



# TLEF Project – Final Report

## 1. Report Completion Date: (2024/04/30)PROJECT OVERVIEW

### 1.1. General Information

|                                 |   |                                 |                               |
|---------------------------------|---|---------------------------------|-------------------------------|
| <b>Project Title:</b>           | Building Blocks of Inpatient Pharmacy Practice Experience in the Entry-to-Practice PharmD Curriculum  |                                 |                               |
| <b>Principal Investigator:</b>  | Asal Taheri and Kayla Fang  |                                 |                               |
| <b>Report Submitted By:</b>     | Asal Taheri and Kayla Fang  |                                 |                               |
| <b>Project Initiation Date:</b> | April 1 <sup>st</sup> , 2022  | <b>Project Completion Date:</b> | March 31 <sup>st</sup> , 2024 |
| <b>Project Type:</b>            | <input type="checkbox"/> Large Transformation<br><input checked="" type="checkbox"/> Small Innovation<br><input type="checkbox"/> UDL Fellows Program<br><input type="checkbox"/> Hybrid and Multi-access Course Redesign Project<br><input type="checkbox"/> Other: [please specify] |                                 |                               |

### 1.2. Project Focus Areas – Please select all the areas that describe your project.

- Resource development (e.g., learning materials, media)
- Infrastructure development (e.g., management tools, repositories, learning spaces)
- Pedagogies for student learning and/or engagement (e.g., active learning)
- Innovative assessments (e.g., two-stage exams, student peer-assessment)
- Teaching roles and training (e.g., teaching practice development, TA roles)
- Curriculum (e.g., program development/implementation, learning communities)
- Student experience outside the classroom (e.g., wellbeing, social inclusion)
- Experiential and work-integrated learning (e.g., co-op, community service learning)
- Indigenous-focused curricula and ways of knowing
- Diversity and inclusion in teaching and learning contexts
- Open educational resources
- Other: [please specify]



**1.3. Final Project Summary** – *What did you do/change with this project? Explain how the project contributed toward the enhancement of teaching and learning for UBC students.*

We developed and implemented several transformative initiatives aimed at enriching the teaching and learning experience for UBC Entry-to-Practice (E2P) PharmD students through enhancing practicum preparation and bridging the transition from classroom to practice. Fourteen patient cases were developed and uploaded to an academic electronic health record (aEHR). A unique aspect of this project was the partnerships formed with practicing pharmacists. The patient cases were created in collaboration with five practicing inpatient (i.e., hospital) pharmacists (Case Development Working Group) with the goal to align with the complexities and nuances encountered in clinical environments, ensuring that students were exposed to authentic patients they might face during their practicums and future careers.

These cases were used in learning activities throughout all four years of the E2P Pharm D curriculum. These activities served as simulated practicum experiences (SPEs) for the inpatient setting, allowing students to apply the pharmaceutical care process and receive real-time feedback as they would on practicum. By engaging in these activities, students gained invaluable hands-on experience, honing their clinical skills and decision-making abilities under guided supervision. To support the effective implementation of these activities, we designed comprehensive facilitation resources tailored for faculty and practice educators/facilitators. These resources provided guidance on facilitating the activities and delivering feedback to students.

By bridging the gap between classroom learning and real-world practicum experiences, we provided an opportunity for students to become better equipped to apply their knowledge and skills in clinical practice. Additionally, the facilitation resources provided faculty and preceptors with the necessary tools and guidance to support students effectively, ensuring a consistent and standardized approach to delivering the simulated practicum experiences. This ultimately enhanced the quality of teaching and learning.

**1.4. Team Members** – *Please fill in the following table and include students, undergraduate and/or graduate, who participated in your project.*

| Name          | Title/Affiliation  | Responsibilities/Roles   |
|---------------|--|--------------------------|
| Kayla Fang    | BSc (Pharm), ACPR, RPh, Lecturer, Faculty of Pharmaceutical Science  | Project Co-Lead          |
| Janice Yeung  | BSc (Pharm), ACPR, PharmD, RPh Lecturer and Director, Office of Experiential Education, Faculty of Pharmaceutical Sciences | Internal Faculty Experts |
| Fong Chan     | ACPR, PharmD, RPh Assistant Professor of Teaching, Faculty of Pharmaceutical Sciences                                      | Internal Faculty Experts |
| Jason Min     | RPh, Assistant Professor of Teaching, Faculty of Pharmaceutical Sciences   | Internal Faculty Experts |
| Kathy Seto    | ACPR, PharmD, RPh Associate Professor of Teaching, Faculty of Pharmaceutical Sciences                                      | Internal Faculty Experts |
| Colleen Brady | RPh, Associate Professor of Teaching, Faculty of Pharmaceutical Sciences   | Internal Faculty Experts |



|                   |   |                          |
|-------------------|---|--------------------------|
| Aileen Mira       | ACPR, RPh, Lecturer, Faculty of Pharmaceutical Sciences                           | Internal Faculty Experts |
| Tila Pelletier    | BSc (Pharm), ACPR, Experiential Education Facilitator, Vancouver General Hospital | External Faculty Experts |
| Stephanie Staysko | BSc (Pharm), ACPR, Experiential Education Facilitator, Vancouver General Hospital | External Faculty Experts |
| Maria Ahmed       | Entry-to-Practice PharmD student, Faculty of Pharmaceutical Sciences              | Students                 |
| Jessica Zou       | Entry-to-Practice PharmD student, Faculty of Pharmaceutical Sciences              | Students                 |
| Irene Luong       | Entry-to-Practice PharmD student, Faculty of Pharmaceutical Sciences              | Students                 |
| Meghan MacLaren   | Entry-to-Practice PharmD student, Faculty of Pharmaceutical Sciences              | Students                 |
| Matt Heymen       | Entry-to-Practice PharmD student, Faculty of Pharmaceutical Sciences              | Students                 |

**1.5. Courses Reached** – Please fill in the following table with **past** and **current** courses (e.g., HIST 101, 2017/2018) that have been reached by your project, including courses not included in your original proposal (you may adapt this section to the context of your project as necessary).

| Course       | Academic Year  |
|--------------|----------------|
| PHRM 100     | 2022/2023/2024 |
| PHRM 111     | 2022/2023/2024 |
| PHRM 251     | 2022/2023/2024 |
| PHRM 211/212 | 2022/2023/2024 |
| PHRM 311/312 | 2022/2023/2024 |
| PHRM 472     | 2022/2023/2024 |

**2. OUTPUTS AND/OR PRODUCTS**

**2.1.** Please **list** project outputs and/or products (e.g., resources, infrastructure, new courses/programs). Indicate a URL, if applicable.

| Output(s)/Product(s):   | URL (if applicable): |
|---|----------------------|
| Fourteen patient cases, with varying complexity, hosted on an Electronic Medical Record (EMR) (i.e., academic version of clinical information systems used within hospitals). |                      |
| Fourteen facilitator guides (one for each case) that contain the full answer key to   |                      |



|  |   |
|--|---|
| the case, including clinical pearls and considerations that can be used to facilitate discussion with students and provide feedback. |   |
| Video produced with UBC Studios  | <a href="https://learning.media.ubc.ca/media/The+Patient+Report+Part+1/0_ez3ur6ic">https://learning.media.ubc.ca/media/The+Patient+Report+Part+1/0_ez3ur6ic</a><br><a href="https://learning.media.ubc.ca/media/The+Patient+Report+Part+2/0_lpqkp5pc">https://learning.media.ubc.ca/media/The+Patient+Report+Part+2/0_lpqkp5pc</a><br><a href="https://learning.media.ubc.ca/media/The+Patient+Report+Part+3/0_54zwbv">https://learning.media.ubc.ca/media/The+Patient+Report+Part+3/0_54zwbv</a> |

**2.2. Item(s) Not Met** – Please list intended project outputs and/or products that were not completed and the reason(s) for this.

| Item(s) Not Met:                                  | Reason:  |
|---|--|
| Host cases and resources in open access platforms | Unanticipated barriers encountered with sharing through the academic electronic health record platform. Currently reviewing other options for sharing cases through Canvas Catalogue requiring password login. |
|   |  |
|   |  |

**3. PROJECT IMPACT**

**3.1. Project Impact Areas** – Please select all the areas where your project made an impact.

- Student learning and knowledge
- Student engagement and attitudes
- Instructional team-satisfaction
- Teaching practices
- Student wellbeing, social inclusion
- Awareness and capacity around strategic areas (Indigenous, equity and diversity)
- Unit operations and processes
- Other: [please specify]



**3.2. Please provide details on each of the impact areas you selected in 3.1.** – *For example, explain in which ways your teaching practices changed; how student wellbeing was impacted; how students wellbeing benefited from your project, etc.*

**Student Learning and Knowledge:**

Students were provided with opportunities to apply the pharmaceutical care process while working up real-life inpatient cases, deepening their understanding of pharmaceutical care principles and developing practical skills in patient assessment, problem identification, and care planning. Through engagement with complex cases and tailored feedback, students enhanced their problem-solving and critical thinking skills. There were opportunities to practice all aspects of the patient work up process, including gathering relevant patient information, identifying drug therapy problems, and developing comprehensive care plans to address these issues effectively. In addition, students were often given the opportunity to articulate their assessments and plans to a pharmacist facilitator, thereby also receiving real time feedback. An added benefit was the practice students received with navigating an EMR, mimicking the realities of the practice environment.

**Student Engagement and Attitudes:**

Participation in simulated inpatient practicum experiences boosted students' confidence and sense of preparedness for real-world clinical settings. The interactive nature of the activities and the relevance of the cases sparked students' interest and motivation, leading to greater engagement in their learning. Developing a positive attitude towards experiential learning, students recognized its value in bridging the gap between theory and practice, appreciating the opportunity to cultivate clinical skills in a supportive and structured environment.

**Instructional Team Satisfaction:**

The availability of standardized cases and facilitation resources streamlined teaching delivery, enhancing efficiency for faculty members and practice educators. Collaboration on project development fostered teamwork and communication among instructional team members, ensuring successful integration of simulated practicum experiences into the curriculum. Extending the collaboration to practicing frontline pharmacists cultivated invaluable partnerships, which lead to the development of improved teaching tools.

**3.3. How do you know that the impacts listed in 3.1/3.2 occurred?** – *Describe how you evaluated changes/impacts (e.g., collected survey data, conducted focus groups/interviews, learning analytics, etc.) and what was learned about your project from the evaluation. You are encouraged to include graphical representations of data and/or scenarios or quotes to represent and illustrate key themes.*

**Student Surveys:** Students were surveyed before and after four of the SPE implemented in 2023W academic year. In the pre-SPE survey students were asked to distinguish their level of preparedness and confidence in working up and articulating an inpatient case at the expected level of complexity for their year level. Subsequently, in the post-SPE survey they were asked to reflect on how and in what ways did participation in the SPE impact their feelings of preparedness and confidence to undertake their future inpatient practicum experience, whether the intervention was beneficial to them and why and what could be done differently from a student perspective.



Overall, the SPEs received positive feedback and majority of survey respondents expressed that they found complexity of the cases to be appropriate for their year level. Pre- and post-surveys reveals a consistent trend among students, where they tend to rate their preparedness higher than their confidence in various program-related tasks. While the pre-survey showed some students feeling less academically confident than their performance would suggest, the post-survey indicates that the SPE-interventions may have positively influenced their confidence levels. The figures below highlight the survey results for an SPE intervention implemented year 2 of the program:

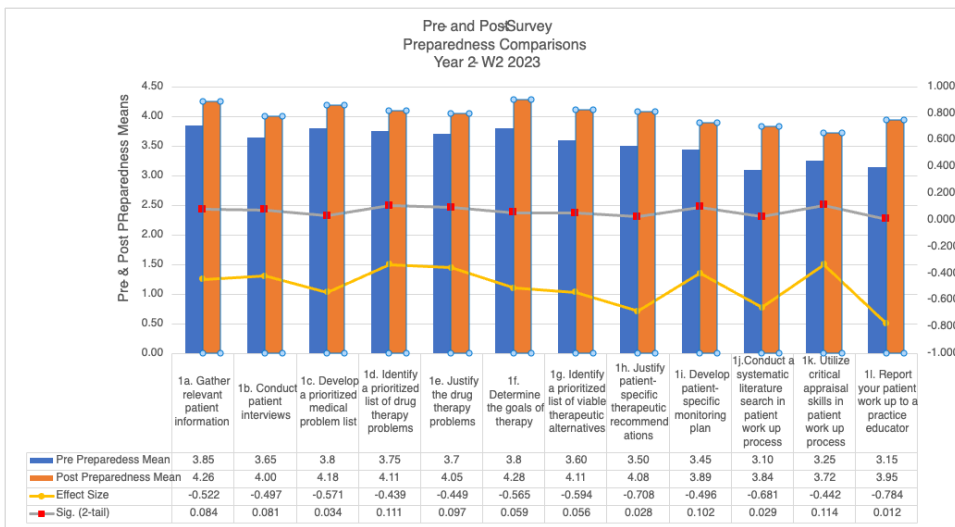


Figure 1: E2P Pharm D Year 2 SPE Intervention W2 2023 - Pre vs Post survey Preparedness

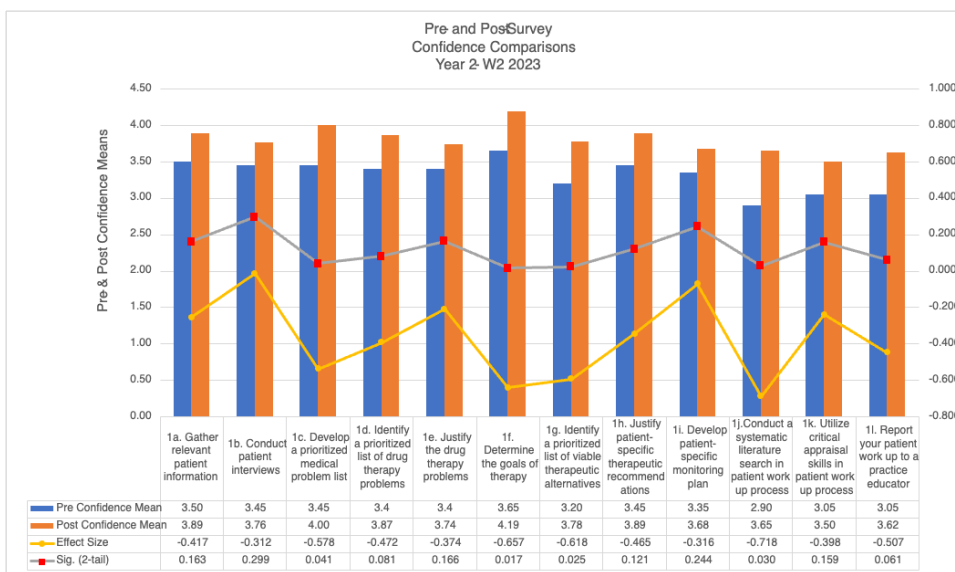


Figure 2: E2P Pharm D Year 2 SPE Intervention W2 2023 - Pre vs Post survey Confidence



The orange bar in post-activity assessment of both confidence and preparedness when compared to the pre-activity survey shows an increase mean in all learning outcomes involved in practicums, but not all were significant.

**Semi-Structured Interviews:** Following the SPE surveys, randomly selected students participated in semi-structured interviews to provide qualitative insights into their experiences. These interviews allowed for in-depth exploration of students' perceptions, attitudes, and experiences, providing rich data to complement survey findings.

*Quotes gathered from focus groups:*

1. *"The feedback and the conversation, we're able to have with the pharmacist facilitator was valuable to increasing my level of preparedness, because it helped to model kind of the conversations that you have with your preceptor...system of questions and going through your responses...a conversation type that we don't really get much exposure to and that I experienced again on practicum. So, I think it was valuable to help you like navigate those kinds of experiences."*
2. *"I think most useful was the pharmacist facilitator going over it and also the group discussion...I didn't expect that. I found to be the most useful to my learning, was myself and the other student that was placed there were often like left to confer among ourselves and go over things between ourselves. And that was like something I feel like the collaborative side of things that we didn't get a lot of practice in."*
3. *"I would feel comfortable about would be the in-group discussions with the preceptor themselves having that practice labs made me a lot more confident in terms of participating in those with the practice educator as well as for the preparedness as well"*
4. *"Especially when you if you have questions you can't like, not everyone's comfortable asking those in a group of 200 people when you have questions on how to do a literature search."*
5. *"What I found that I really liked about the EHR was that there's a ton of information, some relevance, some not and it's up to you as the clinician to go through all the notes and all the charts and pick out what you need to kind of build a mental map of the of the patient...that's like relevant to the questions that might be asked"*
6. *"I find that all feedback is welcome...like a lot of the feedback that I did receive was really helpful and really useful...I think like having it one-on-one really allows like the preceptor to focus like all their attention on you and like what the gaps in your...preparedness or the gaps in in your abilities as a clinician."*
7. *"But the whole point is to make my clinical judgment and if I can't make my clinical judgment, then I can't really practice critical thinking. So, I think just giving us more room to be ourselves as clinicians is very important."*

**Instructional Team Satisfaction Debriefs:** Following the completion of each SPE, project leads conducted debrief sessions with the instructional team involved to gather feedback on their experiences, identify challenges encountered, and discuss recommendations for future improvements. All instructional team members expressed positive satisfaction with their involvement in the SPEs. After the first two SPEs, recommendations were made to enhance the facilitator guides by adding additional components to ensure comprehensive coverage of the material. Subsequently, revisions were made to the facilitator guide template and implemented across all cases developed thereafter. All instructional team members indicated they intend to continue incorporating the developed SPEs into their respective courses in future years, highlighting the success and value of the learning activities.



**4. TEACHING PRACTICES** – *Please indicate if **your** teaching practices or those of **others** have changed as a result of your project. If so, in what ways? Do you see these changes as sustainable over time? Why or why not?*

This project has introduced several new teaching practices that have been transformative for us. Firstly, the collaboration between faculty members and frontline practitioners in content creation was extremely valuable. This partnership allowed us to access real-life patient cases, a departure from conventional fictional cases, and apply our pedagogical expertise for the benefit of students. As 25% of our E2P Pharm D program curriculum involves collaboration with frontline practitioners, we are optimistic about sustaining similar partnerships in the future.

We also incorporated technology by using electronic medical records in case-based learning, which was a successful experience for both students and faculty. This integration prepares our students for the technological demands of modern healthcare settings and is an element that we intend to incorporate in our future case-based activities.

Lastly, the data collected from this project underscored for us the importance of ongoing monitoring and support for students' perceptions of their readiness for program tasks, as well as the potential benefits of targeted interventions to boost their confidence and competence in specific areas. This has left us reflecting on the need for further investigation to understand the underlying factors behind these perceptions and to enhance our program's effectiveness.

**5. PROJECT SUSTAINMENT** – *Please describe the sustainment strategy for the project components. How will this be sustained and potentially expanded (e.g., over the next five years). What challenges do you foresee for project sustainment?*

All of the SPE content developed through this project will be sustained by the faculty members responsible for the course in which the SPE is utilized in. However, we anticipate several challenges that may arise and need to be addressed to ensure the sustainability of the project. These have been summarized below.

Challenges Foreseen for Project Sustainment:

1. **Staff Turnover:** Turnover among faculty members could disrupt continuity and implementation. Succession planning and knowledge transfer mechanisms will be needed to mitigate this risk.
2. **Resistance to Change:** Resistance to adopting new teaching methods or integrating project components into existing curricula may arise from stakeholders. Continuous communication, training, and evidence of positive outcomes can help overcome resistance.
3. **Technological Changes:** Changes in technology or software platforms may necessitate updates to the project components. Proactive monitoring and adaptation to technological advancements will be essential for sustainability.





**6. DISSEMINATION** – Please provide a list of scholarly activities (e.g., publications, presentations, invited talks, etc.) in which you or anyone from your team have shared information regarding this project. Be sure to include author names, presentation title, date, and presentation forum (e.g., journal, conference name, event). These will be included on the TLEF scholarly output page.

| Meeting Title                   | Date                        | Location                           | Type   | Title  | Authors   |
|---------------------------------|-----------------------------|------------------------------------|--------|--|---|
| CHES Celebration of Scholarship | Oct 4th, 2023               | The University of British Columbia | Poster | Building Blocks of Inpatient Pharmacy Practice Experience in the Entry-to-Practice PharmD Curriculum | Kayla M Fang, Irene Luong, Jessica Zou, Asal Taheri |
| Celebrate SoTL                  | Oct 19 <sup>th</sup> , 2023 | The University of British Columbia | Oral   | Building Blocks of Inpatient Pharmacy Practice Experience in the Entry-to-Practice PharmD Curriculum | Irene Luong, Asal Taheri, Jessica Zou, Kayla Fang   |
| Celebrate Learning Week 2024    | May 6-10, 2024              | The University of British Columbia | Poster | Building Blocks of Inpatient Pharmacy Practice Experience in the Entry-to-Practice PharmD Curriculum | Asal Taheri, Kayla Fang                             |
| AFPC CPERC 2024                 | Jun 11 -13                  | Quebec City, QC                    | Poster | A framework for bridging classroom to practice   | Asal Taheri, Kayla Fang                             |