There is a need for more education within pharmacy curricula to assist students in learning to identify at-risk patients and respond to diverse patient needs within their community including assessing SDoH. We describe the delivery and evaluation of an educational activity intended to improve students' ability to identify and provide care to patients with social risk factors affecting their health and medication use.

Methods: The activity was delivered to year-3 pharmacy students (n=127) and consisted of a pre-lab seminar, a brainstorming exercise related to identifying and assessing SDoH, and two case scenarios role played between groups of 4 students and a lab facilitator acting as the patient. A post-activity questionnaire was administered to students to rate their understanding and confidence in assessing patients' SDoH using a 6-point likert scale. Thematic analysis of free text responses was used to identify key learnings and additional learning needs.

Results: One-hundred students completed the post-activity questionnaire (79%). Fifty-six percent of students had no prior experience participating in an assessment of SDoH. After completing the activity, students perceived an increase in knowledge and skills related to the assessment of SDoH. Highest rated items included understanding how SDoH affects health and medication therapy outcomes. Students felt somewhat confident implementing strategies to improve medication use, and least confident in connecting patients to community supports to address social risk factors. The most common themes identified for additional learning needed by students included more practice experience with assessing SDoH, the use of screening tools, and learning more about resources available to support patients.

Conclusion: The educational activity provided an opportunity for students to further enhance their assessment skills to identify at risk patients and various SDoH. Further emphasis on improving student confidence in connecting patients with appropriate community supports and using screening tools are needed for future iterations of the activity.

ORAL PRESENTATIONS
SIG-6

Physical examination in pharmacy education: Where to start, and when to stop?

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Purpose: In Quebec, the scope of pharmacy practice has expanded in January 2021 and now explicitly dictates that pharmacists can assess the physical and mental state of their patients to monitor the impact of the therapy. Considering the unrestrictive nature of the regulation, opportunities seem unlimited and educational needs for both pharmacy students and clinicians in practice are extensive. Many faculties in North America have developed interesting training with regards to physical examination, but it is still unclear which exams truly add value to patient assessment in pharmacy and how such exams should be taught. We performed a Delphi study to determine by consensus which physical exams should be prioritized in pharmacy education.

Methods: Using existing literature on physical examination in pharmacy, we conducted an online Delphi survey from December 2021 to April 2022 with 16 pharmacists practising in a variety of settings and/or who are considered experts in this area.

Results: After two Delphi rounds, consensus was reached to either include or exclude 27 PE tests in entry-to-practice programs. One last round allowed to prioritize the agreed upon PE tests in terms of educational needs. Clinicians agreed that measuring blood pressure is indispensable and should be taught in priority, followed by pulse rate, weight and blood glucose measurements. Endocrine system and head and neck exams should be included in pharmacy program, but their clinical usefulness was considered less important.

Conclusion: We confronted our results with PE literature in other healthcare disciplines. We found that only few PE tests truly influence drug therapy management, that some exams can be quite difficult to perform accurately, and that without proper training and opportunities to retrain, skills decay can lead to dangerous misinterpretations. Pharmacy programs should consider teaching PE tests supported by evidence as having an impact on drug therapy management.

Developing a framework for faculties of pharmacy to engage in Truth and Reconciliation

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Background: The Truth and Reconciliation Commission final report set forth 94 Calls to Action, including 7 pertaining to health. These health-related calls to action cover a range of initiatives, including cultural competency training for all health care professionals, offering a course about Indigenous health issues, and to not only recognize the value of, but also to utilize, Indigenous healing practices. To date, no framework has been developed to guide Canadian faculties of pharmacy to meet these calls to action.

Goals: While it is important to recognize and acknowledge Indigenous health deficits, it is important for Canadian health care professionals to understand the historical and ongoing contexts of assimilation, colonization, racism, disparities in equitable access to healthcare, and differences between Indigenous and Western worldviews. These have all contributed to significantly poorer health and wellbeing outcomes for Indigenous Peoples. Understanding colonization, assimilation, and differences in worldview are among the first steps in truth and reconciliation and providing culturally safe care that is anti-racist and anti-oppressive, with the goal of creating equity within our healthcare system for Indigenous Peoples.

Description: A five-step framework is presented which outlines priorities for each year, and provides the context for each priority, with examples of evidence that would support the achievement of the priority. Progressive annual priorities are 1) Reflection and Preparedness 2) Faculty Development 3) Cultivating cultural safety and respectful engagement with Indigenous communities 4) Recruiting Indigenous learners 5) Integrating Indigenous content into classroom-based learning and 5) Promoting engagement with Indigenous communities through experiential education.

Relevance to Pharmacy Education: The purpose of this work is to discuss the importance of addressing the Truth and Reconciliation Calls to Action and to develop a framework to guide faculties of pharmacy in moving towards fulfilling this mandate both now and for the next seven generations. Not only will this work improve the preparedness of staff, faculty, students, and pharmacy professionals, but it is also expected to enhance the sense of belonging for current and prospective Indigenous students in pharmacy.

ORAL PRESENTATIONS
SIG-8

Developing First Nations-specific anti-racism, cultural safety and humility pharmacy education modules

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Background: Stereotyping and racism towards First Nations Peoples are systemic across British Columbia's (BC) healthcare system including pharmacy services. They are reproduced through education systems and on-the-job learning, leading to discrimination and reduced healthcare access.

The First Nations Health Authority (FNHA) and University of British Columbia's (UBC) Faculty of Pharmaceutical Sciences partnered in 2015 to support medication management services to First Nations Peoples and pharmacists working with First Nations communities. In 2022, the FNHA shared common challenges clients experience when accessing pharmacy services, from heartbreaking examples of racism and culturally unsafe care, with the UBC Pharmacists Clinic (the Clinic). The Clinic is a university-affiliated pharmacist-led patient care clinic that provides learning opportunities for students and healthcare professionals.

Goals: To develop pharmacy education modules, in a respectful way and in partnership with the FNHA's Health Benefits and Services team, that improve pharmacy teams' ability to provide culturally safe care for First Nation Peoples and communities.

Description: One module focuses on pharmacy-specific approaches to providing culturally safe care using interactive cases. The second focuses on improving relationships between pharmacy team members and First Nations Peoples.

Development utilized principles of relationships, storytelling and reciprocity and included conducting series of two advisory groups: one with First Nations consultants with experience accessing pharmacy services and another with pharmacy team members from various healthcare settings. The First Nations advisory group was hosted by a Métis facilitator and supported by First Nations Elders. The modules will include graphics developed by a First Nations artist. Participant demographics, learning activity data, and course evaluations will inform future dissemination, refinement and learning initiatives.

Relevance to Pharmacy Education: Pharmacy environments free of racism can lead to First Nations clients feeling respected and empowered to be decision-makers in their wellness journeys. They promote safer and more equitable access to pharmacy services and medications to improve health outcomes.

Historically, pharmacy curricula have not included approaches to providing culturally safe care. Although cultural safety programs exist, pharmacy-specific modules have yet to be developed. Our approach brought diverse perspectives together, including First Nations Peoples, pharmacy team members and the College of Pharmacists of British Columbia.

ORAL PRESENTATIONS
SIG-9

UPROOT: The delivery of a mandatory Indigenous health and cultural safety course in pharmacy

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Purpose: The UPROOT team at UBC, with the help of an Indigenous governance structure, developed the faculty's first mandatory Indigenous-focused course within the Doctor of Pharmacy program. Recently, the course completed its second iteration, where student feedback was collected to make amendments to course content that better highlights Indigenous Health. This project aimed to assess the impact of a compulsory course on Indigenous health on pharmacy students' understanding of culturally safe principles as well as their perceived comfort with Indigenous-specific clinical practices.

Methods: After the course, students were invited to complete two evaluation surveys. The first comprehensive survey assessed students' understanding of cultural safety and its relevance to pharmacy. Of note, a modified version of the survey was deployed to self-identified Indigenous students, to understand if they felt safe while taking the course. The second survey was UBC's mandated course evaluations. Over the two years, 204 survey responses and 228 course evaluations were collected and analyzed. Both evaluations utilized 5-point Likert scales followed by student justification of answers. Feedback was collated and using qualitative analysis, themes were identified.

Results: Over 90% of the course evaluations reported that the course content successfully met learning objectives, with 89/204 students reported that the lectures significantly improved their understanding of issues specific to Indigenous health. Three of the noted themes from both Indigenous and non-Indigenous student cohorts included (i) increased introspection/self-reflection, (ii) increased awareness of factors that influence patient interactions, and (iii) a stronger desire to advocate on behalf of their Indigenous patients. Among the cohorts, students wanted more course time allocated to facilitate their learning and further explore the course topics for a more holistic view of Indigenous Health.

Conclusion: The implementation of a mandatory Indigenous Health course better equipped students to understand complex issues such as implicit bias, the application of Two-Eyed Seeing models in healthcare, and the practice of trauma-informed care. The course evaluations highlighted both the need and students' desire for more education encompassing pharmacists' roles in practicing culturally safe care and how they can contribute to decolonizing and indigenizing healthcare.

SIG-10

Reconciliation by partnership: Developing a research project with Alexander First Nation

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Purpose: Research has explored patient perceptions of trust, communication styles, and patient experiences with community pharmacists, but these studies have not focused on an Indigenous perspective. Considering health disparities, inequalities in social determinant of health, distrust of health care systems, and recommendations by the Truth and Reconciliation Commission to increase Indigenous wellness, relationships must be built between pharmacists and Indigenous Peoples. It is important to gain Indigenous patient perspectives as pharmacy is built upon a patient focused pharmaceutical care framework, and because relationality is integral to Indigenous worldview. The purpose of this presentation is to describe how a Community-University Partnership with a First Nation community in Alberta facilitated the co-creation of a study of Indigenous views of pharmacy.

Methods: Community based participatory research (CBPR) was the approach used for relationship development and designing the study. A descriptive method is used to explain the steps and reflective experiences in the process.

Results: CBPR with Indigenous communities focuses on relationality, relevance, reciprocity, and respect. The Alexander Research Committee (ARC) in Alexander First Nation (AFN) serves to ensure that research in AFN benefits the community. Introduction to the ARC occurred through a relationship with a graduate student from AFN and the ARC taking an Indigenous methodologies course. ARC was presented with the proposed research project and considered it relevant and important to their Nation. Over 12 months 9 meetings were held to discuss the need for research, past research, roles, and expectations. The ARC had equal status as investigators and as the project objectives were established details such as framework, methodology, and research proposal including recruitment, consent and conversational interview questions were collaboratively designed. ARC was instrumental to co-development of the research project and facilitating relationship building within the community. Presenters will discuss challenges faced by academic researchers to integrate university requirements, such as ethics, within an Indigenous worldview, and how these were overcome.

Conclusion: Time and relationship were two essential ingredients in the development of a CBPR proposal. The partnership with Alexander First Nation has led to a funded and approved study ready to be launched in 2023.

POSTERS – PHARMACY EDUCATION
PE-1

Implementation of an academic electronic health record in patient case tutorials within an entry-to-practice PharmD program at the University of British Columbia

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Background: Hospital practice in British Columbia (BC) is in the process of adopting a province-wide electronic health record (EHR). In addition, many community and primary care practices have incorporated EHRs into the workplace. To better prepare pharmacy students for practicums and practice, increased exposure to EHRs is essential. In 2018, an academic electronic health record (aEHR) was developed at the University of British Columbia (UBC) and the platform was further developed in collaboration with the Associations of Faculties of Pharmacies of Canada. The aEHR was used to present patient case information during case-based learning (CBL) and tutorial sessions in UBC's Entry-to-Practice Doctor of Pharmacy (E2P PharmD) program.

Goals: To describe the implementation of an aEHR in Program Years 1 to 3 (PY1, PY2, PY3) of an E2P PharmD program, perceived benefits and challenges, and future plans.

Description: During the 2022W academic year, 32 aEHR cases were incorporated into CBL and tutorial sessions. Some case topics included asthma, heart failure, psychiatry, gastroenterology, musculoskeletal, dermatology, and infectious disease. Senior pharmacy students entered the patient cases to the aEHR, which were then edited by instructors, and added to UBC's learning management system. An instructional video and corresponding infographic helped students navigate the platform to gather the patient information necessary to identify drug therapy problems and make recommendations, optimizing patient care.

Relevance to Pharmacy Education: The aEHR was successfully incorporated into the first three years of the program. Students reported that the aEHR was easier to navigate with subsequent uses. Students also felt that this activity was authentic and appreciated its relevance to current practice. Instructors noticed an increase in students' ability and confidence to navigate the aEHR and very few students reported having technical problems. Some challenges include logistical issues about incorporating a case progression timeline into the aEHR and mirroring the look and feel of the various platforms in practice. In conclusion, implementation of the aEHR program-wide increased students' exposure to EHRs. Next steps include addressing some of the challenges identified and conducting an evaluation of its impact on practicum and practice.

PE-2

A learning structure for EDIA work

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Background: Learning in the areas of equity, diversity, inclusivity, and accessibility (EDIA) in academia remains self-directed in many institutions and the competency-based model of assessment that we use for students can be applied in order to note progress in EDIA initiatives for faculty.

Goals: At the end of my presentation, participants should be able to:
- Apply a competency-based learning model to EDIA learning
- Self-assess learning of EDIA initiatives
- Recognize awareness of others in EDIA learning

Description: Competency-based learning models acknowledge the path of moving from beginner to expert in pharmacy-specific skills. We can use the same model of progression from Insufficient Achievement à Growing à Proficient à Exceeding to the learning that occurs surrounding equity, diversity, inclusivity, and accessibility initiatives. I will provide examples and gentle guidance for each category (IA, G, P, E) to bring awareness to where we lie as individuals and recognize behaviours in others. This learning model can be employed in manner that both appreciates and encourages further learning in these areas, rather than solely focusing on problematic behaviour (i.e. calling-in rather than calling-out).

Relevance to Pharmacy Education: Since there is high diversity in the experiences informing faculty, using the same competency-based learning structure for EDIA initiatives is familiar and encourages self-awareness and builds community.

Steering the ship – Use of an evaluation matrix to inform quality improvement of course content of an introductory pharmacy practice experience

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Background: The Canadian Council for Accreditation of Pharmacy Programs (CCAPP) accreditation standards outline the need to conduct regular systematic reviews of curricular content, structure, process, and outcomes. This approach to quality improvement can be achieved through program evaluation, the systematic collection and analysis of information related to the design, implementation, and outcomes of a program for the purpose of monitoring and improving the effectiveness of the program. When the inaugural class for the entry-level Doctor of Pharmacy Degree Dalhousie College of Pharmacy started in 2020, the Practice Experience Program (PEP) concurrently developed and implemented introductory pharmacy practice experiences (IPPEs) for the first two years of the program. The need for a comprehensive approach to continuous quality improvement of the course content for the IPPE was recognized.

Goals: To describe the development and use of a structured approach to the evaluation of course content to inform subsequent changes and improvements for IPPE rotations.

Description: *Development:* An evaluation matrix for course content was developed consisting of evaluation questions, indicators, data sources and collections methods. Key evaluation questions related to appropriateness of the course components, preparedness of students/preceptors, and quality of the rotation experience. Indicators were developed to determine whether program outcomes were met. Data sources included student/preceptor evaluations, debriefs with students, PEP team communication and reflections, and analysis of evidence of learning from assignments. *Use:* At the end of each IPPE rotation, members of the Program Evaluation and PEP teams input data from all the data sources into an evaluation report aligned to each evaluation question. The data is then compared to the indicators by the PEP team and results used to inform programmatic decision making.

Relevance to Pharmacy Education: The importance of quality improvement is recognized in experiential education. This PEP course content evaluation matrix provides an example of systematic approach that uses evaluation questions, indicators, and aggregate analysis of data by the PEP team that results in a comprehensive approach to inform experiential curricular success or improvements.

PE-4

Implementation and evaluation of a drug-drug interaction decision making algorithm, TLC-Act, into pharmacy curriculum

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Background: Pharmacists in practice encounter drug-drug interactions (DDI) on a regular basis and utilize their clinical decision-making skills to evaluate DDIs and plan a course of action. However, a vast number of DDI exist and reliance of pharmacists on clinical decision support software for guidance on management of DDI can be problematic. Inappropriate overriding of DDI flags can lead to adverse patient outcomes. An algorithm, TLC-Act, detailing a path for clinical assessment of DDI was developed and successfully piloted in a cohort of Year 1 pharmacy practice residents. Therefore, incorporation of the algorithm should also support pharmacy students' development of clinical decision-making skills for DDIs.

Goals:
1. To develop asynchronous educational videos to teach students how to use TLC-Act
2. To develop patient cases for Program Years 1 to 3 (PY1-PY3) students in order to apply TLC-Act
3. To evaluate students' experience of the learning activity

Description: Five educational videos were developed in VYond that encompassed multiple facets of TLC-Act. After viewing the videos, students would have an understanding that TLC-Act was a tool that provided a systematic approach for assessing drug interactions with its objective being to improve drug interaction identification, assessment, and management in hospital and community practice. Students were given an introduction to how computer decision support (CDS) systems worked and how TLC-Act could be used to complement CDS systems in hospital and community practice. One of the videos included an example patient case using a step-by-step approach to applying TLC-Act. Additionally, two paper-based cases were developed for each year (PY1-PY3) that were reflective of their learning to date. A pre and post survey evaluated students' perspectives of the educational intervention was disseminated along with the learning activity.

Relevance to Pharmacy Education: It is important for educators to support students' clinical decision-making processes and offer them opportunities to refine this skill prior to advancing to their experiential rotations and transitioning into practice. TLC-Act is a DDI tool that will assist with this process. Next steps will include further integration of TLC-Act into pharmacy educational activities and evaluation of its impact on experiential education and practice.

PE-5

Supporting the provision of care for the deaf community

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Background: Communication barriers between pharmacists and the Deaf community can lead to misunderstandings in therapy, decreased access to care, and poor disease management. In published studies, pharmacists reported interacting with a Deaf or hard-of-hearing patient almost monthly. However, pharmacists felt unprepared to communicate with Deaf patients effectively and confidently. Pharmacists who participated in Deaf awareness training indicated it was effective in improving interactions with Deaf patients to provide care. Currently in Ontario, many pharmacists and Pharmacy schools may not have Deaf awareness training or resources readily available; therefore it is important to develop and share these resources.

Goals: To develop a guide and resources on Deaf awareness for pharmacists and pharmacy students to improve communication strategies and care for the Deaf community.

Description: A 30-minute video and two-page infographic were developed for pharmacists and pharmacy students which can be utilized for accessibility training. Upon completion of the educational materials, learners will develop an understanding of Deaf culture, identify barriers the Deaf population faces when accessing healthcare, and apply communication strategies through completing a case study. The video engages pharmacy learners to develop an understanding about Deaf awareness and apply their learning. Meanwhile, the infographic is a quick resource for pharmacy professionals to access strategies and tools for their practice. Also, the infographic lists additional resources for those interested in completing more comprehensive training.

Relevance to Pharmacy Education: Effective communication between pharmacy professionals and Deaf patients can ensure appropriate medication management and improve patient outcomes. Pharmacists and pharmacy students acknowledge that providing resources to enhance communication with Deaf patients can support patient understanding and engagement. Providing Deaf awareness training allows pharmacy professionals to support the needs and values of the Deaf community and can promote health equity and access to care.

PE-6

Pharmaceutical artifacts of the Faculty of Pharmacy of the University of Montreal and an educational initiative

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Background: The history of Canadian pharmacy began with the arrival of Louis-Hébert, first apothecary of New France, in Quebec in 1617. The University of Montreal launched its pharmacy school in 1919. The University initiated a pharmaceutical heritage enhancement approach in 2007.

Goals: Describe the educational initiative to present the artifacts of the Faculty of Pharmacy to pharmacy students.

Description: This multifaceted initiative included a website, an archive fund, exhibitions and quizzes. The website was launched in 2013 with a list of relevant history books, museums, a virtual museum of the Faculty's collection and a weekly historical blog. The pharmaceutical archive fund was set up following the first major donation (Hubert Brault, 1932-2019). Artifacts were stored, identified and inventoried according to museum good practices. They are visible to students and faculty members at the Faculty through glass cabinets (108 meters wide, 120 linear meters) installed in the public atrium. Students helped organized two exhibitions preceded by a conference: the Hubert Brault collection, 2019-2021 and the Denis Giroux collection, 2021-2023. As of January 31, 2023, the collection comprises 1902 artefacts (33% book, 36% medicine, 16% glassware, 14% equipment, 1% other). Starting in 2019, an annual educational activity was organized with 1st year Pharm.D. students. The 35-question quiz was aimed at recognizing artifacts and could be completed with a smart phone. Students were informed about portraits of pharmacists, old medicines, equipment, and supplies. The 213 students surveyed in 2022 indicated that their interest in pharmacy history ranged from none (5%), limited (31%), moderate (53%) and important (11%). Most (91)% considered this activity to be interesting/very interesting. Teachers used content from this activity in class as an educational opportunity.

Relevance to Pharmacy Education: The importance of knowing one's past and preserving our memory has been recognized by creating a pharmaceutical archive fund and faculty educational activities. Students enjoyed planning the exhibitions and learning about the evolution of the practice and meeting donators. This educational activity helped to increase their sense of belonging to their profession and teachers were able to use this exhibit as a support in the classroom.

Teaching of pharmaceutical legislation at the Faculty of Pharmacy of the Université de Montréal: 18 years of experience

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Background: Canada has two levels of jurisdiction (i.e. federal, provincial). The practice of pharmacy is highly regulated. The teaching of legislation varies from one faculty of pharmacy to another. At the Faculty of Pharmacy of the Université de Montréal, an integrated approach to this teaching has been offered for 18 years.

Goals: Describe the approach used for teaching pharmaceutical legislation at the Faculty of Pharmacy of the Université de Montréal.

Description: The teaching of pharmaceutical legislation is based on a reference work that is used coherently in many courses. This book is updated annually, and the 18th edition contains 1200 pages and 15 chapters. The book is used for teaching undergrads (PharmD (2 credits), qualification program (2 credits) and for professional development (3 credits; mandatory for pharmacists trained outside Quebec). In addition, it is used to support practice laboratories and referenced in other PharmD and master's degree in advanced pharmacotherapy courses. The book is accompanied by a learning platform (Moodle) that includes self-learning activities: 75 formative and as many summative multiple-choice questions, 15 essay questions, a subscription to a weekly blog (http://lsspharmacie.wordpress.com) and 25 videos about an online code of conduct. Undergraduate cohorts also benefit from interactive lectures that links to current events. Graduate cohorts use a self-learning approach with a final exam. Over 6750 students have been trained using this approach in 18 years. An annual update of the question databank (n= 1280) is done every 3-4 years with the help of a pharmacy student.

Relevance to Pharmacy Education: Practicing pharmacy requires a good understanding of the legal framework, its limits and its evolution. The teaching of legislation benefits from an integrated approach based on a reference book, a platform, a weekly blog and an interactive approach. The fact that all courses linked with pharmaceutical legislation are based on the same reference book and platform allows for cohesive content throughout the program. Each course is subject to a criterion-referenced evaluation performed by the students (n=7) and a score higher than the average was obtained for all criteria for legislation courses.

PE-8

Prioritization of topics for the creation of training video for the safe handling of hazardous drugs

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Background: Safe handling of hazardous drugs in healthcare facilities requires adequate training. The creation of training material is time-consuming and shared educational resources would be beneficial for healthcare centers.

Goals: To prioritize topics for the creation of training videos for the safe handling of hazardous drugs in order to provide harmonized training tools to Quebec healthcare center.

Description: The research team established a list of 53 training topics divided in six categories: safe handling principles, pharmacy, nursing, hygiene, spills and exposure. The questionnaire was pre-tested with 4 persons. It was sent to a convenience sample consisting of 85 participants from the community of practice on hazardous drugs composed of pharmacists and nurses. Nine persons were unavailable and excluded. A two-round Delphi technique was performed over two weeks. For the first round, participants rated the 53 topics from 1 to 9; 1 being a topic that should not be prioritized, 9 being a topic that should be prioritized. For the second round, only topics with a mean rating higher than 6 was sent for rating. The topics with a mean rating above 7 were selected for the project. 25 pharmacists and 16 nurses participated in the first round (41/76, 54%)). Twenty-three of 53 topics were selected for the next round. 28 pharmacists and 16 nurses participated in the second round 44/76 (58%). After the two-round Delphi, eight topics were prioritized: 1- Definition of hazardous drugs, classification, symbols, health effects, source and route of exposure, exposed personnel, 2- Individual protection equipment, 3- Intravenous preparation, 4- Other parenteral preparation, 5- Management of biological fluids and spills, 6- General maintenance principles, 7- Hazardous Drug Spills, 8- Accidental exposure.

Relevance to Pharmacy Education: Pharmacists and nurses involved in a community of practice identified eight priorities that would benefit from harmonized training content. This list is currently used to create learning modules for all Quebec healthcare centers and will also be used in the Pharm D curriculum. Involving clinician in the development of educational material will help providing relevant content and their implication continues as they review and comment the videos. This may contribute to reducing occupational exposure to hazardous drugs.

PE-9

Pilot testing a virtual interactive case system innovation to support pharmacist prescribing for minor ailments

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Background: Current literature on virtual cases illustrates increased learner self-directed learning and satisfaction. Virtual cases have not been explored in the context of pharmacist prescribing for minor ailments (PPMA). Providing pharmacy professionals and students with continuous professional development opportunities that mimic or simulate real practice, such as via the use of the Virtual Interactive Case (VIC) System may facilitate the uptake of PPMA in community practice.

Goals: Our pilot study aims to seek user experience of three minor ailment cases (allergic rhinitis, conjunctivitis, and herpes labialis (cold sores)) through VIC.

Description: An online user experience questionnaire was disseminated to pharmacy professionals and pharmacy learners who have completed at least one of the three pilot PPMA VIC scenarios. We asked about participants' subjective/perceived changes in confidence in conducting PPMA patient assessment, implications, and intention to practice changes after attempting the VIC cases. We received a total of 21 responses, which included eight pharmacy students and 13 pharmacists. Feedback to the pilot PPMA VIC cases was generally positive:95% of respondents indicated that the cases were easy to understand and follow; 62% agreed or strongly agreed that after completing the cases, they perceived an increase in confidence in conducting patient assessment and management of minor ailments. Suggestions for improved user experience included revising some of the patient interview questions, incorporating comprehensive scoring and feedback in the final case debriefing, and developing more scenarios. We refined the three PPMA VIC scenarios accordingly and developed an additional ten scenarios in response to the feedback and interest that was expressed by the respondents.

Relevance to Pharmacy Education: The VIC System may help support and stimulate pharmacist confidence and uptake in minor ailment prescribing. Utilization of virtual interactions such as the VIC System digital innovation may be adapted to other educational programs or curriculums.

Post-pandemic pedagogies in academic pharmacy: Piloting a technology-enabled hybrid course design for student engagement

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Background: In academic pharmacy, the COVID-19 pandemic brought rapid and significant changes, challenges, and opportunities for instructors. One such challenge was how to simultaneously engage students across attendance modalities (in-person and online) for hybrid delivery. For the Fall 2022 term, PHRM 241 Pharmacists in Practice II, a mandatory second-year career pathways course in UBC's PharmD program, piloted a hybrid course design for flexible student engagement.

Goals: To optimize student choice and engagement across attendance modalities in PHRM 241.

Description: UBC's polling software, iClicker, and Zoom were used to pilot a technology-enabled hybrid course design with student feedback gathered using iClicker. Students could choose to attend online or in-person. In-person students were invited to speak on microphones, use Zoom chat, and/or approach lecturers during breaks. Online students could use Zoom microphones and Zoom chat. Across modalities, students engaged through iClicker polls for participation marks. A survey was deployed mid-term, during class time. The students responded to multiple-choice questions (5) about attendance modality, engagement experiences and efficacy of iClicker to support learning. Text-entry questions (2) asked about factors that influenced attendance modality and an open-ended question. 97% students (n= 199) responded to the survey. The multiple-choice questions were analyzed descriptively while text-entry questions were thematically analyzed.

Attendance Modality: ~50% of students attended a mixture of lectures in-person and online. Many students made specific mention of flexibility in their personal life, work and program commitments (e.g., assessments) as influencing their decision-making. Some students appeared to strategically leverage this flexibility to support their learning (e.g., selected attendance modality based on interest and speaker field).

Engagement Experiences: ~50% of students reported no difference in their ability to engage with lectures based on their attendance modality. Remaining students were evenly split on whether they experienced better ability to engage online or in-person. The perceived efficacy of iClicker within the course was mixed. Similar numbers of students who expressed positive experiences (e.g., supported engagement) with iClicker expressed concerns (e.g., technical issues).

Relevance to Pharmacy Education: This hybrid course design, in academic pharmacy, demonstrated that technology-enabled engagement was feasible across attendance modalities and supported student choice and flexibility.

POSTERS – PHARMACY EDUCATION
PE-11

Building resources and assessments in neurology (the BRAIN Project) to optimize pharmacy student learning

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Background: Student learners are changing. PowerPoint in therapeutic teaching has long been the preferred method of instruction in the Entry-to-Practice PharmD Program's Neurology Module at the University of British Columbia (UBC). Although this method remains the primary resource, it does not always appeal to the diverse student learning styles in the program. As part of efforts to integrate students-as-partners in education, the BRAIN Project, funded by a student grant, aimed to develop new teaching and assessment resources to support students in Neurology.

Goals: 1) Develop new resources to engage students with different learning styles and improve the learning of complex therapeutic topics, 2) Implement BRAIN in the Neurology module, and 3) Evaluate the value of BRAIN resources on student learners.

Description: The Neurology Module is a 6-week intensive and consecutive block delivered to pharmacy students in second year. This student-led BRAIN project refined and developed nine teaching and assessment resources, including 1) overview videos featuring visual note-taking, 2) condensed therapeutic study notes, 3) patient-friendly analogies, 4) visual case walkthrough videos, 5) optional open study sessions, 6) exam preparatory sessions, 7) patient Q&A sessions, 8) pharmacotherapy algorithms, and 9) an interprofessional case with dental and physical therapy students. The post-module survey (n=33) revealed that 76% of students identified as visual learners and the pharmacotherapy algorithms (mean 4.8), condensed therapeutic study notes (mean 4.4), and visual notes (mean 4.4) were the top-rated resources on a 5-point likert scale (1=very poor; 5=excellent). Less valuable resources included the patient Q&A and IPE session. Analysis of qualitative data revealed 3 key themes: 1) creating digestible alternative resources helped facilitate learning, 2) students spent less time worrying about creating their own summary documents and, 3) students appreciated the additional effort placed in creating resources, which helped solidify knowledge of complex topics.

Relevance to Pharmacy Education: In the age of short-form videos and multiple media platforms, the average adult's attention span can no longer effectively absorb information from one source for an extended period of time. Although the resources created are not new ideas, delivery of educational materials through multiple modalities may promote inclusive learning to engage students.

Opioid assessment in pharmacy practice: An educational initiative for pharmacy students

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Background: In their Standards of Practice, Alberta pharmacists are required to complete an assessment for every patient who is prescribed an opioid medication or seeking an exempted codeine product. It has been identified by the pharmacy regulatory body, the Alberta College of Pharmacy (ACP), that there are potential deficiencies with pharmacists' ability to incorporate this type of assessment into their practice.

Goals: We describe the implementation of an educational initiative delivered to third year pharmacy students. The goals were to enhance the ability of pharmacy students to conduct an assessment of a patient presenting with an opioid prescription, identify risk factors for misuse, and develop an ongoing monitoring and follow up plan; meeting pharmacy standards of practice.

Description: The initiative was developed in consultation with ACP, and delivered to third year pharmacy students (n=129) and included a pre-lab seminar, demonstration of an opioid assessment using an instructor-developed assessment tool, and two patient simulations with a facilitator. A questionnaire was administered to students post-lab to rate their knowledge, skills, and confidence conducting opioid assessments. Thematic analysis of free-text responses identified key learnings and additional learning needs.

Forty-five students responded to the questionnaire (35%). Most respondents (73%) had not previously participated in an opioid assessment in practice. Following the lab activity, students indicated an increased level of comfort performing opioid assessments. The highest rated areas of confidence were the provision of education related to opioid use, conducting follow-ups, and appropriately documenting assessments. The lowest rated area pertained to addressing misuse or abuse. Common themes for key learning involved framing the purpose of the assessment and rationale for specific questions, and application of an assessment tool. Areas frequently identified for additional learning included addressing opioid misuse and abuse.

Relevance to Pharmacy Education: This educational initiative represented a collaboration between an undergraduate program and the provincial regulatory body to address potential gaps in pharmacy practice by allowing students to apply best practice for opioid assessments in a simulated patient scenario. Additional opportunities may exist to develop education at the undergraduate level to help promote adherence to established standards of practice for pharmacists.

The UPROOT Indigenous pharmacy student collegium: Creating safe spaces and scholarships for cultural learning

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Background: As decolonization and Indigenization efforts in programming continue across Canadian pharmacy schools, there is a growing need for improved support for Indigenous students. The University of British Columbia's Entry-to-Practice PharmD Program can be an isolating experience for many self-identified Indigenous students with the lack of opportunities to connect with other peers. To address this, the UPROOT team created the Indigenous Pharmacy Student Collegium (IPSC) to support and engage self-identified Indigenous pharmacy students.

Goals: The IPSC is a student-founded and led social club that was developed to allow students to explore their personal Indigenous identity. The Collegium is built on the following core tenets: student safety, respectful and inclusive language, mutual accountability for cultural safety, and collegial environment for support, friendship, and learning. The IPSC also creates opportunities for non-Indigenous students to engage in cultural learning.

Description: The IPSC acknowledges that Indigeneity exists on a spectrum and can be diverse. Members of the Collegium are all on different journeys and experience Indigeneity in different ways. Some may have grown up in Indigenous communities, while others have not. We recognize this diversity and welcome all students, with the understanding that we do not privilege or prioritize one's journey, knowledge, or experiences over another.

The IPSC has developed and offered cultural immersion events for all students (e.g. medicine bag making workshop) and Indigenous students only (e.g. tea-making workshop, land-based cultural trip). These events fostered an environment for cultural development and learning in a space with open and prejudice-free dialogue. Student feedback demonstrated strong support and value. The IPSC also developed two scholarship funds: 1) a travel fund for Indigenous students, and 2) an engagement fund for Indigenous and non-Indigenous pharmacy students for connecting with Indigenous communities, professional and personal development, and participation in cultural activities.

Relevance to Pharmacy Education: Pharmacy students are primarily exposed to Western methodologies for teaching and learning. The IPSC is a student-led approach to fostering both community and personal learning. Cultural immersion events provide students with the opportunity to scaffold learning from mandatory Indigenous health and cultural safety learning with a community of peers and scholarships offer the financial support for personal growth and learning.

Choose your own adventure: Co-developing an online communication learning tool

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Background: In 2014-5, a team of one educator and two students created an online communication tool called PEGGY 1.0 (i.e., Patient Engagement Guide & Guru for You) using Articulate Storyline®. Four modules were developed, each with an introduction with exercises such as drag-and-drop, fill-in-the-blanks, multiple choice, and matching activities paired with patient interaction. The patient interaction involved scenarios where the students choose how to respond to patients and follow the consequences of their choices. Over 1000 pharmacy students have used PEGGY 1.0 to learn communication skills at their own pace, curiosity, and motivation, allowing an individualized learning experience. PEGGY required an update due to technological advances, pharmacy practice, and increased sensitivity to equity, diversity, and inclusion issues.

Goals: We aimed to update an online interactive learning tool to engage students in patient-pharmacist communication skills.

Description: A pharmacy student (SDP) led the revision of PEGGY over the summer of 2022. PEGGY 2.0 incorporates practical advice on fostering an inclusive pharmacy environment. Additionally, the student is introduced to concepts relating to pharmacy management systems, electronic health records, and electronic medical records, preparing the student for current practice. PEGGY 2.0 allows the student to respond empathetically to the patient and collect relevant medical and social history. This tool also familiarises the student with identifying drug-related problems and developing care plans to address them using professional written communication. Recognizing the importance of communicating this care plan to patients, PEGGY 2.0 also emphasizes the importance of techniques, such as lay language. In the fall of 2022, 130 first-year pharmacy students accessed PEGGY 2.0 over 754 times.

Relevance to Pharmacy Education: Pharmacy educators have been called to use active learning to engage students in developing the skills needed to become patient-centred practitioners. Yet, the high cost of patient simulations limits their use. PEGGY 2.0 allows students to experiment with new communication techniques and learn from mistakes in a low-risk environment. Next steps are to evaluate the effectiveness of PEGGY 2.0 on students' learning.

Supporting institutional practice sites to foster a culture of precepting your own

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Background: Alberta Health Services (AHS) and Covenant Health (CH) provide all of the institutional experiential education learning placements within Alberta for the University of Alberta (UofA) Faculty of Pharmacy and Pharmaceutical Sciences program. One of the objectives of the AHS/CH and UofA Experiential Education Steering Committee includes fostering a culture of precepting within their practice sites and pharmacist teams. Experiential education experiences are important for students to form their professional identity and develop competencies to succeed as future pharmacists. It is important that the clinical environment, preceptors, healthcare team and site fosters a culture of precepting to support students' learning.

Goals: 1) Identify what factors within experiential learning environments contribute to a culture of precepting. 2) Facilitate engagement sessions with AHS/CH leadership teams for the development their own vision that supports a culture of precepting. 3) Theme and summarize findings from engagement sessions for practice sites to promote and action.

Description: A literature review was performed to elucidate what factors can help create a culture of precepting during experiential learning. From the literature, we identified different attitudes, values, goals, and practices related to precepting that support student learning. Psychological safety, creating a supportive environment, ensuring time for assessment, feedback and reflection were emphasized in multiple resources. Discussions were facilitated with AHS/CH pharmacy leadership teams to share and gather information on different elements that are currently in place in AHS/CH sites that help foster a culture of precepting and strategies to continue that vision or support. Common factors identified included precepting is an expectation, providing support to preceptors, knowledge sharing between preceptors and learners, setting expectations for students and understanding students' expectations, innovative models of precepting (i.e., PAL, co-precepting).

Relevance to Pharmacy Education: Experiential learning is a critical aspect of pharmacy education as it allows pharmacy students to acquire skills and real life experiences to consolidate their theoretical knowledge. A learning site that has a defined culture of precepting and a vision that supports it for growth, will facilitate the mentorship process for both preceptors and students, student learning, as well as improve preceptor and student satisfaction.

Microlearning as a pedagogical tool in an online learning activity for PharmD students

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Background: Microlearning is an educational modality whereby content on a particular topic is delivered in short, interactive online learning units. It is learner-focused, self-paced, and allows multimedia-enriched digital content to be accessed via multiple device types. Due to ongoing pandemic-related challenges, an in-person workshop for students about Feedback transitioned to an asynchronous format and was re-designed using microlearning as a pedagogical tool.

Goals: This presentation will describe our experience with utilizing microlearning to create and deliver an educational session for students.

Description: The Feedback session is part of a required third year course to prepare students for Advanced Pharmacy Practice Experience rotations. Utilizing the 7taps™ microlearning platform, six modules (5-10 min each) were designed that covered specific objectives related to giving and receiving feedback. Content was structured and sequenced to facilitate critical thinking and reasoning. Each module contained multimedia and interactive components including audio recordings, slides, quizzes, videos, reflection questions, 1-pagers and references.

The final exercise asked students to apply what they learned by providing feedback about their microlearning experience. Overall students found the microlearning platform easy to use and navigate. They appreciated that the topic was divided into "digestible" modules which were short and concise which prevented mental fatigue. They also liked that each successive module incorporated information from previous ones. Short quizzes and supplemental references reinforced key messages. Inclusion of inspirational videos drawn from experts aided learning and prompted reflection. Case examples and "what if" scenarios were relatable and realistic. Embedding interactive, visual and audio components throughout was effective to keep their attention.

Suggestions for improvement included more demonstrations of feedback conversations and the ability to download a consolidated version of the content to facilitate note taking. Technical challenges included the lack of smooth interface between 7taps™ and external links and poor screen optimization on certain devices.

Relevance to Pharmacy Education: Microlearning is a relatively novel strategy that can be used to promote active learning and student engagement in an online environment. Students reflected a positive experience, noting it was more engaging than traditionally used forms of asynchronous teaching. This strategy has potential to be expanded further in pharmacy and other health professions education.

POSTERS – PHARMACY EDUCATION
PE-17

Implementation of a novel and individualized online therapeutic discussion between a student and pharmacist instructor within an entry-to-practice PharmD program at the University of British Columbia

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Background: Providing opportunities for pharmacy students to integrate their knowledge and apply their skills in the pharmacy skills lab is essential. During the unprecedented shift to online teaching and learning in pharmacy schools during the COVID-19 pandemic, there was a reduced ability to offer in-person time for such learning activities. As a result, novel one-on-one therapeutic discussion activities were developed and piloted via Zoom in Program Year 3 (PY3) at the University of British Columbia's (UBC) Entry-to-Practice (E2P) PharmD Program.

Goals: To describe the implementation, perceived impact and planned expansion of an online novel individualized therapeutic discussion activity in PY3.

Description: A one-on-one open book session was scheduled on Zoom twice during the term for 200 PY3 students using the 10.5 hours typically scheduled for Skills Lab per week. To accommodate all students, 13 pharmacist facilitators participated in the session. During the 30-minute session, students were presented with a patient scenario and were asked a series of 8 questions in an authentic simulation of a student-preceptor discussion. These questions assessed the student's ability to apply their therapeutic knowledge in a progressively complex manner. The formative nature of the activity allows each discussion to be tailored to meet the student's needs. Students also submit a reflection within 24 hours of completing the activity.

Relevance to Pharmacy Education: Given the positive feedback from students and instructors, this activity is now part of the PY3 core curriculum. Course feedback showed student enthusiasm for this activity with requests for more sessions. This may have resulted from the creation of a safe and supportive learning environment that allowed students to identify gaps in their knowledge and get tips on approaching patient cases, as mentioned by students to instructors. Instructors also enjoyed the personalized approach, and it provided facilitators who are also preceptors a better understanding of the curriculum. Initial challenges identified include scheduling, sustainability, and the development of materials. Overall, this novel online activity has increased students' confidence in working up patient cases, ability to address knowledge gaps, and engagement. Next steps include expanding this learning experience in other years and conducting a formal evaluation.

Conducting a validation study: Challenges and issues in selection

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Background: The selection of students into an academic program is a sensitive and highly significant process. Selection processes must identify candidates with the attributes and capacities required to successfully complete the academic program and become a competent and productive professional. Frequently, a combination of methods, instruments, criteria, and indicators are used to guide selection decisions. Unfortunately, their validity remains, for many, inconclusive.

In fact, validation demands for a sound conceptual framework plus well-argued and evidence-based Inferences are needed. Furthermore, contextual, and provisional issues must be made explicit. Engaging in such rigorous process requires time, resources, and expertise.

Over the past year, the Faculties of Pharmacy of the Université de Montréal and the Université Laval each undertook distinctive validation studies of their respective selection processes.

Goals: This presentation will compare the rationale, assumptions, conceptual framework, and methodology put forward in each institution It will address challenges encountered and conclude with a critical appraisal of validation procedures.

Description: The faculties of pharmacy at Université Laval and Université de Montréal rely on two common criteria and indicators to guide selection decisions: the "Cote de rendement" (a proxy for the GPA) and the score on a situational judgment test (CASPer). However, contextual, provisional, and circumstantial factors and alternative assumptions have led faculties to interpret, use and challenge the validity of selection procedures from different angles and approaches. By contrasting procedures, assumptions and methodology, convergences and singularities will be highlighted to illustrate some of the common issues and challenges.

Relevance to Pharmacy Education: Validation studies offer an unparalleled look at the various decision-making processes in education. They provide an opportunity to question the use of data and expose the consequences of that use. Reflecting on the issues and challenges of this type of study is essential for all faculties of pharmacy.

A prescription for healthy life habits among PharmD students

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Background: Stress, anxiety, and burnout have become important issues among Pharm.D. students. Many students report that their workload prevents them from having and maintaining healthy habits including eating a balanced diet, sleeping enough, and exercising regularly. With a strong belief that future pharmacists cannot take care of others unless they learn to take care of themselves, we sought to implement a wellness pilot project as part of the first year of the PharmD program at the University of Montreal.

Goals: Our goal was to promote students' good lifestyle habits and awareness of their future role in promoting healthy habits to their patients. The secondary aim was to evaluate perceived stress and quality of life using standardized instruments.

Description: The project was implemented as part of two first-semester courses during Fall 2022. Students were asked to choose 4 of the 9 dimensions of wellness (social, physical, emotional, spiritual, intellectual, financial, occupational, environmental, and digital) to work on. Using the SMART method, they had to define one objective for each dimension of wellness. Students were provided with habit trackers and institutional resources for support. Socio-demographic data were collected at the beginning of the project. A survey, Perceived Stress Scale (PSS), and Health-related quality of life (HRQoL) scores were administered at the project's beginning and end. At the end of the semester, each student wrote a short report on their overall experience and feedback on the relevance of the project.

A total of 197 students participated in the project, 60% being women. The mean age is 21 ± 4 years and most (73%) spoke primarily French. PSS mean score significantly decreased following the start of the project (18.1 ± 6.1 vs 19.5 ± 5.8, $p<.05$). More students were engaging in weekly physical activities (68 vs 62%, $p<0.05$) and fewer students reported mental health issues (48 vs 57%, $p<0.05$). Most students (87%) were satisfied with their experience and suggested extending the project to the entire PharmD student population.

Relevance to Pharmacy Education: This project aimed at promoting wellness among first-year pharmacy students. Future pharmacists must take care of themselves and realize how difficult it is to adhere to new health behaviors.

Building patient-informed medication resources for Parkinson disease

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Background: Parkinson Disease (PD) is a progressive, neurodegenerative disorder most commonly characterized by difficulties with movement. Medications play a meaningful role in managing the symptoms of PD and must be adjusted frequently as the disease progresses. Long wait times between appointments with care providers can lead to challenges with medication self-management. This collaborative project between Parkinson Wellness Projects, local healthcare providers, and the Building Resources and Assessments in Neurology (BRAIN) Team at UBC aims to build patient-engaged resources and curriculum to support the teaching and learning of PD medications for both patients and students.

Goals: 1) To determine the medication-related supports needed by patients and their caregivers across both early and late/advanced stages of PD; 2) To present findings and recommendations to patient advisory committee; 3) To build open education resources that will benefit both patients/caregivers and pharmacy student learners in the entry-to-practice PharmD Program.

Description: This project utilizes a community-based participatory action research framework to guide project outcomes toward mutually beneficial goals. Our team included a local PD non-profit, a PD patient advisory committee, a movement disorder and neurology specialist, a community pharmacist, a pharmacy faculty member, and four pharmacy students. We deployed online surveys broadly and ran two large focus group events for patients with Parkinson's and their caregivers. Thematic analysis of our survey (n=97) and focus group (n=54) data revealed 4 key challenges patients face in their medication management: 1) making sense of drug and non-drug options, 2) dose optimization and the principles of medication self-management, 3) identifying key motor and non-motor self-monitoring parameters, and 4) inadequate pharmacist knowledge and support.

Relevance to Pharmacy Education: As health care shifts towards a more integrated model, it is essential to engage patients-as-partners in curriculum building that will better equip pharmacy students in practice. Our findings will be transformed into a toolkit that fulfills the needs of patients, caregivers, and current and future pharmacists. Based on findings and our advisory committee, the toolkit will include a concise chart comparing drug alternatives, a troubleshooting algorithm for side effect and symptom management, and a self-monitoring template to facilitate dose adjustment decisions for patients and practitioners (e.g., PD action plan).

PE-21

Frozen II: Still letting it go... student reflections on professional identity formation as they transition to practice

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Background: The transition from school to work, from student to practitioner, can be challenging. It is recognized that there exists a cognitive dissonance between what pharmacy students are taught in school and what they observe in practice. As educators, we do not always best prepare learners to take responsibility for their practice and ongoing professional development. With the aim to help develop a strong professional identity and to resolve the disconnect between school and practice, we set up a learner-centred, group-based course. Students selected topics to explore as well as the way in which they would demonstrate their learning.

Goals: We will share 2 years of data on learners' experience with a student-driven course that aims to further their professional identity formation.

Description: While on their APPE rotations, students are enrolled in a 1-credit "PharmD Seminar" course in each term (2021/2022 n=122; 2022/2023 n=132). Students select topics to explore as well as the way in which they demonstrate their learning. A list of resources (e.g. readings, videos, podcasts, books) across several broad professional development themes/topics (e.g. equity, diversity, and inclusivity; collaboration; lifelong learning) was provided, along with a list of potential artifacts of submission (e.g. discussion minutes, reflection, book club synopsis). Topic selection and experience of learning data will be compared across the two cohorts. In year 1, the Brookfield Critical Incident Analysis was used to assess the learners' experience of the course; this, along with student feedback and peer review, was used to modify the course. For cohort 2, an individual reflection on students' evolving professional identity was added to gauge their development and learn more about their journey.

Relevance to Pharmacy Education: Research has shown that pharmacy students experience difficulty in transitioning from school into practice. We presented data from the inaugural offering last year, which is complemented with further data from the second offering. The intentional self-directed educational activities in this course are one way other educators can support learners' professional identity formation in their own programs, with the aim of improving their confidence to become engaged professionals.

Development, launch and evaluation of a preparatory online learning platform for students in a pharmacy bridging program for international graduates

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Background: Between 25 and 30 students are admitted yearly to our pharmacy bridging program for international graduates _(Qualification en pharmacie)_, after an assessment of diploma equivalencies by the Québec College of Pharmacists (max. 64 course credits prescribed over 16 months with 4 mandatory rotations). These students form a heterogenous cultural group with different educational and professional experiences.

Goals: We aimed to improve the variable degree of proficiency of students for select prerequisites and promote their success in the first trimester.

Description: Select online contents organised by themes were developed based on perceived needs (student survey, teaching staff observations), and hosted on our learning management system (_StudiUM_ Moodle). Students were asked by email to voluntarily use the platform in the summer before the start of the program. While some self-assessments were in the form of a traditional test (ex., choice questions), others relied on a rating of perceived self-efficacy for solving real-life pharmacy problems after viewing detailed solutions. Low scores lead to a suggestion of self-learning through exercises on the platform or readings. Students were surveyed to evaluate the platform towards the end of their first trimester. Moodle use statistics were analyzed by activity.

Relevance to Pharmacy Education: Most students had never used a Moodle. Written instructions or explanations may be unclear or confused with the other pharmacy bridging program information sent around the same time. While the online platform was used by many students, positively rated and deemed useful overall, some obstacles may have prevented greater use. Personal situations (ex., working to support a family) may limit available time. Students may underestimate the level of difficulty of our pharmacy bridging program or ignore what will be expected of them in a competency-based approach. As adult learners and foreign pharmacy graduates, the perceived need or motivation to voluntarily prepare for the program may have been influenced by attitudes towards more training requirements before licensing. Additional preparatory contents were suggested by students, some as an advanced start to the program not qualifying as prerequisites. The utility of the platform may be maximised if the teaching staff recommends its use selectively as a refresher at the start of the trimester.

POSTERS – PHARMACY EDUCATION
PE-23

Whiteness in our educational institutions

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Background: As weapon of colonization, Whiteness negatively impacts the educational institutions we work in, regardless of individual racial identity. While the goal of a university is to bring people together for research and higher learning, White Supremacy, which is inevitably engrained in our institutions, aims to divide and isolate in order to maintain patriarchal power structures.

Goals: By the end of our presentation, participants will be able to:
- Recognize that Whiteness is embedded in both the administrative and curricular arms of higher educational institutions.
- Self-reflect on White Supremacy ideology in order to devise leadership and teaching techniques that promote human togetherness as opposed to Whiteness.

Description: Qualitative evidence from humanitarian research describes the White Supremacy program using 14 distinct characteristics. This list does not intend to generalize the experience of White Supremacy, nor should it be weaponized against others, but rather help guide our learning and reflection on this topic. Fear, Perfectionism, Worship of Written Word, and Quantity Over Quality, are a few of the most prevalent characteristics that exist in academia and higher education. This presentation draws from primary equity, inclusivity, diversity, and accessibility (EDIA) research to first define these White Supremacy characteristics, then provide case reports of how these characteristics are at play in university settings. Immediate, future, and far-future techniques in deconstructing colonization-derived Whiteness in educational practice will also be suggested.

Relevance to Pharmacy Education: Calls from Indigenous communities to de-colonize our spaces requires a deeper understanding of the characteristics that support colonization. Despite its unconventional use in the EDIA space, the term White Supremacy represents a sociocultural program that affects us all, regardless of our individual identities. Modern-day pharmacy practice utilizes compounds to improve the health and wellbeing of all bodies regardless of their ethnic and/or racial origins. A necessary step in de-colonization is to analyze how White Supremacy is upheld in research, teaching, and professional settings, as it must be acknowledged that western evidence-based medicine relies on the grouping, generalization, and ultimate segregation of people. Without this acknowledgement of White Supremacy as the root cause of inequity in our institutions, effective EDIA work becomes unachievable.

Implementation of a discrimination in health care reflection assignment within program year 1 of an entry-to-practice PharmD program

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Background: As a first step in eliminating or reducing barriers to healthcare, pharmacy students should develop an awareness that patients may experience challenges in accessing and receiving care due to their race, gender, sexual orientation, religion, physical appearance and/or socioeconomic status. Barriers may be organizational or systemic in nature and can result in discrimination that impacts the individual, the healthcare system, and society. A reflection assignment on Discrimination in Healthcare was piloted within Program Year 1 (PY1) of the University of British Columbia's Entry-to-Practice Doctor of Pharmacy (E2P PharmD) program.

Goals: To describe the implementation of a Discrimination in Health Care reflection assignment during the 2022W academic year.

Description: During the summer of 2022, faculty members attended a workshop: "Racism is Deadlier than You Think: Listening, Unlearning, and Relearning to Promote Anti-Racism in Healthcare Education." As a result, a new "Reflection on Discrimination in Healthcare" written assignment was added to an existing portfolio assigned in Term 1 to all 222 students enrolled in PY1 of the E2P PharmD program. Resources for this assignment included links to: racism equity tools and equity, diversity and inclusion glossaries, a Canadian Pharmacist Association Webinar: "Discrimination and racism in the pharmacy profession part 1: Experiences from the front line ", articles describing incidents of discrimination, and suggested reflection questions. Appropriate campus resources were also provided in the event that students experienced or witnessed acts of discrimination.

Relevance to Pharmacy Education: A thematic analysis of students' written reflections revealed students were able to describe the challenges that some patients face because of their race, gender, sexual orientation, religion, physical appearance and/or socioeconomic status. Students were also able to detail the impact on the individual, society and healthcare system and suggest ways to eliminate discriminatory practices in healthcare settings. Instructors felt it was important for students to reflect on this topic early in their healthcare education and did not encounter any students who expressed discomfort when writing their reflections. The next steps include developing activities in subsequent years to continue developing students' ability to recognize and reduce discrimination during practicums and practice.

Development and implementation of a mental calculations module within program year 1 of an entry-to-practice PharmD program

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Background: The ability of pharmacists to correctly perform simple calculations is important to patient safety. It also impacts pharmacists' ability to provide patients with evidence-based information regarding the risks associated with or without treatment. Over the past few years, faculty observed that pharmacy students are limited in their ability to perform mental calculations. Developing this skill may aid in recognition of mathematical relationships and would promote logical reasoning. Even when using a calculator, performing quick mental calculations would result in greater confidence in the calculated answer. A mental calculations module was developed and piloted during the 2022W academic year.

Goals: To describe the development and implementation of a Mental Calculations Module in Program Year 1 (PY1) of the University of British Columbia's Entry-to-Practice Doctor of Pharmacy (E2P PharmD) program.

Description: During the summer of 2022, directed studies students were asked to create a Mental Calculations Module, which was to be added to the beginning of five existing math modules. The Mental Calculations Module consisted of examples, links to videos and practice questions. The 222 students enrolled in PY1 of the E2P PharmD program were assessed on this module using a ten-minute, ten-question quiz. The use of calculators was not permitted during the quiz, and students were required to obtain a mark of at least 80% on the quiz to be successful. Unsuccessful students were given the opportunity to complete a supplemental quiz.

Relevance to Pharmacy Education: The Mental Calculations Module was successfully incorporated into the first year of the program. Students reported that the new module was useful and appreciated its applicability to pharmacy practice. Some students found evidence-based risk calculations difficult to understand initially as it was not introduced until later in the term. Instructors found the module and quiz easy to implement. Nine students required a supplemental quiz attempt, and of these, six were successful. Performing simple mental calculations correctly is necessary to ensure the effectiveness and safety of medication therapy and can help inform patients' decision-making. The next steps include an evaluation of the impact of this module on students' confidence and overall ability in performing pharmaceutical and evidence-based risk calculations.

A new pharmacy program: Updating of skills through individualized support

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Background: Some licenced pharmacists have difficulty meeting the standards of practice set by the College of Pharmacists. The office of continuing education has been mandated to develop a training program that would meet this need since the training traditionally available is mostly lecture-based.

Goals: To describe an innovative practice-based activity for the pharmacists identified by the College of Pharmacists following their professional inspection. The program develops the learner's skills to the level expected of pharmacy practice by performing drug therapy monitoring activities in a professional setting through individualized support. To share statistics related to participants and their success in the program.

Description: The program takes place in 4 steps. Step 1) In the first module, learners must review the pharmaceutical care process. Step 2) They must complete cases on five common clinical situations. For each completed case, they receive feedback in the form of coaching during a meeting with two pharmacists who accompany them throughout the program. Each time the learner fails, he must complete a repeat case. Step 3) The learners are invited to complete integrative cases. These include more complex pharmacological case. They are asked to write a pharmacy management plan. This is followed by a coaching period with the two accompanying pharmacists. Step 4) The training ends with a day of clinical immersion simulation. Learners have 12 months to complete the course. The length of the program therefore varies depending on the number of repeat cases completed (step 2). Using a grid, the evaluations are carried out after each case according to three levels: expected, to be improved, and at risk. Since the beginning of the program, 17 pharmacists began the program and 13 have completed the simulation evaluation. After the main program, two pharmacists completed the additional internship. Both of these pharmacists failed their internship and had also failed the main program.

Relevance to Pharmacy Education: Pharmacists who are required to complete this training are often limited or temporarily struck off. They are no longer authorized to practice because they pose a risk to their patients. Following this program, most of these pharmacists are able to continue their careers.

A lower urinary tract symptoms practice laboratory for pharmacy students

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Background: Lower urinary tract symptoms (LUTS) is one of the most common yet underrecognized geriatric syndromes. Pharmacists provide support for patients regarding medications that can contribute or treat LUTS, and also provide home health care supplies in the community. A teaching activity was built by an interprofessional team and launched in 2019. The purpose of this research is to describe the development process and assess the learning outcomes for students.

Goals: The goal of the LUTS skills laboratory was to destigmatize the condition of LUTS, increase student knowledge regarding bladder products, and improve student confidence regarding assessment and management of LUTS.

Description: The pharmacy simulation/skills laboratory team at the University of Alberta and the instructors (nursing and pharmacy) responsible for teaching LUTS in lectures and seminars met and designed an outline for a 3 hour skills activity using the lab design of student groups, paired activities, and individual learning. The group activities included 2 stations, (1) handling and testing of absorbable products, (2) questionnaires and tools to use with patients for dialogue and assessment. The paired/small group activities included (1) catheters and provincial funding for bladder products, and (2) pelvic floor support for women. A simulation of a patient in a pharmacy was integrated as an interruption while students were at the stations.

Relevance to Pharmacy Education: The laboratory was developed with an interprofessional team across the skills and pharmacotherapy faculty members. The design was intentionally hands-on with devices and products and cases included challenging and sensitive dialogue and scenarios. Because the topic of LUTS can be fairly straightforward as a pharmacotherapy lecture the students may fail to gain the confidence in using appropriate terminology, engaging patients in respectful dialogue, or even being aware of the breadth of resources and interventions available for LUTS. A skills lab can ensure the application of LUTS knowledge with approaches for sensitive conversations and advocacy.

Health advocate competency role: A gulf between instruction and practice remains

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Background: Health advocacy is a competency role for pharmacy graduates in Canada; however, effective instruction and assessment is lacking (Poulton, 2015; McDonald, 2019). At the University of British Columbia, a workshop was developed and embedded into select health professional curricula to facilitate student application of a novel structured framework for health advocacy in practice (Hubinette, 2017). Delivered since 2019 in the second year of our curriculum, students consistently describe changes in their understanding of health advocacy in immediate post-workshop surveys, but it remains unclear how they act on this knowledge later in practice.

Goals: To explore lasting effects of post-workshop conceptualization of health advocacy through qualitative study of pharmacy students' i) reported instances of health advocacy they enacted in practice and the ii) their categorization of these descriptions according to the structured health advocacy framework.

Description: This diary study assumed a social constructivist stance whereby individuals interpret reality in their own way and the collective experience does not presume universality (Vygotsky, 1978). We used specific diary prompts to elicit examples of second (n= 12) and third (n=11) year students' perceived instances of health advocacy during community pharmacy clerkships in Summer 2021. At predetermined intervals (weeks 2, 6, 8) students submitted these written records through a secure web-based platform. A systematic, multi-coder inductive content analysis of 82 diary entries was conducted. Overall students did not express a fulsome view of health advocacy. Strictly speaking, students mischaracterized self-reported practice examples into inappropriate categories of the health advocacy framework. Most overemphasized usual pharmacist care (e.g. medication counseling, immunization) as acts of health advocacy. Unsurprisingly, no institutional-, social- or political-level activities were reportedly undertaken, although isolated episodes of shared advocacy with patients were identified.

Relevance to Pharmacy Education: Lasting impacts of a workshop introduced in our curriculum highlighting a structured framework to recognize health advocacy opportunities in practice were not widely apparent in the small sample studied. While disappointing, this negative finding offers vital information about health advocacy competency development for ours and other pharmacy programs including the need for longitudinal concept exposure, expanded pharmacy-specific examples, directed guidance for population- and patient-level actions and role models in practice.

Incorporating injection training as a mandatory component of the pharmacy technician curriculum at Humber College

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Background: Recently, the scope of practice of pharmacy technicians has been expanded to include administration of vaccines. At present, 3 provinces allow pharmacy technicians to administer vaccinations – New Brunswick, Nova Scotia, and Ontario. Although injection training is included in the Pharmacy curriculum, it is not yet a mandatory component of any Ontario college Pharmacy Technician curriculum.

Goals: The goals of this initiative were to introduce injection training as a mandatory component of the curriculum in the pharmacy technician program at Humber College to prepare students for this role and evaluate student satisfaction.

Description: Injection training, including didactic, asynchronous online, and workshop activity components were incorporated in the 4th semester capstone course of the two-year diploma program. We embedded the accredited Ontario Pharmacists Association (OPA) training. This was supplemented by additional training in ways to minimize immunization stress-related responses (e.g., fear, dizziness, fainting) using the CARD™ (Comfort Ask Relax Distract) system. Students' feedback demonstrated satisfaction with the training and positive perceptions of self-efficacy and employability.

Relevance to Pharmacy Education: The Ministry of Colleges and Universities is developing a new set of learning outcomes for all Pharmacy Technician programs in the province of Ontario which will include injection training. Humber is the first and only college offering injection training as part of the curriculum. Ensuring that pharmacy technicians can deliver vaccinations supports pharmacy-based vaccination services and enables pharmacists to expand the clinical services they offer.

Evaluation of virtual immersive simulations to promote practice readiness to full scope for pharmacy and pharmacy technician students

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Background: Scopes of practice for pharmacists and pharmacy technicians have expanded in recent years. For example, pharmacists now have prescribing authority for common minor ailments and pharmacy technicians can administer injections. To improve patient access to routine healthcare services and alleviate healthcare burden, arguably there has never been a greater time for intra-professional collaboration and education amongst pharmacists and pharmacy technicians. We set out to develop a common learning activity, in the form of virtual simulations, for pharmacy and pharmacy technician students.

Goals: We developed virtual simulations to promote scopes of practice awareness among pharmacy and pharmacy technician students. The goal of this evaluation was to gain insight whether the simulations achieved this objective for pharmacy students.

Description: Three registered pharmacist and pharmacy technician subject matter expert pairs collaboratively developed three virtual simulations using a template developed by and under the guidance of the project leads. The patient centred, case-based scenarios incorporated diverse patient demographics (elderly, child, pregnant woman), were reflective of current practice, and topics included vaccine preparation, administration, and education, non-sterile compounding, and managing common over-the-counter medications. Pharmacy students enrolled in a second-year medication-therapy-management course completed the formative self-directed learning activity during regular class time. Students voluntarily completed a pre- and post- survey. The pre-survey questions included questions about prior experience, scopes of practice, and application of knowledge in a practice setting. The post-survey questions mirrored the pre-survey questions and included items related to the virtual learning simulation activity. Three members of the research team conducted a thematic analysis of anonymized student feedback and resolved coding discrepancies by consensus.

Relevance to Pharmacy Education: Students completed the pre-survey (n=196) and post-survey (n=191). Thematic analysis revealed a major emergent theme related to scopes of practice. More specifically, student feedback highlighted increased knowledge about pharmacy technician scope of practice and overlapping intra-professional roles. A second emergent theme was related to a positive learning experience with the self-directed virtual simulations. This learning innovation served to stimulate knowledge about and support pharmacy student achievement of intra-professional competencies and may serve as a model for other courses including in both pharmacy and pharmacy technician programs.

Evaluation of the Queer curriculum advisory committee: Co-creating a SOGIE-inclusive pharmacy curriculum through community engagement

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Background: To address the health inequities 2SLGBTQ+ peoples face in accessing health services, the 2SLGBTQQIA+ Inclusion, Diversity, and Equity in Pharmacy Education (PRIDE-RX) project scaffolds sexual orientation, gender identity and expression (SOGIE) competencies into all four professional years of the UBC Entry-to-PharmD (E2P) Doctor of Pharmacy (PharmD) program. This supports the call for trans and queer competency training for health care providers as articulated in a 2019 House of Commons report on the health of LGBTQIA2 communities in Canada. This work is done in collaboration with the Queer Curriculum Advisory Committee (QCAC), a seventeen-member committee representing community-based organizations, community members, UBC Faculty and staff, and E2P PharmD students. The QCAC's mandate is to provide recommendations on a pharmacy curriculum that prioritizes the lived experiences of 2SLGBTQ+ communities, and to create actionable strategies to improve students' access to inclusive learning spaces.

Goals: We conducted an annual evaluation of the QCAC to ensure the time and expertise of the committee is leveraged to fulfill its mandate. The results of the evaluation identify areas for improvement and inform future committee activities.

Description: Data sources for this evaluation include committee members' evaluations and metrics including attendance and meeting minutes. Evaluation surveys collect quantitative and qualitative data about members' perception of the committee's operations, dynamic, structure, performance, and their own performance within the committee. Results were analyzed based on the above domains. Operations: Attendance is consistently >70% with 70% of meeting time dedicated to SOGIE curricula. Dynamics: Members felt positively about the committee's culture and dynamics. Structure: Although members agree the QCAC includes a broad diversity of lived experiences, the need to include Two-Spirit voices was identified. Performance: Members agreed that the committee contributed to the development of a SOGIE-inclusive curriculum. Self-Assessment: Members viewed their personal level of engagement as favourable and agreed that the committee has generated positive outputs to curricula.

Relevance to Pharmacy Education: This evaluation provides insight into the strengths of our engagement and identifies strategies to optimize committee operations. This 2SLGBTQ+ community-university engagement may guide other health professions education programs in building a longitudinal SOGIE curriculum.

Development of a microprogram for graduate pharmacists in pharmaceutical care for older adults

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Background: Aging of the population is associated with multiple challenges for pharmacists, including appropriate management of issues such as polypharmacy, potentially inappropriate medications, geriatric syndromes, multimorbidity and care fragmentation. Additional training for graduate pharmacists is required to face these challenges and optimize medication use, minimize adverse drug events, burden of care and promote patient-centered care and quality of life.

Goals: To develop a microprogram for graduate pharmacists to improve knowledge and competencies related to pharmaceutical care of older adults.

Description: Several steps have been taken in the planning of the microprogram by the Faculty of Pharmacy, Université de Montréal. Published curriculum guide and frameworks related to geriatric pharmacy and interprofessional care of older adults were consulted to identify competencies and specific topics for possible inclusion in the microprogram. A survey was also developed and sent to pharmacists from various clinical settings to evaluate their interest and needs about this program. The content included preferred teaching method, degree of interest in following additional training in pharmaceutical care for older adults, current or planned setting of care for practice, possible barriers or facilitators to follow additional training, as well as interest in specific geriatric-related topics. The survey (n = 110 respondents) confirmed interest and need to offer additional training to achieve required competency for the care of this vulnerable population and provided useful guidance for the program development.

A microprogram was then developed consisting of a minimum of 9 credit courses, up to 12 credits including an optional pharmacy practice experience course (advanced clinical training). Theoretical courses include fundamental principles of aging, evaluation process of older adults with a complex pharmacotherapy, as well as specific pharmaceutical care courses. These part-time courses are offered online in asynchronous mode, allowing pharmacists to complete them at their own pace. The first session of the program has been launched in the Winter 2023.

Relevance to Pharmacy Education: This microprogram will provide additional knowledge and competencies for practicing pharmacists in the care of older adults across multiple settings (community pharmacy, long-term care, acute care and ambulatory care).

Creating an opportunity for PharmD students to participate in advocacy

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Background: Advocacy is an essential skill for pharmacists that is often discussed with students, but there are limited opportunities for students to actively participate in.

Goals: Students worked with the Association of Faculties of Pharmacy of Canada Self Care and Minor Ailments Special Interest Group (SIG). The goals of this project included a review of literature regarding patient comprehension of non-prescription product labels and brand extensions. The knowledge gained then informed the development of a white paper highlighting this issue and its potential impact on patient safety.

Description: Two students participated in this project that extended over the academic year. The first half of the project, the students completed a literature search and review of relevant articles. Using search terms such as "brand extension" and "understanding labels" yielded 569 article abstracts within Pubmed, which were assessed and narrowed down to 24 articles that were identified to be relevant and reviewed. The second half consisted of the students presenting their findings to the SIG group and writing a white paper with the SIG group. The white paper highlighted examples of non-prescription brand extension products available in Canada and focused on the potential patient safety concerns. The time students spent working on the project went towards completing the required hours for their Service-Learning course in the second year of the PharmD program.

Relevance to Pharmacy Education: This unique project allowed students to significantly contribute to an advocacy project and provided an opportunity to study patient comprehension of non-prescription product labels and brand extension. Furthermore, it provided a brief exposure to academia on a national level and an opportunity to work with individuals within this area of expertise. The student's role within this project created an ideal endeavor to meaningfully participate in advocacy. In evaluating this project, the preceptor noted that the students excelled and exceeded all expectations resulting in a wonderful experience. The student's perspective on the project found that they felt the project to be a great educational experience as they learned more about advocacy and specifically the importance of patient understanding and comprehensive labelling.

PE-34

Introducing a novel lecture on sexual and gender minority health to an advanced patient self-care course

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Background: Among pharmacy programs, there is movement to include content regarding marginalized groups, including sexual and gender minority (SGM) patients. The author was asked to create a novel lecture to teach the advanced patient self-care elective class at the University of Waterloo, School of Pharmacy, which is now in its third iteration.

Goals: Through presenting the approach to course development in a topic area that is largely new for pharmacy programs, it is expected to contribute to an expansion of inclusive educational interventions for pharmacy students.

Description: There was no existing framework on SGM self-care to consult in developing the lecture. To identify topics to include, a literature search was conducted as well as consultation with pharmacy academics engaged in SGM education and practicing clinicians specialized in SGM care. The implementation of the lecture will be described and feedback will be included that shows students had positive views of the lecture, felt strongly it should be repeated, and were disappointed that the lecture was an elective instead of a core requirement. Additionally, a self-identified non-binary third year student felt reflected in pharmacy curriculum for the very first time.

Relevance to Pharmacy Education: There was a recent call to action that scholars involved in developing and implementing pharmacy educational interventions regarding SGM should share those experiences and lessons learned as there is very little published in this area globally. This poster will contribute to a body of literature where a paucity of information exists in order to improve education of pharmacy students regarding SGM health. Pharmacy graduates informed in on SGM health will enter practice better prepared to address the needs of this often marginalized and underserved group.

Gamification in patient safety health profession education

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Background: Serious games, or gamification, in education facilitate user engagement and knowledge retention. Effective gamification requires application of user experience (UX) elements and incorporation of relevant educational topics. Gamification in patient safety education is relatively unexplored in pharmacy practice.

Goals: We aim to design, implement, and evaluate a game series for knowledge acquisition and reinforcement in selected patient/medication safety topics. The objective of the initial phase of our study is to conduct an environmental scan and identify key UX elements in medical education gamification (through a literature review) and topics in patient/medication safety training (using a needs assessment) that may benefit from gamification.

Description: We searched on MEDLINE, Science Direct, JSTOR, Web of Science, and IEEE Xplore for literature discussing UX elements of gamification in health profession education. Articles were screened by two independent analysts. A needs assessment questionnaire was disseminated to early career pharmacists and Year 4 PharmD students who attended a patient/medication safety course in 2021 and 2022, respectively, seeking their input for specific topics and safety competency domains that may benefit from gamification. Nine articles were included and lessons learned from the literature were subjected to thematic analysis. Key elements of UX in gamification included ease of use, clarity, and affordance; realism and authenticity; feedback mechanism; competition and points system; and complexity and challenge. Our needs assessment revealed that root cause analysis, failure mode and effect analysis, multi-incident analysis, and safety competency domains on "safety, risk, and quality improvement" should be considered for gamification in pharmacy education and training.

Relevance to Pharmacy Education: UX must be considered by health profession educators to design engaging games. Topics related to patient/medication incident analyses may benefit from the application of serious games in teaching pharmacy professionals/students. Our project findings will pilot ventures of gamification in pharmacy practice and other health profession education.

Longitudinal care: Making a follow-up case template for pharmacy students to revisit their recommendations to enhance preparation for experiential learning

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Background: In our Faculty, the Medication Therapy Management (MTM2) lab uses weekly case-based learning for students to practice applying the patient care process to solve drug therapy problems (DTPs) in various medical conditions. Weekly patient cases are stand-alone/ independent of the subsequent week's cases. Although they are grounded in authentic examples, they are not reflective of the longitudinal care expected of students in their future rotations. We conducted a review of student performance and found asthma/COPD were challenging topics for students due to the large magnitude of drug therapies available. Strategically, we recognized an opportunity to build linked cases to further students' learning in preparation for experiential education.

Goals: Our main goal was to create a follow-up case-based learning structure and process to simulate real-world practice and enhance student learning. More specifically, we developed longitudinal asthma/COPD patient cases for students to revisit and assess their earlier interventions and prepare an adjusted follow-up plan given newly disclosed patient information.

Description: We built on existing case templates to incorporate a longitudinal component for patients with asthma/COPD given these are complex chronic conditions and their management requires constant revisiting. We anticipate that students will encounter the same patient twice in subsequent weeks. The first interaction will be to create an asthma/COPD care plan and the second will be to solve new DTPs by building on previous recommendations and incorporating new information about the patient's progress. Moreover, we will conduct a comparative review of student performance in both labs using a novel rubric assessing the competencies of monitoring patients' progress. Also, student self-report surveys before the first lab and after the second lab will be used to measure student confidence.

Relevance to Pharmacy Education: Follow-up is an integral part of the patient care process and stand-alone patient cases do not offer students the opportunity to practice making important clinical decisions. By assessing their clinical decisions from previous labs and providing follow-up recommendations, we anticipate enhanced student learning. In summary, we hope our initiative in the MTM2 lab can provide as a potential teaching model for others implementing similar teaching practices.

Podcast on quality improvement and leadership for pharmacy students and early career healthcare professionals

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Background: Within the PharmD curriculum, quality improvement (QI), medication safety, leadership, and business management are covered primarily in Year 3 elective courses. Podcast is a resource to complement traditional didactic-based teaching and continuous professional development (CPD) on QI and leadership.

Goals: The objective of the Leading with Quality Podcast was to create an accessible and virtual resource for pharmacy students and early career healthcare practitioners to learn about QI, medication safety, leadership, and business management, etc. The podcast episodes can serve as complementary educational resources to students within and beyond the PharmD program.

Description: We developed seven episodes where seven guest speakers, ranging from faculty members to clinical directors, shared their QI and leadership experiences in higher education, hospital administration, pharmaceutical industry, provincial regulatory authority, and experiential learning. An interview format with real-life examples and lived experiences from the presenters, along with an average duration of 30 minutes per episode, was maintained to optimize audience engagement. Based on Kirkpatrick's four-level training evaluation, we designed an online survey to seek listeners' feedback on their perceived value and relevance of content and knowledge gain in QI and leadership after listening to the pilot series on SoundCloud. A total of 20 responses were collected within a month of dissemination of the online user experience questionnaire. Respondents perceived the podcast episodes to be valuable and relevant and that they improved their knowledge about leadership and QI. They would listen to more episodes and recommend existing episodes to other healthcare professionals and learners. A few respondents mentioned that concepts and jargon should be explained at the beginning of the episode to improve clarity, and that some episodes might benefit from dividing into two sessions to allow for more elaboration on the subject matter.

Relevance to Pharmacy Education: The Leading with Quality Podcast is an accessible educational resource for students and healthcare professionals who wish to learn more about QI and leadership. It will serve as a self-directed and easy-to-access supplementary curricular component and CPD resource to support pharmacy students and early career healthcare professionals, respectively, in learning about QI and lived experiences from healthcare leaders.

Virtual reality simulation of suicide risk assessment performed by pharmacy learners

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Background: With the COVID-19 pandemic, there is an increased prevalence of suicide ideation and mental health concerns in health care system. Community pharmacists are often the first point of contact for patients with healthcare needs. It is crucial for pharmacists to be trained in interacting with patients at risk or with ideations of suicide. Virtual reality (VR) offers the opportunity for pharmacy learners to conduct a Suicide Risk Assessment (SRA) in a simulated clinical environment.

Goals: This pilot study builds on preliminary findings from VR SRA user testing. To explore the feasibility and risks/benefits of using VR as a tool for pharmacy learners to be trained in conducting a SRA.

Description: Six pharmacy students participated in the VR SRA training session at the Centre for Addiction and Mental Health (CAMH). Students were given the opportunity to try two different patient profile simulations using VR headsets, where various pre-developed questions prompted specific dialogue. A self-reported pre- and post-training evaluation was used to identify changes in confidence pertaining to the learning objectives, engagement, general tolerability of VR, intention to change practice, and the overall training experience. A group debrief session was conducted after the training. Post-training evaluations showed that VR was associated with relatively high scores for meeting the learning objectives (M=3.17 out of 5, SD=0.79) and was regarded as an engaging training experience. User testing suggests that VR may have greater educational benefit than traditional desktop tools for teaching pharmacy students how to conduct a SRA.

Relevance to Pharmacy Education: Participants reported overall satisfaction with the training and gains in confidence were seen across most of the learning objectives when comparing pre- and post-training evaluation scores. This pilot study will help inform the healthcare simulation community about the effectiveness of VR as a teaching modality in pharmacy education and practice.

How to enhance paper-based cases with the aEHR – Recommendations from student power-users

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Background: The Academic Electronic Health Record (aEHR) has gained popularity in Canadian pharmacy programs as an alternative to paper-based patient cases. Using the aEHR offers unique pedagogical opportunities enabled by the digital chart modality. To maximize these learning opportunities in the aEHR, modifications to existing paper cases are often necessary and can be challenging for faculty. Specifically, compared to paper-based cases, students must search for information dispersed throughout the aEHR chart, which can make it challenging to develop a fulsome view of the patient, particularly for novice learners.

Goals: To share four key recommendations when modifying paper-based cases for aEHR implementation from the perspective of student power-users.

Description: Since inception of the aEHR, select pharmacy students have been utilized as "power-users" to support faculty in the onboarding, development, and iterative improvements of over 85 cases – the majority being paper-based cases that have been converted for aEHR use. Most paper-based cases are created succinctly and in a logical flow. When those cases are transcribed into the aEHR, faculty have often noted that many sections of the aEHR chart felt "bare" or underutilized compared to what is expected in real practice. Student "power-users" worked through these cases with faculty to address these concerns, balancing the real issue of case complexity with realistic chart exposure. Through this collective experience, four recommendations have emerged from the student "power-users:" 1) use "guiding" progress notes, 2) overt categorization of information, 3) create narrative depth and history in the chart, and 4) simulate different practice environments such as inpatient, long-term care, outpatient, and the transitions of those. While the implementation of these recommendations varies depending on the case, complexity, and learning environment, examples of each are offered.

Relevance to Pharmacy Education: As more programs integrate the aEHR, these recommendations address persistent limitations in paper-based cases and can enable significant pedagogical variation, create innovative activities, and enhance student learning. This is important for all faculty who are interested in using the aEHR. Student support is available for programs who want to action these recommendations.

Reviewing a logic model for program evaluation of the doctor of pharmacy program with program administrator and pharmacy learner

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Background: Program evaluation is essential to prove and improve a program's quality and effectiveness. Our recent curriculum renewal of the Doctor of Pharmacy (PharmD) program has presented new opportunities for pharmacy learners, faculty members, experiential educators, and rotation/training sites.

Goals: This project builds on previous work performed by the Program Evaluation and Accreditation Committee at our institution. Our objective was to review a previously established logic model and propose a feasible and sustainable framework for continuous quality improvement (CQI) of the PharmD program.

Description: Representatives of pharmacy learners, faculty members, and program administrators took an initial attempt to review and streamline the various components (i.e., input, activities, outputs, and outcomes) of an existing logic model. The PharmD Program Curriculum Renewal Retreat was held in winter 2023. Insights and feedback from retreat participants were collated and considered. An updated logic model was proposed to set priorities and guide program evaluation of the PharmD program. We refer to this model to (1) monitor actions and activities for achieving desired program outcomes; (2) collect and analyze data to prove and improve our program on an ongoing basis; and (3) document and reflect on short-term (e.g., program-related) and long-term (e.g., system-wide) accomplishments or changes as a result of the program. We will also take into consideration external factors and unintended outcomes of the PharmD program while ensuring feasibility and sustainability of the evaluation efforts.

Relevance to Pharmacy Education: By engaging and gathering insights from program administrators, faculty members, and pharmacy learners, we are committed to improve the delivery and achieve ongoing program evaluation and quality improvement of training for entry-to-practice pharmacists. Our next priority is to utilize the logic model to guide our measurement (i.e., data collection strategy) and evidence-informed (or data-driven) evaluation of the PharmD program.

POSTERS – PHARMACY PRACTICE
PP-1

Importance of point-of-care testing education in the pharmacy curriculum

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Purpose: The scope of practice for pharmacists in Ontario has recently been expanded to include point-of-care testing (POCT). Evidence shows that POCT in pharmacy settings has a positive impact on patient outcomes. Pharmacy education should match the current standards of practice for POCT to prepare students for professional practice. The aim of this project is to have an environmental scan of the current training practices for POCT in pharmacy and provide recommendations for pharmacy curriculums.

Methods: A literature review was conducted for POCT in pharmacy settings. Studies eligible for inclusion focused on POCT conducted by pharmacists or in pharmacy settings and were written in English. Studies had to either discuss POCT training or explore patient outcomes from POCT. Studies were excluded if they focused on pharmacy technician POCT. Included studies were reviewed for patient outcomes and effectiveness of the training.

Results: A total of 208 studies were found in the search and 5 studies were included for review. Of the 5 studies, one was a systematic review on POCT patient outcomes, and 4 studies focused on POCT training for pharmacists and students. The systematic review showed that patient health outcomes were improved with pharmacist intervention. The POCT training studies described educational principles and programs including an accredited national certificate program and a credit course in a PharmD program. All study outcomes showed improved technique when performing POCT and an increased willingness to perform and implement POCT in pharmacy practice. Recommendations for POCT training include a lecture module with a practice session and formal assessment in performing POCT.

Conclusion: POCT in pharmacy settings have improved patient outcomes. Pharmacy schools are recommended to incorporate a structured POCT course with didactic material and a practical training session that assesses for competency. Developing a certification program for practicing pharmacists could also safely expand healthcare services. Patient outcomes would improve by implementing POCT training programs.

POSTERS – PHARMACY PRACTICE
PP-2

Patient and clinician's experiences with how and why prescribing cascades occur: A qualitative descriptive study

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Purpose: Prescribing cascades, where a medication is used to treat the side effect of another medication, contribute to polypharmacy and related morbidity. Little is known about clinicians' and patients' experiences with prescribing cascades. The purpose of this study was to explore why and how prescribing cascades occur across a variety of care settings and how they are managed.

Methods: This descriptive qualitative study employed semi-structured interviews with older adults who may have experienced a prescribing cascade(s), their caregivers, and healthcare providers (physicians, pharmacists). Interviewees were recruited through physician referral from a Geriatric Day Hospital, two long-term care homes in Ottawa, Ontario, and through self-referral across Ontario, Canada. An inductive thematic analysis approach was used to code data and determine themes.

Results: Thirty-one interviews were conducted for ten unique patient cases. Some interviewees were involved in more than one case, resulting in 22 unique interviewees. Three themes were identified. First, recognition of prescribing cascades is linked to awareness of medication side effects. Second, investigation and management of prescribing cascades is simultaneous and iterative (rather than linear and sequential) involving deprescribing to determine causation and resolve problems. Third, prevention of prescribing cascades requires intentional strategies to help people anticipate and recognize medication side effects. Difficulty with recruitment from both long-term care homes and through self-referral was the central limitation. This exemplifies challenges associated with studying a minimally recognized and underexplored phenomenon.

Conclusion: To better recognize, investigate and manage prescribing cascades, clinicians and patients need to know more about side effects; they need to ask 'can this be caused by a drug?' and they need understand medication experiences to have discussions and make decisions about deprescribing.

Cefazolin protein binding and target attainment in patients on hemodialysis

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Purpose: There are limited data on the pharmacokinetics (PK) of cefazolin in hemodialysis (HD) patients and no _in vivo_ data on protein binding, i.e., the pharmacologically active free fraction. Without evidence-based guidelines, cefazolin dosing is often a one-size-fits-all approach without considering the diverse HD population. The objective was to characterize the concentrations and protein binding of cefazolin in patients undergoing chronic intermittent high-flux HD.

Methods: A clinical PK study was conducted in 20 infected patients receiving cefazolin (2 g post-HD 3-times weekly) in an outpatient HD setting. A post-dose peak and two pre-HD troughs were collected from each patient. Total cefazolin serum concentrations were measured in all samples using ultra high-performance liquid chromatography dual mass spectrometry. Free concentrations were determined in the ultrafiltrate of 20 samples, i.e., one peak and trough from 10 patients. Cefazolin concentrations and protein binding were described, and factors associated with particularly low (<10 mg/L), or high (>100 mg/L) pre-HD troughs were investigated.

Results: Total peaks and pre-HD troughs were 237.0 ± 47.7 mg/L and 70.1 ± 37.7 mg/L, respectively. Pre-HD troughs were extremely variable (3.7-149.4 mg/L) with values <10 mg/L in two patients (10%) and >100 mg/L in five patients (25%). Most of the variability was explained by the wide range of cefazolin half-lives off dialysis, presumably due to residual renal function (R^2=0.71, _P_<0.0001). Cefazolin half-lives <14 hours and >40 hours were predictive of low and high pre-HD troughs, respectively. Cefazolin protein binding was concentration-dependent and significantly lower in peaks compared to pre-HD troughs (59.5% versus 81.8%, _P_<0.0001). Protein binding in pre-HD troughs had a positive correlation with serum albumin (R^2=0.29, _P_=0.04) and was more consistent with values in other populations.

Conclusion: This study shows limitations in current cefazolin dosing which produced greater than 40-fold variation in pre-HD troughs. This variation was largely explained by a wide range of half-lives off dialysis due to varying underlying renal function. As a result, pre-HD troughs fell outside the target range in 35% of patients. Further work is underway to identify strategies to optimize cefazolin dosing such as incorporating available information related to residual renal function or measuring a single pre-HD trough.

Adverse drug effects of vancomycin, daptomycin, and ertapenem in the Winnipeg Regional Health Authority community intravenous program protein

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Purpose: Although outpatient parenteral antimicrobial therapy (OPAT) reduces hospital stay and cost while improving patient satisfaction, an estimated 20% of patients experience an adverse drug effect (ADE). Given the significant variation in patient populations, clinical practice, and antibiotic use, local surveillance is critical to understanding ADEs so that prevention and management practices can be tailored. Given the lack of Canadian data, the objective was to characterize ADEs in the Winnipeg Regional Health Authority (WRHA) Community Intravenous Program (CIVP) over 3 years between 2019-2021.

Methods: A report was generated to identify ADEs documented for patients receiving OPAT with vancomycin, daptomycin, or ertapenem. Electronic charts were reviewed to confirm ADEs. All ADE were included except mild gastrointestinal. Patient- and infection-related information were collected. for each ADE, signs/symptoms, associated antibiotic(s), causality (Naranjo score), severity (WHO classification), timing, and outcome were detailed. Data collection was performed by two individuals using a standardized method and data collection form to reduce bias and improve consistency.

Results: Overall, 147 ADEs were identified in 135 patients and characterized; 68 vancomycin-associated, 40 daptomycin-associated, 20 ertapenem-associated, and 19 possibly associated with multiple agents. Causality was certain/probable in 76.5% (vancomycin), 62.5% (daptomycin), and 60% (ertapenem) of cases. In 67.6% (vancomycin), 82.5% (daptomycin), and 75% (ertapenem) of cases, the ADE was moderate/severe. The most common vancomycin ADEs were infusion-related reactions (39.7%), acute kidney injury (22.1%) presenting at 18-days (median, [IQR 9–26]), non-anaphylactic allergies (16.2%, 6-days [2–11]), and neutropenia (14.7%, 16-days [13–22]). Vancomycin ADEs required emergency/urgent care assessment or hospitalization in 11.8% of cases, and vancomycin was changed to an alternative in 19.1%. Most daptomycin ADEs (87.5%) were elevated CPKs/myalgias (14-days [11–25]). Daptomycin ADEs required emergency/urgent care assessment or hospitalization in 7.5% of cases, and daptomycin was changed to an alternative in 17.5%. The most likely ertapenem ADEs were CNS effects (35%) presenting at 12-days [4–13] and *Clostridioides difficile* infection (20%). Ertapenem ADEs required emergency/urgent care assessment or hospitalization in 20% of cases, and ertapenem was changed to an alternative in 25%.

Conclusion: These data will be used to support OPAT practice guidelines including multidisciplinary approaches to monitoring and managing patient response including unintended ADEs.

Peripartum mental health and the role of the pharmacist: A scoping review

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Background: The global prevalence of peripartum mental illness is 20%. Chronic illnesses affect one in five pregnancies and may be associated with higher rates of peripartum mental illness. Though pharmacists are well-positioned to facilitate appropriate and timely care of co-occurring mental and physical health conditions during this period, little is understood regarding their potential roles.

Objectives: To understand the current evidence examining the role of pharmacists to improve the outcomes of women with peripartum mental illness, with and without chronic illness.

Methods: A scoping review was performed with assistance from an interdisciplinary team following the Joanna Briggs Institute framework. MEDLINE, Embase, PsychNet and International Pharmaceutical Abstracts databases were searched. English-language articles (Published up to May 30, 2022) were screened and assessed for eligibility, and data were charted to collate results, by dual independent reviewers.

Results: The search strategy produced 922 articles. After screening, 12 articles were included (5 narrative reviews, 7 primary research). There was limited yet notable discussion and empirical data regarding specific interventions (screening, counseling, monitoring, medication management), opportunities (accessibility, managing stigma, building rapport with patients) and barriers (lack of privacy, time constraints, adequate remuneration, training) associated with an expanded role of pharmacists in peripartum mental health care. The clinical complexity arising from co-occurring mental health and chronic illnesses was explored in only a small pilot study that concluded pharmacists can improve patient outcomes by screening pregnant women with diabetes for depression.

Conclusion: This review highlights the limited evidence available on the explicit role of pharmacists in supporting women with peripartum mental illness, including those with comorbidity. More research, including pharmacists as study participants, is required to fully understand the potential roles, barriers, and facilitators of integrating pharmacists into peripartum mental health care to improve the outcomes of women in the peripartum period. Pharmacists have a baseline understanding of and ability to screen for peripartum mental health conditions, refer if warranted, and manage multi-morbidity. Although current research in this area is scarce, various countries/regions may be exploring the educational needs and opportunities to involve pharmacists in peripartum mental health suggesting the need for further investigations in this area.

Evaluating standardized research definition models to describe community opioid overdoses in the primary literature

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Purpose: There is currently no standardized set of symptoms used to define "opioid overdose" in community settings. This presents a challenge for researchers in quantifying these events and evaluating the effectiveness of harm reduction strategies. Based on a literature review, we created three related but distinct conceptual models to define opioid overdose: the "Listed Model" where 4/6 of the symptoms were required, as well as "Major and Minor Model" and "Tiered Model" that weighted specific signs and symptoms differently.

Objective: To gather initial consensus on how *accurate* and *practical* our proposed models are in defining community opioid overdoses to implement for primary research.

Methods: A survey was developed asking participants to evaluate our three models based on accuracy and ease-of-use. Participants included responders to opioid overdose, academic researchers, and decision makers at institutions that support individuals who use substances. Average accuracy and ease-of-use scores were calculated based on a 10-point Likert scale. A two-way ANOVA determined significant differences between the three models based on accuracy or ease-of-use. Written feedback was also collected.

Results: Twenty-four survey responses were collected; 5 identified as academic researchers, 5 identified as decision makers and 14 identified as overdose responders. Based on cumulative average Likert ratings, the "Major and Minor Model" had the highest scores for both accuracy and ease of use, whereas the "Listed Model" had the lowest accuracy score, and the "Tiered Model" had the lowest ease-of-use score. Responders to opioid overdose rated the "Major and Minor Model" 2.695 points higher than the "Listed Model" with respect to accuracy ($p < 0.05$ (95% CI, 0.457 – 4.32)). Although all models were commended for their clarity and ease-of-use, participants noted a dislike for specific descriptor terms within the models. For example, the use of term "Evidence of Opioid Use" in the "Major and Minor Model".

Conclusion: The "Major and Minor Model" is potentially the superior model for a standardized research definition to implement in the primary literature. Future directions include holding stakeholder interviews with substance use researchers to evaluate the practicality of implementing these models as the standardized research definition for opioid overdose in community settings.

POSTERS – PHARMACY PRACTICE
PP-8

Impact of COVID-19 pandemic on the prescription trends of antiseizure medications

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Purpose: Epilepsy is a chronic disorder affecting 50 million patients worldwide. There is a lack of real-world evidence on the effect of the COVID-19 pandemic on epilepsy patients, including access to antiseizure medications (ASMs).

Methods: We conducted a population-based cross-sectional study using the provincial-level administrative health databases from Manitoba, Canada. We used interrupted time series analysis with autoregressive models to investigate the change in level and slope pre – and during the pandemic period between June 1, 2016, and March 1, 2021 quarterly. We used the 2nd quarter of 2020 as the intervention point. We examined the changes in all ASMs, old generation ASMs, and new generation ASMs incident and prevalent prescriptions due COVID-19.

Results: We studied approximately 1.3 million prescriptions representing the incident and prevalent trends of ASMs use. The population above 65 years had ASMs prescriptions 2-fold higher than the <65-years old group, and females had a higher prevalence of ASMs prescriptions than males. Similar trends were observed for incident use.

COVID-19 restrictions led to a small but significant increase in the prevalent use of new generation ASMs by 0.09 % (p = 0.03). No significant change was observed among all ASMs (-0.68% p = 0.12) or old generation ASMs (-2.26%, p = 0.51). A significant change in prescription trends was observed in prevalent use of new generation ASMs (p = 0.04). We observed a significant decrease in incidence use of all and old generation ASMs by 4.35% (p = 0.04) and a nonsignificant decrease of new generation ASMs prescriptions. Significant trend changes in the incident prescriptions of all and new generation were observed. There was no significant trend change in incidence use of old generation ASMs prescriptions.

Conclusion: Our study indicated that the pandemic restrictions were associated with a small but significant immediate increase in prescriptions of new-generation ASMs among prevalent users. We observed a decline in the overall ASMs use among incident users. Further studies are needed to evaluate if those changes could be associated with an increase in healthcare use or adverse outcomes in this vulnerable group.

Treatment initiation, time-to-treatment, treatment duration and treatment discontinuation of direct-acting antivirals for hepatitis-c in Manitoba

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Purpose: Although direct-acting antivirals (DAAs) for Hepatitis C virus (HCV) have proven to be very effective and safe, data on time-to-treatment and treatment discontinuation of DAAs are limited, particularly in Manitoba.

Methods: A population-based cohort study was conducted using data from the Manitoba Centre for Health Policy Repository. Using the test results provided by the Cadham provincial laboratory, individuals in Manitoba with HCV infection were identified. DAA prescriptions from the Drug Program Information Network database were used to identify the study population. Treatment discontinuation was defined as treatment with DAAs for less than 8-weeks. Descriptive statistics were used to determine the demographical characteristics as well as main outcomes of the study population.

Results: A total of 1,556 individuals (mean age- 43.1 years, 62.8% males) with HCV filled at least one DAA prescription between 2012 and 2018. A total of 13,771 DAA prescriptions were dispensed during the study period. Treatment initiation increased from 2.0% in 2012 to 56.6% in 2018, with a peak of 77.6% in 2015. Mean time-to-treatment (time from the HCV diagnosis to filling the first DAA prescription) was observed to be 748.5 days (2.1 years). Specialists (98.0%) were the most common prescribers followed by general practitioners (2.0%) to prescribe DAAs in Manitoba. Most common treatment duration was of 12-weeks (36.2%), followed by 48-weeks and 16-weeks (33.8% and 16.4%), respectively. Treatment discontinuation (i.e., < 8-weeks) was observed in 40 patients (2.6%).

Conclusion: The current DAA treatment initiation and time-to-treatment rates remain suboptimal. However, data confirm low rates of treatment discontinuation with DAAs. As an integral part of the healthcare team, pharmacists can play a significant role in further optimizing care for patients with HCV and to maximize the public health impacts of DAAs. Since DAA regimen are highly expensive, pharmacists can work with providers and patients to determine the most cost-effective treatment regimen as well as assess patients' genotypes and help make recommendations for treatment options.

Pharmacist-led teams can help taper the opioid crisis

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Purpose: Opioid tapering is highlighted as a priority action to combat the opioid crisis in many Canadian practice guidelines, but there is sparse evidence on clinically safe and effective tapering, with less still on practical implementation.

Directed by these gaps, an interdisciplinary team with chronic pain expertise collaboratively developed "Evaluation of a Patient-Centered, Multidisciplinary Opioid Tapering Program for Individuals with Chronic Non-Cancer Pain on Long-Term Opioid Therapy". With clinical utility at its core, outcomes and tools are developed to be meaningful to practice.

Methods: Half of study participants are randomized to participate in a one-day, interprofessional patient education workshop (PEW), which includes pain and opioid education and a novel application of Acceptance and Commitment Therapy. The workshop's impact is measured through pre- and post-questionnaires collecting data on opioid knowledge, tapering readiness, and general feedback.

Following the workshop, all patients begin a 12-month multidisciplinary opioid tapering program (MTP). Study pharmacists base each individualized program on starting opioid dose, clinical picture, and patient goals, incorporating consistent and frequent follow-up and support. MTP impact is measured at weekly phone follow-ups and quarterly in-person visits. Opioid dose, pain, and health/wellbeing questionnaire scores are measured.
This review summarizes results from the first 10 PEW participants and 16 patients at the MTP's 3-month mark.

Results: MTP: Sixteen patients had a 21.9% opioid reduction by month 3 (p-value=0.007), without changes to other scores. In fact, pain and pain disability show trend reductions. The two cohorts (PEW+MTP, MTP-only) are not compared in this **review.** PEW: PEW participants (n=10) demonstrated a 1.3-point improvement on the 6-point opioid knowledge quiz pre- and post-workshop (p-value=0.0313). Tapering readiness improved among 40% of participants post-workshop, 30% remained "very ready" pre/post, 20% did not improve, and 10% decreased in readiness. 100% reported they'd use PEW teachings to manage pain, 78% felt the workshop provided value, and 50% were satisfied with the format.

Conclusion: The opioid crisis shows no sign of slowing down and patient-focused, evidence-based strategies are urgently needed. Data from this preliminary review highlights the value of pharmacists as integral contributors to mitigating the opioid crisis and underscores their effectiveness as managers of interdisciplinary opioid tapering programs.

Gabapentin use during pregnancy and adverse neonatal birth outcomes: A population-based cohort study

Alekhya Lavu[1], Payam Peymani[1], Silvia Alessi-Severini[1], Chelsea Ruth[2], Jamison Falk[1], Laila Aboulatta[1], Lara Haidar[1], Marcus C Ng[2], Sherif Eltonsy[1]

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Purpose: Gabapentin is a new-generation antiseizure medication approved for epilepsy. Due to the perceived safety in pregnancy and efficacy in reducing pain, there has been an increase in the off-label use of gabapentin. We aim to study the association between gabapentin treatment during pregnancy and adverse neonatal outcomes.

Methods: We conducted a population-based cohort study among pregnant people in Manitoba, Canada from 1998 to 2019. We examined the association between gabapentin exposure in-utero and the risk of small for gestational age (SGA), low birth weight (LBW), preterm birth, NICU admissions, infant length of hospital stay (LOS)(>3days), infant mortality, neonatal mortality, and neonatal readmissions in all pregnant people, pregnant people with epilepsy (PPWE) and pregnant people without epilepsy (PPWOE). Multivariate regression models were adjusted for pain diagnoses, psychiatric disorders, diabetes, hypertension, urban/rural residence, socio-economic status, and teratogenic drugs.

Results: Among 832 pregnant people exposed to gabapentin, we found a significant increased risk of LBW (aOR 1.85,95%CI 1.47-2.33), preterm birth (aOR 1.60,95%CI 1.30-1.97), NICU admissions (aOR 2.17,95%CI 1.79-2.62), infant LOS (aOR 2.06,95%CI 1.76-2.41) and a non-significant increase in SGA (aOR 1.10,95%CI 0.87-1.41), infant mortality (aOR 1.70,95%CI 0.74-3.89), neonatal mortality (aOR 1.42,95%CI 0.69-2.91) and neonatal readmissions (aOR 1.03,95%CI 0.71-1.49) when compared with unexposed pregnant people. Similar trends of significant increased risks were found among PPWOE and a nonsignificant increase in risk was found among PPWE.

Conclusion: Gabapentin exposure in pregnant people was associated with a significant increased risk of several adverse birth outcomes in infants. Clinicians should be aware of the benefits and potential risks of prescribing gabapentin during pregnancy.

Antiseizure medication use in pregnancy and adverse neonatal birth outcomes: A population-based cohort study

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Purpose: Antiseizure medication (ASM) exposure in utero is associated with an increased risk of adverse birth outcomes. Evidence of neonatal adverse outcomes due to epilepsy itself is scarce. We aim to study the association between ASM treatment during pregnancy and adverse neonatal outcomes in all exposed and pregnant people with epilepsy (PPWE).

Methods: We conducted a population-based cohort study among pregnant people in Manitoba, Canada, from 1998 to 2019. We examined the association between ASMs and the risk of small for gestational age (SGA), low birth weight (LBW), preterm birth, NICU admissions, length of hospital stay (LOS) (>3days) in mothers, LOS infants, infant mortality, neonatal mortality, and neonatal readmissions in all pregnant people and PPWE. We adjusted for socio-economic and clinical variables.

Results: We included 272,205 pregnancies, including 3,691 ASM-exposed pregnancies, of which 798 pregnancies were in PPWE. In pregnant people exposed to ASMs, we observed a significant increased risk of SGA (adjusted odds ratio [aOR] 1.15,95%CI 1.02-1.29), LBW (aOR 1.58,95%CI 1.40-1.79), preterm birth (aOR 1.54, 95%CI 1.42-1.67), NICU admissions (aOR 1.98,95%CI 1.79-2.18), LOS mother (aOR 1.21, 95%CI 1.12-1.31), LOS infant (aOR 1.65,95%CI 1.58-1.79) and a non-significant increase in the risk of infant mortality (aOR 1.23,95%CI 0.89-1.83), neonatal mortality (aOR 1.38,95%CI 0.86-2.22) and neonatal readmissions (aOR 1.05,95%CI 0.88-1.27) when compared with unexposed pregnant people. Similar trends of increased risk were found among PPWE, but none reached statistical significance.

Conclusion: ASM exposure in pregnant people was associated with a significant increase in adverse birth outcomes in infants. It is unclear whether there were risks associated with PPWE as the analysis was likely underpowered. Larger studies among PPWE are recommended to better identify the separate effect of ASMs from underlying epilepsy.

POSTERS – PHARMACY PRACTICE
PP-13

Antiseizure medication safety in pregnant people for non-epilepsy conditions

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Purpose: Antiseizure medication (ASM) exposure in utero has been associated with an increased risk of adverse birth outcomes. With the increase in the use of ASMs for off-label indication in the last two decades, there is a need for ASMs safety research in pregnant people without epilepsy (PPWOE).

Methods: We conducted a population-based cohort study among pregnant people in Manitoba, Canada from 1998 to 2019. We examined the association between ASMs and the risk of small for gestational age (SGA), low birth weight (LBW), preterm birth, NICU admissions, length of hospital stay (LOS) (> 3 days) in mothers, LOS infants, infant mortality, neonatal mortality, and neonatal readmissions in PPWOE. Multivariate regression models were adjusted for pain diagnoses, psychiatric disorders, diabetes, hypertension, urban/rural, socio-economic status and teratogenic drugs.

Results: We analyzed 2893 ASMs exposed PPWOE and 267712 unexposed pregnant people. In ASMs exposed PPWOE, we found a significant increased risk of LBW (aOR 1.54, 95%CI 1.34), preterm birth (aOR 1.52, 95%CI 1.35-1.71), NICU admissions (aOR 1.96, 95%CI 1.76-2.18), LOS(mother) (aOR 1.14, 95%CI 1.04-1.25), LOS (Infant) (aOR 1.61, 95%CI 1.47-1.76) and a non-significant increase in SGA (aOR 1.13, 95%CI 0.99-1.28), infants mortality (aOR 1.22, 95%CI 0.78-1.92), neonatal mortality (aOR 1.32, 95%CI 0.76-2.29) and neonatal readmissions (aOR 1.05, 95%CI 0.85-1.28) when compared with unexposed pregnant people

Conclusion: ASMs exposure was associated with an increased risk of several adverse birth outcomes in PPWOE. Therefore, prescription of ASMs for non epilepsy indication must be rationalized, especially when alternate treatments can be safer for pregnant people.

POSTERS – PHARMACY PRACTICE
PP-14

Two Spirit people's experiences accessing and receiving care in community pharmacies

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Purpose: Two Spirit people face unique challenges in accessing and receiving healthcare in Canada. The Canadian healthcare system is embedded with homophobia, transphobia, heteronormativity, and racism due to colonization which impedes appropriate care for Two Spirit peoples. Coupled with a lack of representation and lack of programming, these issues have resulted in a lack of awareness and understanding of the obstacles faced by Two Spirit individuals in the Canadian healthcare system. This project aims to gain knowledge about the experiences of Two Spirit peoples in accessing and receiving care in community pharmacy settings in Canada. Currently, there is no published information on this topic.

Methods: The research design follows principles of Indigenous research methodologies. A total of 21 Two Spirit participants shared their stories via four different focus groups held in various geographic locations across Canada (Vancouver, Edmonton, Saskatoon, Toronto). Data were recorded using audio recordings of the various focus groups. The audio was then transcribed and analyzed for themes using the Voice-Centred Relational method.

Results: The gifted stories produced three major recurring themes. All stories shared had connections to at least one of the following structural systems: white supremacy, heteronormativity, and capitalism. These structural processes presented themselves as racism, lack of time and greed, lack of knowledge, and homophobia/transphobia. Participants expressed positive experiences when they felt the pharmacist and themselves had a relationship, their Traditional Medicines were valued, or when they were white-passing or straight-passing. The participants also emphasized avoiding pharmacies due to poor experiences with healthcare professionals (physicians, nurses, pharmacists) in the past. Many suggestions to improve experiences in pharmacies were shared. Some include using inclusive language, adding pronouns and preferred names to patient files, incorporating queer and Indigenous education into pharmacy schools, and educating oneself on what Two Spirit is.

Conclusion: Two Spirit Peoples face barriers when it comes to accessing and receiving care in community pharmacies due to various structural processes that exist in this country. This has resulted in many Two Spirit individuals avoiding healthcare to save themselves from unsafe and uncomfortable interactions.

POSTERS – PHARMACY PRACTICE
PP-15

Exploring pharmacists' lived experiences working during the COVID-19 pandemic through photovoice

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Purpose: To gain deeper understanding of frontline pharmacists' lived experiences of the COVID-19 pandemic and its impact on their roles and professional identity (what they do and what it means to them).

Methods: We used the method of Photovoice, a visual research method that uses participant-generated photographs to articulate their experiences, and semi-structured interviews. This approach allowed us to explore the subjectivity of professional identity from the pharmacists' lived experiences. Participants were asked to provide 3-5 photos that reflected on how they see themselves as a pharmacist and/or represents what they do as a pharmacist. The semi-structured interview guide asked open-ended questions about their photos, included a photo-elicitation exercise, and additional questions based on a recent scoping review. We recruited frontline community pharmacists who provided direct patient care during the COVID-19 pandemic in Alberta, Canada through social media and relevant pharmacy organizations. Data analysis incorporated content, thematic and visual analysis and was facilitated using NVivo software. Ethics approval was obtained from the University of Alberta ethics board.

Results: Interviews were conducted with 21 pharmacists who provided 71 photos. Three interviews were excluded from the analysis as it was subsequently discovered that the individuals were impersonating licensed pharmacists. Out of the 18 included participants, 11 were females and 7 were males.

Five primary themes emerged from the photographs and interviews: (1) autonomy, (2) clinical courage, (3) leadership, (4) safety, and (5) value and support. The photographs identified symbols participants associated with their lived experiences (e.g., Dirty unironed lab coat illustrates the relentless pace of pharmacists, a messy bed representing work-life balance out of control).

Conclusion: This study identified that pharmacists felt the pandemic made them visible to the public and made them feel valued as a trusted resource and a safe-haven for ongoing healthcare. Additionally, it highlighted how participants demonstrated clinical courage and led their communities by adapting their roles and using their autonomy to fulfil community needs.

Utilization trends and indications of gabapentin use during pregnancy: A population-based study

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Purpose: Gabapentin is indicated for seizure control but commonly used off-label for other conditions. The increasing use of gabapentin in pregnant women in the past decade despite lacking established safety is concerning, thus population-wide studies are warranted to understand the prescription patterns of gabapentin. The objective of this study is to examine the utilization trends and indications of gabapentin in pregnancy in Manitoba, Canada.

Methods: A population-based cohort study was conducted using administrative health databases in Manitoba, Canada, from April 1, 1999, to March 31, 2019. We examined the annual trends of utilization and indications for gabapentin prescriptions throughout the pregnancy period and in each trimester. Gabapentin exposure was defined as having at least one prescription filled during the exposure period. Generalized regression models were used to model 5-year period trends.

Results: The number of pregnancies exposed to gabapentin had risen significantly from 15 in the years 2000 to 2004, 47 from 2005 to 2009, 229 from 2010 to 2014, and 579 from 2015 to 2019. Gabapentin use was highest during the first trimester at 793 prescriptions, followed by the third and second trimesters, with 532 and 479 prescriptions respectively. Trend analysis revealed a significant increase in the 5-year utilization rates of gabapentin during the first trimester (3.16%, $P<0.0001$), second trimester (3.59%, $P<0.0001$), and third trimester (3.54%, $P<0.0001$). Throughout the pregnancy period, the indications for 443 gabapentin prescriptions include 112 (25.3%) for back, joint, and soft tissue disorders, 89 (20.1%) for mood and anxiety disorders, 17 (3.8%) for pain and migraine, 217 (49%) for "other" diagnoses, while less than 5 prescriptions were for drug dependence and epilepsy. Similar patterns were observed in all 3 pregnancy trimesters. Prescribers were predominantly general practitioners (77.8%), followed by internal medicine (6.5%) and psychiatrists (3.3%).

Conclusion: Gabapentin use during pregnancy significantly increased between the years 2000 and 2019 in Manitoba, and was highest in the first trimester. Data suggest that gabapentin is being heavily prescribed off-label for pain management and other indications, and often by general practitioners. The limited knowledge of gabapentin safety in pregnancy necessitates the need for additional utilization and comparative safety studies.

Patterns of antiseizure medication prescription among pregnant people: Population-based study in Canada

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Purpose: Pregnant people with epilepsy (PPWE) are advised to continue antiseizure medications (ASMs) during pregnancy to minimize maternal and newborn adverse outcomes associated with seizures. With the availability of newer generation ASMs and the increased use of ASM for other indications - neuropathic pain and psychiatric disorders - a significant increase in utilization trends have been observed. Recent real-world data on ASMs utilization in pregnancy is essential. This study aimed to examine the trends of ASMs utilization among pregnant people in Canada.

Methods: We conducted a retrospective population-based cohort of all pregnant people from 1998 to 2019 in Manitoba, Saskatchewan and Alberta. We examined ASMs in classes (i.e., generations), regimens (mono/polytherapy) and separately.

Results: We included 274,182, 245,899 and 533,402 people from MB, SK, and AB respectively. Epilepsy prevalence was 0.6% (1,759 cases) in MB, 0.7% (1,774 cases) in SK and 1% (5,048 cases) in AB. ASMs were used among 3,726 (1.4%), 1674 (0.6%), and 12,830 (2.4%) pregnancies in MB, SK and AB, respectively. Monotherapy was reported in 21.3%, 19.5% and 30.5% of PPWE, while polytherapy was reported in 24.4%, 5.2% and 11.7% in MB, SK and AB respectively. The combination of two first-generation ASMs decreased from 97.7% to 44.2% in MB, 90.3% to 17.6% in SK and 58.73% to 39.11% in AB. The first-second generation combination increased from 0% to 10% in MB, 0% to 9.2% in SK, and 6.03% to 8.06% in AB, while the second-second generation combination increased from 0% to 45.8 % in MB, 9.7% to 73.2 % in SK and 35.2% to 52.8% for AB. The prevalence of utilization was 31.5%, 27.6%, and 12.6% among low SES, and 9.2%, 12.3%, and 28.4% among high SES in PPWE in MB, SK, AB respectively.

Conclusion: Our findings demonstrate that the use of old-generation ASMs during pregnancy is declining in Canadian populations, as recommended by guidelines, while the use of new-generation ASMs are rising. The growing trend in gabapentin use among pregnant people represents a potential concern.

Deaf, deaf-blind and hard-of-hearing community needs and perceptions of pharmacy services

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Purpose: To understand the perceptions of Deaf, Hard-of-Hearing (HOH), and Deaf-Blind individuals regarding experiences at community pharmacies and identify barriers and enablers to providing pharmaceutical care.

Methods: A qualitative study was conducted from March 2022 to March 2023. Participants were grouped by age and disability. These groups included: Deaf seniors (65+), HOH seniors (65+), Deaf adults (19-64), HOH adults (19-64), and Deaf-Blind individuals (19+). Participant demographics were collected. Participants were asked questions about their expectations of a pharmacist, issues encountered at community pharmacies, positive and negative experiences, and suggestions for improvement. Focus groups were video recorded, transcribed, and thematically analyzed.

Results: 18 participants completed the study (3 Deaf seniors, 4 Deaf adults, 2 HOH seniors, 8 HOH adults and 1 Deaf-Blind adult). Participants from each focus group shared similar expectations of pharmacists. They expected pharmacists to provide access to medications, be knowledgeable about medications, provide patient education, administer vaccinations, and be friendly during patient interactions. They reported positive experiences when pharmacists accommodated them (e.g., writing down instructions, typing or texting) and demonstrated patience during the encounters.

Issues at the pharmacy included physical barriers, such as masking and plexiglass, making it even harder to hear for HOH individuals. Consistently experienced across all groups was ineffective communication when counselling on medications and lack of access to interpretation services. These identified issues led to one Deaf adult experiencing a medication-related hospitalization.

Deaf participants preferred visual communication and using American Sign Language. The Deaf-Blind participant shared the desire for access to tactile methods of wayfinding around OTCs and differentiating medications. HOH participants preferred communication through typing. All participants expressed the need for access to interpretation services, effective medication counselling strategies, and for pharmacists to be more educated about people with hearing disabilities.

Conclusion: Improvements are needed in order for Deaf, HOH, and Deaf-Blind individuals to be able to access pharmacy services and receive safe and effective pharmaceutical care. Making interpretation services available and making accommodations for patients with hearing needs has the potential to prevent adverse drug events for this population and improve patient understanding of their medications.

POSTERS – PHARMACY PRACTICE
PP-19

Pharmacist intervention for lower urinary tract symptoms (PILUTS): A 1-year analysis

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Purpose: Lower urinary tract symptoms (LUTS) are common yet often overlooked. We launched a study in community pharmacies to determine if there was an impact of pharmacist identification and initial management on LUTS in older adults compared to usual care. The purpose of this presentation is to provide an update on this ongoing study.

Design: Randomized controlled trial.
Setting: Community pharmacies in the Greater Edmonton area and Red Deer.
Population: Any patient over the age of 60 who is presenting with any LUTS (measured by 3 validated screening questions).

Intervention: All enrolled patients completed an initial online questionnaire including demographics, description of LUTS, and scored 3 validated tools regarding bladder symptoms (Patient Perception of Bladder Condition (PPBC), Bladder Self Assessment Questionnaire (B-SAQ), and International Consultation on Incontinence – Short Form (ICI-Q SF)). For patients in the intervention group, the pharmacist followed up with the patient at 4 and 8 weeks and consulted with the patient on strategies to minimize LUTS. Patients who were randomized into the control group received usual care with no specific intervention.

Primary Outcome: Change in PPBC from baseline to the last follow-up visit.

Analysis: The study is expected to take 2 years to complete. This interim analysis is not powered for comparison but will be presented descriptively.

Results: We conducted a preliminary analysis of the data for 25 patients who have completed the study. There were 12 patients randomized into the intervention group and 13 in the control group. PPBC scores on average was decreased by 0.2 in the intervention group and 0.5 in the control group. Symptom and bother scores in the intervention group decreased by 0.2 and 0.5 respectively, compared to the control group where there was no change in symptom score and a decrease of 0.4 in bother score. The greatest difference was seen when comparing ICIQ scores, in which the intervention group showed an average decrease of 0.8, whereas the control group had a decrease of 0.3.

Conclusion: Preliminary analysis shows that enrolling patients in a pharmacist intervention study improves perception of LUTS symptoms.

POSTERS – PHARMACY PRACTICE
PP-20

Marijuana use and the risk of incident venous thromboembolism in people with HIV

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Purpose: People with HIV (PWH) are at an increased risk of venous thromboembolism (VTE). Among PWH, marijuana use is common. Marijuana has been shown to display both procoagulant and anticoagulant effects on the blood, however its effect on VTE in PWH has not been evaluated. We aimed to assess whether there is an association between marijuana use and incident VTE among PWH.

Methods: We conducted a cohort study using data from the Centers for AIDS Research Network of Integrated Clinical Systems (CNICS), a US-based, multisite cohort of PWH. Marijuana use was obtained from patient reported outcomes on substance use using the modified Alcohol, Smoking and Substance Involvement Screening Test. VTEs were assessed using multiple ascertainment criteria and then centrally adjudicated by at least 2 physician reviewers. Cox models were used to determine the association of incident VTE with marijuana use. Models were adjusted for age, sex, other substance use, CD4 cell count, HIV viral load, diabetes, hypertension, dyslipidemia, chronic kidney disease (CKD), Hepatitis C (HCV), and Hepatitis B (HBV) co-infection.

Results: Among 12,515 PWH in care between 2009 and 2019 at 6 CNICS sites across the US, 213 (1.7%) experienced a VTE. Mean follow up was 4.5 years, mean age was 44 years, 17% were female, 45% were white, and 32% reported current marijuana use in the past 3 months. Around 18% had dyslipidemia, 16% had HCV co-infection, 9% had diabetes, and 1% had CKD. The mean CD4 count was 532 cells/mm^3 and 19% had a viral load >400 copies/mL. In adjusted models, former (adjusted hazard ratio [aHR] 0.83, 95% CI 0.57-1.20) and current (aHR 0.78, 95% CI 0.51-1.13) marijuana use were not associated with a significant increase in VTE incidence compared to never users. Furthermore, no association was observed between frequency of marijuana use and risk of incident VTE, suggesting there is no dose-dependent increase in VTE risk.

Conclusion: Among PWH there seems to be no evidence of increased VTE risk with the use of marijuana. Despite its benefits in PWH, clinicians must weigh the potential benefits and risks of marijuana before making recommendations about its use or cessation.

Drug utilization patterns before and during COVID-19 pandemic in Manitoba, Canada: A population-based study

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Purpose: The COVID-19 pandemic has led the Canadian provincial governments to take unprecedented measures, including restrictions to healthcare services. However, there is limited evidence regarding changes in prescription trends in Canada during the pandemic. The objective is to examine the trend of medication prescriptions among all Manitobans before and during COVID-19. These medications included anti-diabetics, cardiovascular drugs, opioids, respiratory drugs, antibiotics, antivirals, corticosteroids, non-steroidal anti-inflammatory drugs (NSAIDs), alpha-1 blockers, immunostimulants, immunosuppressants and neuraminidase inhibitors.

Methods: We used the administrative health databases from the province of Manitoba, Canada, to conduct a province-wide cross-sectional study. Incident and prevalent use was compared between two time periods; pre-COVID-19: July 2016-March 2020 and during COVID-19: April 2020-March 2021. Interrupted time series analysis using autoregressive models was used to quantify the change in level and slope in quarterly medication use among incident and prevalent users.

Results: The quarterly study population ranged from 1,353,485 to 1,411,630 Manitobans. The most common comorbidities were asthma (26.67%), hypertension (20.64%), and diabetes (8.31%). On average, the pandemic restrictions resulted in a relative decline in the aggregated utilization of all drugs among both incident users by 45.55% (p=0.002) and prevalent users by12.17% (p=0.005). Subclass analysis showed a relative drop among incident users of antibiotics, cardiovascular drugs and opioids use by 46.83% (p=0.008), 23.05% (p<0.001), and 30.98% (p=0.002), respectively. We observed a significant slope increase during COVID-19 among incident cardiovascular users ($\beta3=0.0439$, p=0.014) and antidiabetics ($\beta3=0.0251$, p=0.001), alpha-1 blockers, and statins compared to the pre-COVID-19 period. We noted a significant decrease in level among NSAIDs, opioids, and antibiotic prevalent users, however, no significant changes in slope were observed.

Conclusion: COVID-19 restrictions had a significant impact on health care services and prescription trends in Manitoba. After the mitigation measures were implemented, the use of medications among the general population dropped significantly, but this decline was temporary. Further research is needed to monitor prescription trends during future waves and guide evidence-based practices during the pandemic period.

Respiratory drugs and antibiotics use before and during COVID-19 in asthma and COPD patients: A quasi-experimental study

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Purpose: Populations with asthma and chronic obstructive pulmonary disease (COPD) are advised to adhere to their respiratory medications. However, there is conflicting evidence on how the COVID-19 pandemic has impacted asthma and COPD patients. Our objective was to investigate the trends of respiratory medications (bronchodilators and corticosteroids) and antibiotics prescriptions in asthma and COPD patients before and during COVID-19 period in Manitoba, Canada.

Methods: A quasi-experimental study using administrative health databases from Manitoba, Canada, between July 1, 2016 and March 31, 2021 was conducted. Two cohorts were created (asthma and COPD cohorts). Interrupted time series analysis using autoregressive integrated moving average (ARIMA) - with step and ramp intervention functions - was used to investigate the immediate and lagged effects in the quarterly medication use.

Results: During the study period, we examined 894,941 asthma patients and 238,938 COPD patients. Among those, 22.6% and 16.77% of COPD and asthma patients were $\geq$65 years, respectively. Moreover, 21,896 (2.45%) asthma and 5,548 (2.32%) COPD patients tested positive for COVID-19. Among asthma patients, there was a significant increase in the quarterly utilization of respiratory medications by 12.26% (p<0.001) immediately after the onset of the pandemic, and significant decline in the quarterly use of respiratory antibiotics by 24.19% (p=0.022). However, over the pandemic period, there was no significant increase in the in the quarterly use of antibiotics (β =1.817, p=0.463). Among COPD patients, there was a significant immediate increase in the quarterly use for both respiratory medications and antibiotics use by 57.79% and 8.26%, respectively. Furthermore, over the pandemic period, we found a significant decrease in antibiotics utilization (β= -4.945, p<0.001) among COPD patients.

Conclusion: Our findings highlight the pandemic effect on prescribing practices among COPD and asthma patients. A significant immediate decline in the use of antibiotics was observed in both populations following the pandemic restrictions. Furthermore, a significant lagged effect was shown in COPD antibiotic use. This trend suggests that restrictions were associated with fewer individuals developing microbial infection or promoting the "wait and see" method for self-limiting conditions. Further research is necessary to investigate if the restrictions effects were detrimental to patients' health or quality-of-life

PP-23

Pharmacist-led virtual group appointments for complex health conditions with high medication burden

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Purpose: Group appointments are medical education sessions where attendees learn from and with each other to improve health outcomes while reducing the need to repeat an intervention. Literature has shown a role for physicians and allied healthcare providers facilitating group appointments, but none was found regarding pharmacist-led group appointments despite complex health conditions often having high medication burden. Pharmacists as group appointment facilitators could be leveraged to enhance primary care healthcare system capacity.

The UBC Pharmacists Clinic (the Clinic) is a pharmacist-led patient care clinic that receives referrals for Parkinson's disease and chronic pain management. Our objective was to understand the experience of patients participating in pharmacist-led virtual group appointments to improve future offerings.

Methods: In 2022, the Clinic hosted three group appointment series for Parkinson's disease and chronic pain, respectively. Each series consisted of a monthly 1-hour session for three months over Zoom for approximately 10 participants and was facilitated by a Clinic pharmacist and up to two pharmacy students or residents. PowerPoint slides encouraged group discussion and provided information on: (1) non-pharmacological interventions, (2) over-the-counter and prescription medications, (3) side effect management and medication safety. Attendees received summary handouts and homework. Group appointment materials were developed by pharmacy learners with guidance from Clinic pharmacists.

Participants who attended a complete group appointment series were invited to participate in semi-structured interviews, based on the validated Patient Experience with Treatment Self-Management questionnaire.

Results: Fourteen interviews were conducted (seven for each condition). Interviews were audio-recorded and transcribed. Data were analyzed using qualitative content analysis and common themes extracted. Three themes were identified in the interim analysis: (1) learning is individualized, (2) benefits of group appointments, (3) clinical services by pharmacists are in demand. No participants raised concerns regarding pharmacy learner involvement. Group appointment offerings were refined according to interview feedback.

Conclusion: Participants endorsed positive experiences with pharmacist-led virtual group appointments. This offering could be leveraged by pharmacists to efficiently provide medication-related education that enhances patient understanding. Involvement in group appointments can serve as a learning activity for pharmacy students and residents on practicum to gain experience as educators and in health promotion.

Mental health first aid (MHFA) training in community/primary care pharmacy practice: An evaluation of the value and impact of MHFA on patient care from the perspective of pharmacists

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Purpose: Mental health first aid (MHFA) training is an evidence-based approach that teaches participants how to recognize, understand, and respond to someone who is experiencing a mental health crisis. The objective of this study is to evaluate the level of confidence, stigma, and frequency of MHFA intervention and patient care interactions among pharmacists and pharmacy students before and after MHFA training.

Methods: Manitoba pharmacists who are licensed to provide direct patient care in community/primary care settings (>50% of total working hours per month) and fourth-year pharmacy students on their practice rotations who have not previously received MHFA training were invited to participate. An online survey was administered to participants over a three-month period. The pre- and post-training surveys are used to measure changes in their level of confidence in providing care and responding to patients with mental health disorder or those experiencing mental health crisis, and attitudes and stigma towards mental illness using Likert scales.

Results: The total number of participants is 21 (n=18 pharmacists and n=3 PharmD students). All participants reported overall agreement to self-efficacy statements in assisting someone developing a mental health condition or in crisis pre-MHFA training. Most participants reported high levels of disagreement to a set of stigmatizing attitudes and behaviour toward people with mental illness statements. Twelve (57%) participants ranked "Listening non-judgmentally" as the first intervention made to patients experiencing a mental health crisis in the pre-MHFA training survey. Open-ended responses included suggestions to support pharmacists in the area of mental healthcare such as providing mental health resources to give to their patients.

Conclusion: The Mental Health First Aid training has the potential to provide pharmacists with the necessary skills to respond to people with mental health disorder or experiencing mental health crisis. This also has the potential to improve communication between pharmacists and patients about mental health concerns.

PP-26

Rural residence is associated with a delayed trend away from sulfonylurea use for treatment intensification of type 2 diabetes

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Purpose: To examine the intersection between location of residence along the rural–urban continuum (metropolitan, urban, and rural) and sulfonylurea dispensation records for the management of type 2 diabetes.

Methods: This retrospective cohort study used administrative health records of adult new metformin users between April 2008 and March 2019 in Alberta, Canada. Multivariable logistic regression was performed to examine the association between sulfonylurea-based treatment intensification and location of residence.

Results: Treatment was intensified in 66,084 (38%) of 171,759 new metformin users after a mean of 1.5 years. At treatment intensification, mean age was 55 years, 62% of users were male, and 27% were rural residents. The most common antihyperglycemic drug, given to 30,297 people (46%) for treatment intensification, was a sulfonylurea. At the beginning of our observation period, the proportion of people dispensed a sulfonylurea at first treatment intensification was highest in rural (57%), compared with urban (54%) and metropolitan (52%) areas (P = 0.009). Although proportions decreased over time across the province, rural residents continued to constitute
the highest proportion of sulfonylurea users (45%), compared with urban (35%) and metropolitan (37%) residents (P < 0.001), and the trend away from sulfonylurea use was delayed by 4 years for rural residents. Adjusting for potential sources of confounding, rural residence was associated with a significantly higher likelihood of using a sulfonylurea compared with metropolitan residence (adjusted odds ratio 1.34; 95% CI 1.29–1.39).

Conclusion: Variation in sulfonylurea dispensation across the rural–urban continuum provides a basis for continued research in the differences in process of care by location.

Facilitators and barriers to minor ailment prescribing in Ontario: Perceptions of pharmacists, physicians and patients to service implementation.

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Purpose: In Ontario, the expansion of pharmacists scope of practice to include prescribing for thirteen minor ailments, including infectious diseases, in community pharmacies will begin January 2023. This presents opportunities to improve patients' access to timely care and harness pharmacists' expertise to increase appropriate prescribing. Despite Ontario being one of the last provinces to introduce this service, the province differs in many ways. Specifically, large diversity in ethnicity and immigration status; and populations living in both urban and rural locations. Identifying key facilitators and barriers for the effective implementation of pharmacist prescribing is crucial to proactively support this evolution. As such, the aim of this study is to identify the facilitators and barriers associated with pharmacist prescribing medications for selected minor ailments and infectious diseases.

Methods: Virtual interviews and online surveys were utilised to gather pharmacists' perspectives on service provision across Ontario. Virtual focus group discussions were conducted with primary care physicians and patients separately. Focus groups and interviews were audio recorded, transcribed verbatim and thematically analysed. Data analysis was guided by the Consolidated Framework for Implementation Research (CFIR) and the Theoretical Domains Framework.

Results: Twenty-four pharmacists, nine physicians and sixteen patients participated in interviews or focus groups. Seventy-one surveys were included in the analysis. All participant groups perceived the expanded scope to be beneficial if implemented well. Facilitators and barriers identified predominantly pertained to the CFIR domains of (1) Inner setting and (2) Intervention characteristics. Overburden created by COVID-19 and compensation issues were the most cited barriers by pharmacists. Pharmacist-identified facilitators included education and training, and access to patient information. Patients and physicians cited access to patient information as a primary barrier in addition to variable patient trust in pharmacists. Increased access to healthcare was the top facilitator from this group of participants.

Conclusion: In line with the findings from other provinces around Canada, Ontario-based pharmacists, patients and physicians generally positively rated the expansion of scope to include minor ailment prescribing. Some concern was raised by pharmacists around implementation of this new service in the current COVID-19 climate with the current limited resources.

PS-1

The cellular mechanisms of amyloid-induced beta-cell death in human islets – A potential role for islet-derived extracellular vesicles

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Purpose: Reduced beta-cell mass and function is a key defect in type 2 diabetes (T2D; adult-onset). Islet amyloid, formed by aggregation of human islet amyloid polypeptide (hIAPP), is an important factor contributing to progressive beta-cell loss in T2D. Amyloid also forms in human islets during pre-transplant culture period and following transplantation in patients with type 1 diabetes (T1D), which is associated with beta-cell dysfunction and death, potentially leading to graft failure. The cellular mechanisms by which amyloid destroys beta cells are not well understood. In this study, we examined the potential role of islet-derived extracellular vesicles (EVs) in amyloid-induced beta-cell death.

Methods: Human islets (n=4 cadaveric donors) were cultured in normal glucose (5.5 mM) as control (islets form no or minimal amyloid) or elevated glucose (11.1 mM; islets form amyloid) for 7 days. EVs were isolated from islet culture medium and their purity was assessed by EV specific markers. Freshly isolated human islets were then cultured for 3 or 7 days without or with EVs purified from the control or amyloid-forming human islets (conditioned medium). Amyloid formation and beta-cell death were assessed by quantitative immunolabelling for insulin and thioflavin S (amyloid) or insulin and TUNEL (apoptosis), respectively.

Results: Human islets cultured with the conditioned medium containing EVs isolated from amyloid-forming islets (elevated glucose) had higher level of amyloid formation as compared to those islets cultured with isolated EVs from non-amyloid forming islets (normal glucose) or non-treated islets. Elevated amyloid formation in human islets cultured with conditioned medium containing EVs from amyloid-forming islets closely correlated with the increased number of TUNEL-positive (apoptotic) beta cells in those islets.

Conclusion: These data suggest that EVs released from non-healthy amyloid-forming human islets can promote amyloid formation and beta-cell death in healthy human islets during ex vivo culture. Islet-derived EVs may play a role in the process of amyloid formation and its beta-cell toxicity. Thus, modulation of islet-derived EVs may provide a new therapeutic strategy to improve beta-cell survival in T2D and islet grafts by reducing amyloid-induced beta-cell death.

Pharmacological blockade of interleukin-1 beta action reduces extracellular amyloid-induced beta-cell death

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Purpose: Type 2 diabetes (T2D) is characterized by progressive loss of beta-cell mass and function associated with peripheral insulin resistance. Formation of protein aggregates, named amyloid, in the pancreatic islets contributes to beta-cell death in patients with T2D. Islet amyloid also forms in human islets transplanted into patients with type 1 diabetes (T1D) and contributes to islet graft failure. Islet amyloid forms by intra- and extra-cellular aggregation of islet amyloid polypeptide (IAPP, amylin), a hormone normally produced by beta cells. The mechanisms underlying amyloid formation are not well understood and currently no treatment is available to prevent amyloid formation and/or its toxicity. Our research group previously showed that islet amyloid formation results in increased levels of interleukin-1 beta (IL-1beta). In this study, we examined if pharmacological blockade of IL-1beta action can protect beta cells from toxic effects of extracellular amyloid formation.

Methods: Transformed INS-1 rat beta cells or primary human islet beta cells were exposed to fibrillogenic hIAPP (10 μM) or non-fibrillogenic rat IAPP (rIAPP, 10 μM) as control, and treated with an IL-1beta neutralizing antibody (50 or 100 nM) for 24 hours. The presence of hIAPP aggregates was assessed by Thioflavin T assay and beta-cell death was assessed by quantitative double immunolabeling for insulin and TUNEL (n=3 independent assays).

Results: Exposure to extracellular hIAPP aggregates increased the proportion of TUNEL-positive (apoptotic) INS-1 beta cells (control: 0.9±0.1%; hIAPP(+): 4.2±0.3%) and primary human islet beta cells (control: 2.3±0.4%, hIAPP(+): 7.2±0.3%; p<0.05). Pharmacological blockade of IL-1beta action in hIAPP-treated cells markedly reduced the number of TUNEL-positive INS-1 beta cells (50 nM: 1.6±0.3%; 100 nM: 1.3±0.3%) and human islet beta cells (3.5±1.1%). Exposure to non-fibrillogenic rIAPP did not have any detectable effect of beta-cell death.

Conclusion: These data suggest that pharmacological blockade of IL-1beta action reduces beta-cell death caused by extracellular hIAPP aggregates in both transformed INS-1 beta cells and primary human islet beta cells. The inhibition of IL-1beta action may provide a new therapeutic strategy to protect islet beta cells from amyloid toxicity thereby enhancing beta-cell survival in patients with T2D and islet grafts in patients with T1D.

POSTERS – PHARMACEUTICAL SCIENCE
PS-3

The different prognostic significance of polysialic acid and cd56 expression in tumor cells and lymphocytes identified in breast cancer

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Purpose: Protein glycosylation is a fundamental process that alters the biological activity of proteins. Changes to protein glycosylation states are associated with many forms of cancer. Polysialylation is a selective and highly regulated glycosylation event and neoexpression of Polysialic acid (polySia) has been reported in multiple cancers such as neuroblastoma, glioma, lung carcinoma, and leukemia. Polysialic acid is synthesized by two main enzymes in Golgi apparatus: ST8SIA2 and ST8SIA4. CD56 (NCAM-1) has been identified as a carrier protein for polysialic acid chains in various cells. In this study, we aim to examine the expression and clinical relevance of ST8Sia2, ST8Sia4, polysialic acid and CD56 in breast tumors.

Methods: Primary breast tumor tissue samples encompassing all stages and molecular subtypes were stained for polySia and CD56 using standard chromogenic and fluorescent immunohistochemistry staining and were analyzed for polySia and CD56 expression in relation to clinical characteristics and overall survival. To evaluate the expression level of ST8SIA4 and ST8SIA2 in breast tumor samples, we used RNA in situ hybridization method and quantified the positive signals for each marker.

Results: Our data showed no association between polySia expression level with different molecular subtypes and all subtypes exhibited varying expression levels of polySia. We identified polySia expression in not only tumor cells but also in tumor infiltrating lymphocytes (TIL). RNA in situ hybridization results showed that ST8Sia4 mRNA expression was significantly higher than ST8SIA2, both in breast tumor cells and Tumor infiltrating lymphocytes.

Here we identified immune cell subsets carrying polySia as well. Investigation into CD56 tumor cell expression identified a significant association with HER2 expression and a positive correlation with polySia expression. We observed high levels of polySia and CD56 expression in tumor cells is associated with poor patient outcome while high levels of polySia and CD56 expression in TIL was significantly correlated with good clinical outcomes.

Conclusion: In this study, we demonstrated that high levels of CD56 and polySia-CD56 expression on tumor cells is associated with poor patient outcomes whereas the majority tumors with CD56+ TIL also contain polySia+ TILs and the presence of these TILs is an extremely favorable prognostic indicator in breast cancer patients.

Improving precision of vancomycin dosing in neonatal sepsis based on clinical outcome evaluation and population pharmacokinetics

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Purpose: Coagulase-negative staphylococci (CoNS) are among the most common pathogens isolated in the neonatal intensive care unit (NICU) causing neonatal sepsis, which is frequently treated with vancomycin. However, dosing remains a challenge in neonates due to significant pharmacokinetic variability and unclear vancomycin target range. This study aims to determine vancomycin target range associated with clinical outcomes and develop a better dosing strategy using population pharmacokinetics (popPK) to maximize probability to reach study-derived target range in neonates.

Methods: A retrospective cohort study included neonates who were admitted to the NICU and received intravenous vancomycin. The associations between vancomycin trough concentrations and persistent/recurrent infections and mortality or acute kidney injury were assessed using multivariate logistic regression, classification and regression tree (CART) and/or proportional Cox models. A popPK model was derived and validated using nonlinear mixed effects modelling (NONMEM). The predictive performance of the derived popPK model was compared against published popPK models. Monte Carlo simulations (MCS) were performed to derive optimal dosing regimens.

Results: A one-compartment model incorporating weight, postmenstrual age (PMA), and serum creatinine (SCR) best described the observed data from 655 vancomycin courses in 448 neonates with highest accuracy and precision compared to 22 other published models. Among 123 patients who were treated with at least 5 days of vancomycin therapy, a strong association between time to reach target range and composite outcomes was demonstrated (p=0.005). A vancomycin trough concentration >10 mg/L was associated with 70% lower odds of persistent/recurrent infections (adjusted odds ratio: 0.3, 95% confidence interval (CI): 0.09-0.86, p=0.023) and >15 mg/L was associated with 3 times higher risk of acute kidney injury (adjusted hazard ratio of 2.94, 95% CI: 1.10-7.90, p=0.003). MCS-derived vancomycin doses achieved >90% target attainment for trough target range of 10-15 mg/L in majority of PMA and SCR categories (78%).

Conclusion: A vancomycin trough target range of 10-15 mg/L was associated with most optimal outcomes in treating neonatal sepsis, which supports using vancomycin trough concentrations for therapeutic drug monitoring in neonates. A vancomycin dosing guideline using loading dose was derived to increase probability of target attainment and time at target in neonates.

POSTERS – PHARMACEUTICAL SCIENCE
PS-5

Developmental changes in somatostatin and dopamine receptor subtypes during the transition from non-neuronal to terminally differentiated SH-SY5Y cells

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Purpose: Alzheimer's disease (AD) affects an estimated 47 million people worldwide. Alteration in adult neurogenesis appears to be a promising approach for neurodegenerative disorders. Somatostatin (SST) and Dopamine (DA) are the major neurotransmitters and play several overlapping functions in the development and maturation of the brain. SST acts by binding to five different SST receptors (SSTR1-5), prominent members of the G-protein-coupled receptor (GPCR) family. Like SSTRs, the actions of DA are also mediated by DA receptors, a family of GPCRs with five subtypes (DR1-5). Interestingly, SST and DA are known for each other's reciprocal regulation in the brain. Both SSTRs and DRs regulate motor activity and cognition and are involved in several neurological and neuropsychological disorders.

Methods: In the present study, SH-SY5Y cells were treated with RA (10μM) and/or SST, DA (1μM) for days 1, 3, 5, and 7 to induce differentiation. Subcellular distribution and expression of receptor subtypes were determined by immunocytochemistry, western blot analysis, and qPCR. We further performed colocalization of SSTR and DR subtypes with neurite marker (TUJ1) to determine the functional relationship between receptor expression and gradual developmental changes in neurites.

Results: In response to RA-mediated differentiation, a strong co-localization of SSTRs and DRs with TUJ1 was observed in the presence of SST, DA, and SST+DA, suggesting their crucial role in neuronal integrity, maturation, and migration. SST+DA treatment promoted the terminally differentiated neurons. Corroborating with subcellular distribution, qPCR unraveled receptor and treatment-specific changes in mRNA levels of SSTRs and DRs. Immunoblot analysis revealed receptor and agonist-dependent changes in cytosolic and membrane expression as well as receptor-specific regulation.

Conclusion: Our study supports the role of SST and DA in potentiating the neurite formation and maturation of SH-SY5Y neuroblastoma cells probably through SSTR and DR heterodimerization. Our observations support a possible implication of SSTR and DR cross-talk in neurological disease exhibiting interrupted neuronal communication and loss of cognitive function particularly in Alzheimer's disease.

Indigenous student safety in pharmacy

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Purpose: While there are efforts to Indigenize and decolonize programming in pharmacy curricula, the current status of Indigenous student safety remains unknown. Adding new Indigenous curricula has the potential to cause unintentional negative consequences on Indigenous student safety due to further stigmatization and stereotyping by non-Indigenous peers. The purpose of this research is to evaluate the status of Indigenous student safety in the Entry-to-Practice PharmD Program at UBC and to suggest ways to create safe(r) learning spaces for Indigenous students.

Methods: Three study populations were chosen to capture a broad perspective of Indigenous student safety: (I) current Indigenous pharmacy students, (II) Indigenous pharmacists, specific to their previous experiences as a student in the pharmacy program and in their current workplace, and (III) current Indigenous Teacher Education Program (NITEP) students from the Faculty of Education as a benchmark comparator of a well-established, Indigenous-specific program. The evaluation used a mixed methods approach, including surveys for each study population. Surveys were deployed online through Qualtrics, qualitative data was then thematically categorized using an inductive approach consistent with grounded theory and analyzed to generate common findings.

Results: A total of ten participants from the three study groups participated. Qualitative analysis identified a significant safety issue for past and current Indigenous pharmacy students. Other themes were diverse and included feelings of being isolated, judged, only self-identifying in select Indigenous spaces, lack of knowledge/willingness of instructors on Indigenous topics, lack of supports, and wishing they knew more Indigenous students. Differences between the groups were stark, including 100% of NITEP participants feeling they were provided a safe learning environment, while only 50% of pharmacy students felt a safe learning environment was present. Suggestions to improve and create safe(r) learning spaces were heterogenous.

Conclusion: There is clearly a need to create safe(r) learning spaces in pharmacy for Indigenous students. Harmful stereotypes are pervasive and programs should strive to achieve minimally what NITEP has accomplished. Low participant engagement should be seen as an indicator of the overall lack of safety of Indigenous people in pharmacy. Future investment should be made to support Indigenous students through Indigenous student coordinators or Elder in-residence programming.

The use of the patient voice in Canadian pharmacy programs

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Purpose: In recent years, there has been an increasing interest in embedding patients' voices in the education of healthcare professionals to allow for direct dialogue between real patients and students, recognizing patients as experts in their own medical conditions.[1,2] Patients' voices are defined as pre-organized involvement of real patients in teaching, including lectures, seminars, practice skills labs, for a specific educational purpose.[3.] Active patient involvement has been shown to enhance students' attitudes and confidence in communicating with patients about their healthcare concerns.[3] And, patients expressed a sense of empowerment and greater self-acceptance when sharing their stories with students.[3] While the benefits seem to be many, it is unclear how and to what extent patients' voices are being utilized in pharmacy education programs. The purpose of this study is to conduct an environmental scan of Entry to Practice Doctor of Pharmacy (E2P PharmD) programs in Canada to determine to what extent pharmacy educators in Canada incorporate real patients' voices in course delivery.

Methods: A web-based survey was distributed to pharmacy educators at eight Canadian English-speaking E2P PharmD programs. Respondents answered questions relating to their experience incorporating patients' voices into their teaching, the value of patients' voices, and perceived barriers. Aggregate data were analyzed using descriptive statistics.

Results: Fifty-three pharmacy educators (7%) responded. While most respondents (93%) agreed that patients' voices are indispensable in pharmacy education, only 32% reported that they had involved real patient voices in their courses in the past 3 years. Patient speech or presentation was reported as the most used method to involve real patient voices in their courses (39%), followed by question-and-answer sessions (17%). The top barriers perceived by pharmacy educators for involving real patients were insufficient teaching time (33%) and difficulty in recruiting patients (27%).

Conclusion: Patients' voices were used by one-third of the E2P PharmD educators who participated, though over ninety percent recognized its value. Where deployed, patients were invited to speak on a variety of topics relevant to their personal experiences. More research is needed to determine how to better implement and sustain the use of patients' voices in pharmacy education programs.

Pharmacist prescribing for minor ailments (PPMA) in Ontario: Needs assessment of pharmacy students

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Purpose: As of January 2023, Ontario pharmacists have prescribing authority for minor ailments (i.e., pharmacist prescribing for minor ailments or PPMA). Currently, no literature has explored the attitudes and preparedness of pharmacy students towards PPMA. The objective of this study is to identify pharmacy students' perceived confidence, readiness, and needs, including potential barriers and facilitators of PPMA.

Methods: This is a needs assessment project, where we surveyed 465 senior UofT PharmD students using a 30-item online questionnaire, which was distributed via the student listserv and Facebook page for a two-week period from October 11 to 25, 2022. Quantitative data collected were analyzed using descriptive statistics. Thematic analysis of free-text input was performed.

Results: We received 67 responses (14.4% response rate). Of the 13 minor ailments approved for PPMA in Ontario, students were most confident in managing gastroesophageal reflux disease and uncomplicated urinary tract infection, and least confident in skin conditions (e.g., impetigo and tick bites). Students' confidence was associated with their perceived preparedness acquired from the school curriculum, frequency of ailment encounters, and complexity of the condition. Student-perceived barriers to PPMA included lack of time, legal liabilities and risks, and minimal financial compensation, as indicated by 97%, 84%, and 81% respondents, respectively. Students were concerned about potential mistrust from other prescribers and inadequate knowledge. Notably, 96% respondents agreed that additional resources could guide decision-making and 90% respondents perceived that increased number of pharmacy staff would be beneficial to support PPMA. Having access to health records and enhanced pharmacy software would also facilitate PPMA.

Conclusion: Students' confidence in managing the 13 minor ailments differed based on their learning and practice experience, familiarity with the conditions, and complexity of the disease. Various barriers and facilitators towards PPMA were identified. However, our study's low response rate may impact validity of findings. Further research is warranted to better understand students' attitudes, needs, and perceived barriers and facilitators of PPMA.

Identifying indicators of quality experiential education learning experiences and effective methods to evaluate them

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Purpose: The University of Alberta's Faculty of Pharmacy and Pharmaceutical Sciences (FoPPS) together with local health authorities, Alberta Health Services (AHS) and Covenant Health (CH), share a vision to provide quality clinical learning experiences for students and preceptors and support quality improvement. In order to assess a learning experience, quality indicators need to be identified. The purpose of this project was to: determine indicators of a quality learning experience and factors that contribute to safe and effective learning environments, identify methods to measure them, and compare findings to the FoPPS current placement evaluation strategies.

Methods: A thorough literature review was conducted from different data sources and 52 articles were analyzed for quality indicators and tools used to measure them. Studies included were conducted globally, from all healthcare professions, and focused on clinical placements and preceptor and student satisfaction. Articles excluded were those discussing virtual learning environments and workplace experiences unrelated to student placements. The information from the literature was compared to the qualitative and quantitative results from FoPPS student and preceptor course evaluation surveys and summarized to provide recommendations to address gaps.

Results: Indicators of quality learning experiences were summarized into seven major themes including attitudes, skills, pedagogy, relationships, organization, skills, and culture. The most prevalent themes were attitudes, skills, and pedagogy. In the literature, Likert scale surveys, focus groups, and open-ended questionnaires were found to be effective methods used to measure these factors. FoPPS currently assesses many of these quality indicators, primarily using Likert scale surveys and open-ended questionnaires to evaluate experiential courses. Future considerations are to include questions related to: models of precepting and psychological safety, as well as utilize focus groups.

Conclusion: Identifying and understanding what makes a quality clinical learning experience for students and preceptors is the first step in determining how to assess and support the student's experiential learning experience. Next steps for FoPPS, AHS, and CH is to determine how to effectively evaluate and monitor these factors and identify ways to improve learning experiences for both students and preceptors.

POSTERS – TEACHING AND LEARNING
T-6

Pharmacy students' perspectives on reflecting for effective learning during practicum

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Purpose: Many pharmacy schools have implemented reflective activities in experiential rotations to promote student learning. However, students view reflection assignments as "extra work," and lack motivation to complete them. On the other hand, students have reported to self-initiate reflective processes without being assigned one. This is contradictory, as students perceive the assigned reflections as time-consuming, yet they seem to reflect on their own skills and experiences on their own time.

The purpose of this study is to further explore student reflective practices during practicum to provide a clearer picture of students' view on reflection. The general research questions that will be addressed include the role of reflection for effective learning and the distinction between reflection assignments and self-initiated reflection.

Methods: A qualitative methodology was used to gain students' perspectives on reflection and learning. UBC Entry-to-Practice PharmD students in years 1 – 4 were invited to participate in individual or group (focus group format) semi-structured interviews on Zoom. Responses were audio-recorded, transcribed verbatim, and then analyzed for thematic content.

Results: Four individual semi-structured interviews (three PY1 students, one PY2, and one PY3 student) and one focus group with five PY2 students were conducted. Four themes were generalized from the data: (1) Reflection as a Learning Tool (2) Unique Contribution of Self-initiated and Assigned Reflections (3) Challenges to Engaging in Reflection (4) Reflection as Part of Future Practice. It was found that participants distinguished between the two types of reflections. A clear difference students noticed was that self-initiated reflection was more suited to individualized learning and met learning needs in the immediate situation, while the assigned reflection exercises addressed more general and non-specific learning needs. Opinions differed as to whether self-initiated or assigned reflection were more effective for learning. Some students felt that both types of reflection facilitated their learning in their own way, while others felt that self-initiated reflections were more effective. Nevertheless, students value reflection overall as a tool for learning.

Conclusion: The research provides insight into students' perspectives of their reflective experiences during experiential learning. The findings can be used to develop educational interventions to improve the learning of pharmacy students.

POSTERS – TEACHING AND LEARNING
T-7

Progress toward assessing high-level thinking in objective structured clinical examinations (OSCE) in a pharmacy program

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Purpose: OSCEs assess a range of clinical skills and use assessment tools commonly presented as a checklist of discrete knowledge and skills. What is less clear is how to assess high level thinking, also referred to as critical thinking (CT), in an OSCE. The project objective was to develop a strategy to identify, and potentially modify content and assessment measures within existing College of Pharmacy and Nutrition (CP&N) OSCEs to support the assessment of CT among pharmacy learners.

Methods: As part of a Directed Research elective (PHAR 332), a second-year pharmacy student (VL), conducted a literature search of strategies and tools designed to assess CT. The search strategy was developed under the guidance of a librarian at the University of Saskatchewan (U of S) Leslie and Irene Dubé library. The search terms: "OSCE AND critical thinking", "Assessing critical thinking", and "Assessing the application of skill" were inputted into OVID Medline, EMBASE, and Google Scholar. Information on CT and assessment was also gathered using a citation index of assigned course readings, and relevant articles identified during the search.

Results: Overall, there is a lack of information in the literature on the topic of OSCEs regarding their ability to measure CT. In addition, information on the common instruments used to measure CT is also limited due to proprietary restrictions. Despite these limitations, a strategy was developed based on the four major components of CT: processing, analyzing, drawing conclusions, and argumentation. Used successfully in other educational settings, this framework should allow CP&N OSCEs to be modified to identify and assess CT.

Conclusion: Developing a strategy for modifying existing U of S OSCEs to allow for the assessment of CT is an important step toward identifying high-level thinking and application of knowledge among pharmacy learners. The goal is to better support efforts to improve student learning and the effective application of professional skills. The next phase of the project will be to systematically review and modify existing OSCEs within the Pharm D program (U of S) based on the proposed strategy, and to assess the ability of OSCEs to identify and assess CT.

Answering drug information requests (DIR): Resources used by pharmacy students during outpatient practicum

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Purpose: The purpose of this study was to explore the types of drug information resources (i.e., primary, secondary, or tertiary) pharmacy students used when addressing DIRs in outpatient pharmacy practice and whether the resources used changed with students' advancement through the program.

Methods: Program year (PY) 1-3 students in the UBC's Entry-to-Practice Doctor of Pharmacy program complete their community pharmacy practicums during the summer following their academic year. They are all trained to respond to DIRs and use diverse resources. Twelve students (4 students from each year) participated in focus groups or semi-structured interviews. Participants of each year were interviewed separately so that we could better pinpoint the nuanced variations in resources used between years. The questions during the 45-minute online interviews targeted three topics: type of resources used on practicum, type of DIRs students received, and their considerations for choosing resources. Responses were transcribed for a thematic analysis to compare the resource use among the different years.

Results: The top two resources used by participants of all years, regardless of the DIR topic, were the Compendium of Pharmaceuticals and Specialties (CPS) and Lexicomp. The primary considerations for choosing a resource when addressing a DIR for each year in the program were: 1) for first-year students, familiarity with a resource; 2) second-year students indicated accessibility of a resource as their top priority; and 3) third-year students mentioned how fastthey could find the information they wanted within a resource as their top consideration. Participants also identified several barriers limiting their ability to address drug information requests at the practicum site. The top two barriers reported were lack of time and high workload at the pharmacy sites.

Conclusion: Results indicate that the choice of resources does not vary much between different year levels. Although we expected more primary literature to be used by higher year levels, this was not the case. The CPS and Lexicomp remained the top choices for all year levels when it came to responding to most DIRs.

Evaluation of a mandatory first-year lecture and a second-year workshop on sexual orientation, gender identity, and expression

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Background: First- and second year UBC Entry-to-Practice (E2P) Doctor of Pharmacy (PharmD) students engaged with newly developed contents on 2SLGBTQ+ health. This is part of the program's effort in embedding sexual orientation, gender identity and expression (SOGIE) education into undergraduate pharmacy training.

Purpose: To evaluate first-year students' experience of the one-hour lecture and second-year students' experience of the three-hour workshop delivered in 2022W Term 1 to inform the ongoing refinement of SOGIE contents and delivery.

Methods: At the end of each lesson, students completed a voluntary online questionnaire. Survey items evaluated student perception of the topic and lesson. A post-pre survey design was used to compare students' self-perceived knowledge and abilities on the topic before and after the lesson. At the end of the questionnaire, students may state their interest in enrolling in a third-year elective course that examines the historical and contemporary contexts, the role of pharmacists, and selected therapeutic areas related to 2SLGBTQ+ healthcare.

Results: A majority of the students felt that the sessions were useful and engaging and they felt more connected to 2SLGBTQ+ communities. First-year students' abilities to define sex, gender, and sexuality and their knowledge on the conditions that affect 2SLGBTQ+ health increased significantly following the lecture (N=16, P<0.001.). Following the second-year workshop, students reported an increase in knowledge of SOGIE and 2SLGBTQ+ health and social care needs, their attitudes towards 2SLGBTQ+ people, and their abilities to support 2SLBGTQ+ services/programs (N=31, P<0.001.). Over half (53%) of the first-year students surveyed were interested in taking a third-year elective focused on 2SLGBTQ+ healthcare compared to 13% of second-year students.

Conclusion: The majority of first- and second-year students' perception of the contents were favourable and their self-rated knowledge of SOGIE increased; thus, highlighting the successful integration of mandatory SOGIE contents.

Perceptions of pharmacy technician students of the CARD (Comfort Ask Relax Distract) system education implemented as part of vaccine injection training

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Purpose: In 2022, to support the expanded scope of practice for pharmacy technicians to administer vaccinations, our college provided students with the option to complete injection training before graduation. Part of this training included an asynchronous e-module about the CARD (Comfort Ask Relax Distract) system, which is a vaccine delivery framework that reduces immunization stress-related responses. The CARD e-module was well received, however, students expressed interest in incorporating a practical component to the education. In 2023, we made injection training mandatory for all students and added in-person, practical CARD training in supplement to the CARD e-module. Here we describe student feedback about CARD training overall.

Methods: Mixed-methods design including second-year pharmacy technician students who participated in an accredited vaccine injection training program. Students were given access to the CARD e-module after completing other aspects of vaccine injection education. Fourteen students answered a quantitative survey about the e-module and 5 (36%) additionally participated in a focus group after the in-person CARD training. Qualitative data were analyzed using the Consolidated Framework for Implementation Research (CFIR).

Results: The study was conducted in January 2023. Students perceived the CARD e-module to be acceptable and appropriate. Focus group feedback spanned 3 CFIR domains: innovation, outer setting, and individuals. Students believed CARD education provided them with a relative advantage to their peers and could enhance employability. Students reported that practical CARD training helped apply the framework, and solidified principles introduced in the e-module. Using CARD was perceived to improve self-efficacy vaccinating special populations (e.g., children).

Conclusion: Students reported positive attitudes about CARD, and that practical training enhanced their self-efficacy. We plan to continue training students on CARD as well as following up with them post-graduation to examine how they use CARD in their practice.

Sexual and gender minority health content in undergraduate pharmacy curricula

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Purpose: Sexual and gender minority (SGM) people experience barriers in accessing culturally sensitive and inclusive health care services. One of these barriers is encountering health care professionals who lack knowledge of SGM health care needs or who possess negative views towards SGM people.

There is insufficient research published on how undergraduate pharmacy schools in Canada are educating students regarding the care of SGM patients. A survey of American pharmacy schools determined that most programs included no coverage of LGBT content within the curriculum. An additional survey of American pharmacy residents revealed that they did not receive education on transgender patient issues while attending pharmacy school and a minority of respondents reported having confidence to care for transgender patients.

This study plans to identify which topics regarding SGM health are currently in undergraduate pharmacy curricula in Canada, what factors influence the inclusion of SGM health content, and describe how undergraduate pharmacy curricula are evolving to include SGM health content.

Methods: A descriptive case study, with a multiple case design, will be employed for this research. Four pharmacy schools will be examined, each serving as a separate case. Cases will be selected by purposeful sampling guided by preliminary research which has identified where curriculum changes are underway and will include geographic representation across the country. The methods will include semi-structured interviews and document analysis.

Results: Data collection is currently underway and will be completed by the end of 2023. The conference poster will feature background literature, and the research methodology.

Conclusion: To be determined.

POSTERS – TEACHING AND LEARNING
T-12

Evaluating the learning impact and satisfaction with implementing the Academic Electronic Health Record in the PharmD program

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Purpose: Electronic Health Records (EHR) are important tools in patient care across practice settings, yet the usage of an EHR within the pharmacy curriculum is lacking. The development of the Academic Electronic Health Record (aEHR), which is a national tool that simulates practice-based electronic medical records, bridges the gap between practice and the curriculum. At the Faculty of Pharmacy, University of Toronto, the aEHR was piloted and evaluated in year 2 courses of pharmacotherapy and medication therapy management lab.

The goals of the study were to 1) evaluate the usability of the aEHR in courses, 2) gauge the significance of the aEHR in student preparedness for practice, and 3) provide suggestions for further improvement of the aEHR.

Methods: This project employed an iterative process to study student experience with the aEHR. Year 3 students and clinical instructors were surveyed to gather feedback on the aEHR's usability prior to its implementation. The feedback was used to guide case changes prior to the lab. A second survey was sent to year 2 students after using the aEHR to elicit their experience with respect to ease of learning, ease of use, satisfaction, and learning impact. Finally, a focus group was conducted with year 2 students following the completion of their institutional placements to gauge the significance of the aEHR for preparing for practice.

Results: Overwhelmingly, students and clinical instructors agreed that the aEHR was a useful platform to view patient cases for the lab. Eighty-eight percent of year 2 respondents (n= 62) felt more confident to use EHRs in future experiential placements after using the aEHR. The focus group participants found the aEHR to be a good introduction to EHR at the practice site but felt the aEHR did not fully prepare them for it. Students suggested the incorporation of more complex and integrated cases in the aEHR.

Conclusion: This project determined that the aEHR is a useful tool for learning and preparing for practice. However, improvements can be made in the implementation of the aEHR to better reflect patient care in practice and optimize learning.

POSTERS – TEACHING AND LEARNING
T-13

A collaborative way to gain user feedback for healthcare educational media

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Purpose: The objective of our pilot project was to explore and implement an innovative way to promote the dissemination of and acquire feedback for multimedia-based healthcare educational initiatives.

Methods: In July 2022, we engaged and collaborated with a student club in our institution's pharmacy program to promote, disseminate, and invite feedback for our podcast series (i.e., the "event") on their social media page. The podcast episodes were released daily sequentially, each accompanied by a post describing the interviewee(s) and an episode-specific Google Form feedback survey. As an incentive, we awarded pharmacy student society points to viewers who submitted feedback.

Results: A total of 169 individuals were invited to the event on the student club's social media platform; 10 individuals attended the event and 11 expressed interests in attending. We received one additional feedback form by the end of the data collection period. The respondent provided adequate answers to our feedback survey. This additional submission increased our total number of feedback entries, through various dissemination efforts, from seven to eight, and facilitated evaluation of our podcast educational initiative. To recognize this new incentive-oriented strategy in promoting and disseminating healthcare educational initiatives to pharmacy students, we created a standard operating procedure (SOP) to document the process. The SOP will serve as a guide to support future marketing or advocating of new educational initiatives through collaboration with student clubs in an educational program.

Conclusion: Despite few submitted feedback forms, more students attended or were interested in attending the event. Students might have watched the podcast episodes without submitting feedback. Running future events during regular academic terms, as opposed to during the summer months, may increase student engagement and feedback acquisition. The SOP that standardizes the methods of initiating, planning, and executing promotional activities in collaboration with well-established student clubs in educational programs may be adaptable or beneficial for educators at other institutions. Our proof-of-concept project offers a viable option for pharmacy professionals and educators to engage a student body to facilitate dissemination and seek feedback, supporting continuous quality improvement of healthcare educational initiatives.

POSTERS – TEACHING AND LEARNING
T-14

Effect of group-formation principles on students' academic achievement

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Purpose: Case-based learning in small groups has become an integral part of higher education, especially in healthcare, as it promotes discussion, active learning, and problem-solving. Group composition is one of the factors that can affect group learning but the optimal group formation strategy remains unclear.

This study aims to explore the relative effects of two different group-formation approaches on student performance: placing students in groups according to their previous-year marks, thus forming homogenous-composition groups, compared to placing students in groups randomly, which results in heterogenous-composition groups.

Methods: Third-year BSc Pharmacy students from 2012-2013 and 2013-2014 at the University of British Columbia took a required full-year case-based course with lectures and tutorials. Three days of tutorials formed sections with approximately 72 students each. Half of the students on each day, selected randomly, were assigned into groups of 5-6 students with similar second-year weighted academic performance. The other half was randomly assigned into groups of 5-6. The mark from group assignments and the final course mark were the dependent variables on which the two ways of grouping were compared by means of an independent-sample t-test. Additional comparisons were carried out between homogenous groups comprised of high second-year academic performance students and lower performing students.

Results: In both years, the average group mark and final mark were similar and there were no statistical differences between the two group formation strategies. When homogenous high and low performing students in 2012-2013 were compared, the high performing students had a significantly higher average group and final mark. In the 2013-2014 cohort, the final course mark between the homogenous high and low performing students was not statistically significant. High performing students, however, achieved significantly higher marks than low performing students on the group mark.

Conclusion: In conclusion, group formation by randomization appears to be as effective as group formation by academic performance, informing us that the additional resources and time instructors spend creating homogenous groups may not provide added benefit to student learning. Furthermore, grouping by academic performance may create homogenous groups of low performing students, which was shown to be detrimental.

POSTERS – TEACHING AND LEARNING
T-15

Understanding practice readiness in University of Waterloo doctor of pharmacy students and new graduates

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Purpose: The relationship between student performance in pharmacy programs and entry-to-practice milestones has been limited in Canada and in programs with a co-operative (co-op) education model. The purpose of this research is to analyze the relationship between student grades and evaluations achieved in the University of Waterloo (UW) Doctor of Pharmacy (PharmD) program and success rates on the Pharmacy Examining Board of Canada (PEBC) Qualifying Exam and performance on PharmD clinical rotations.

Methods: Existing UW PharmD student data from 2017-2019 including grades and evaluations from courses, co-op work terms and PharmD clinical rotations as well as PEBC exam pass rate data was obtained and processed. Using R statistical software, a multivariable regression analysis was performed to explore the relationship between student grades and evaluations with PEBC exam pass rates and performance on PharmD clinical rotations.

Results: Holding all other variables constant, identifiers with higher grades in Anatomy and Physiology 2 tend to score lower on the PEBC Qualifying Exam, while identifiers with higher grades in Professional Practice 4 tend to score higher on the PEBC Qualifying Exam. Co-op data did not seem to be significant in predicting PEBC data. Identifiers with higher grades in Integrated Patient Focused Care 9 tend to score higher on PharmD clinical rotations and identifiers with higher overall co-op work term 1 scores and direct patient care co-op work term scores showed a positive correlation with PharmD clinical rotations.

Conclusion: The proposed research will create a greater understanding of practice readiness amongst UW PharmD students and new graduates. However, there is a need to develop a standardized definition for practice readiness for pharmacists and future research may accomplish this by exploring perspectives of employers and preceptors on student and new graduate preparedness for practice. The comparative utility of Entrustable Professional Activities (EPAs), which are competency-based decisions on the level of supervision required by trainees, may also be explored as a novel assessment measure in Canadian pharmacy schools.

The use of bonus marks as an incentive to encourage independent learning

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Purpose: Creating exam questions is an established method of improving student mastery of content. However, this method can be time consuming. Motivating students could be an important tool as part of the assessment plans for pharmacy courses. Determining what students deem "worth their time" can improve the likelihood of motivating students successfully. The purpose of this study is to evaluate the effectiveness of using bonus marks to encourage independent learning on student engagement and knowledge retention in pharmacy courses.

Methods: Following their midterm exam, students in a first year pharmacy course were given the opportunity to participate in an optional activity in which they were tasked to create new exam questions based on learning objectives that correspond with the questions they got incorrect. Students could earn 50% of their mark back for each new exam question they wrote. All exam questions were posted in a spreadsheet and released to the class. A subset of these newly written questions were then included in the final exam. Following the activity, an optional survey was released.

Results: A total of 122 students participated, 51 also took part in the survey. Of these 51 students, 45 actually contributed exam questions while 6 of them did not. Over 80% of participating students stated that their initial motivation for taking part in the activity was to receive bonus marks in the course. However, when asked what they enjoyed most about the activity, over 80% of students stated that they valued the learning. All six of the students that did not participate stated that their midterm scores were high enough that they were not motivated. Average score increases from the midterm to the final was 1% for students that did not participate in the bonus activity, but students that did participate saw an average mark increase of 10% on the final.

Conclusion: Using bonus marks is an effective incentive for attracting students, which leads to an increase in final exam scores. While the majority of students are initially interested in receiving bonus marks, later feedback indicated that most students valued the learning aspect following completion of the activity.