



TLEF Project – Final Report

Report Completion Date: (2019/05/31)

1. PROJECT OVERVIEW

1.1. General Information

Project Title:	SIMpathetic Program – Using Simulation Stethoscopes with Standardized Patients for Pharmacy Education		
Principal Investigator:	Fong Chan		
Report Submitted By:	Tamiz Kanji		
Project Initiation Date:	June 2018	Project Completion Date:	June 2019
Project Type:	<input type="checkbox"/> Large Transformation <input checked="" type="checkbox"/> Small Innovation <input type="checkbox"/> Flexible Learning <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. Project Summary

The SIMpathetic project was piloted in the 2018-2019 academic year to overcome the limitations of human patient simulators (HPS). HPS have previously been used in the Entry-to-Practice Doctorate of Pharmacy (E2P PharmD) program to help give students the opportunity to learn how to complete physical assessments. However, HPS present limited opportunities for live interaction in communication and bedside manner while performing physical assessment skills. Therefore, the SIMpathetic project was implemented in order to provide students with the opportunity to use simulated stethoscopes that provide pre-programmed vital rates and sounds to the case. This in combination with patient actors will provide students the opportunity to build their physical assessment, communication, and bedside manner skills. First-, second-, and third-year E2P PharmD students participated in one practice session during which they were oriented to the simulation stethoscopes and examined a patient actor. In a second session, each student participated in a similar session but was evaluated on a standardized checklist.

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
Tamiz Kanji	Director of Continuing Pharmacy Professional Development (CPPD), Faculty of Pharmaceutical Sciences	Project development and evaluation
Katherine Seto	Senior Instructor, Faculty of Pharmaceutical Sciences	Project development and evaluation
Fong Chan	Lecturer, Faculty of Pharmaceutical Sciences	Principal Investigator
Tony Seet	Instructor, Faculty of Pharmaceutical Sciences	Project development and evaluation
Lia Hughes	Pharmacy Practice Centre Manager, Faculty of Pharmaceutical Sciences	Project development and evaluation
Miriam Ahmed	Student	Provided student perspective on project development
Alex Pai	Student, Faculty of Pharmaceutical Sciences	Graduate research assistant, assisted with facilitator training and data analysis.
Winnie Wu	Student	Provided student perspective on project development
Kimberley MacNeil	PhD Candidate, Faculty of Education	Project Leader
Sarah Kain	Student, Faculty of Pharmaceutical Sciences	Graduate research assistant, assisted with facilitator training and data analysis.
Jon Grosshuesch	Lecturer, Faculty of Pharmaceutical Sciences	Project development and evaluation
Ali Ladak	Lecturer, Faculty of Pharmaceutical Sciences	Project development and evaluation



1.5. Courses Reached – Please fill in the following table with **past, current, and future** courses and sections (e.g. HIST 101, 002, 2017/2018, Sep) that have been/will be 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	Section	Academic Year	Term (Summer/Fall/Winter)
PHRM 100	All	2018-2019	Fall
PHRM 111	All	2018-2019	Winter
PHRM 211	All	2018-2019	Fall
PHRM 212	All	2018-2019	Winter
PHRM 272	All	2018-2019	Summer
PHRM 311	All	2018-2019	Fall
PHRM 312	All	2018-2019	Winter
PHRM 472	All	2018-2019	Summer



2. OUTPUTS AND/OR PRODUCTS

2.1. Please list project outputs and/or products (e.g. resources, infrastructure, new courses/programs). Indicate the current location of such products and provide a URL if applicable.

Product(s)/Achievement(s):	Location:
1 practice case was created for 1 st , 2 nd , and 3 rd year students	
3 cases were created for each of the 1 st , 2 nd , and 3 rd year groups	
Four simulation stethoscopes bought	
Facilitator guide created	
Surveys created and distributed	

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

Item(s) Not Met:	Reason:

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 teaching practice and satisfaction
- Student wellbeing, social inclusion
- Awareness and capacity around strategic areas (indigenous, equity and diversity)
- Unit operations and processes
- Other: [please specify]

3.2. What were you hoping to change or where were you hoping to see an impact with this project? – Please describe the intended benefits of the project for students, TAs, instructors and/or community members.

- Increase student communication, bedside manner, and competence and confidence in conducting physical assessments
- Translate learned skills to clerkships and future practice



- Expand physical assessment techniques by using live patients.
- Utilize realistic and standardized physical assessment parameters on a live patient, in order to standardize student evaluations of physical assessment.
- Identify and apply different styles and frameworks of teaching.
- Evaluate the utility of the simulation stethoscope technology

3.3. Were these changes/impacts achieved? How do you know they occurred? – *What evaluation strategies were used? How was data collected and analyzed? You are encouraged to include copies of data collection tools (e.g. surveys and interview protocols) as well as graphical representations of data and/or scenarios or quotes to represent and illustrate key themes.*

To assess the impact of the 2018-2019 SIMpathetic project we conducted post-session surveys (see Appendix A). All students who participated in SIMpathetic sessions were invited to complete online surveys (see Table 1). We analyzed quantitative Likert-style survey questions from student responses using basic quantitative analyses (see Table 2). To analyze open-ended survey responses, we completed a thematic analysis.

Overall, students from across all years indicated that their confidence increased in conducting physical assessments after completing SIMpathetic sessions (see Table 2). They also indicated that the simulation stethoscopes were an effective way of preparing them for physical assessments in future practice (see Table 2).

Our thematic analysis revealed the following four themes related to students’ perspectives of the SIMpathetic program:

- Students valued the opportunity to practice patient communication skills
- Students found the simulation stethoscope sounds to be beneficial for learning
- Students valued the feedback they received from pharmacist facilitators
- Students found the simulation stethoscopes to be a more realistic representation of vital signs than other learning tools used to teach physical assessment skills

The following quote illustrates the type of learning opportunities students perceived through SIMpathetic sessions:

“The [simulation stethoscope] allows us to have real life patient interactions rather than asking questions to a [human patient simulator] which cannot answer questions [and] simulation stethoscopes are much more natural. It also gives us the opportunity to perform physical assessments on real patients which is more representative of what we will be doing in practice in the future...We are also able to improve our technique because the heart rate and respiratory rate is already set so the examiners can let us know how we are doing.”

Table 1.
Student Population and Participants

	PY1 Students	PY2 Students	PY3 Students
Survey participants	72 (33%)	189 (92%)	198 (93%)
Total number of students	217	206	212



Table 2.
Survey of student perceptions regarding simulation stethoscope cases

Survey Question		Survey Answer	PY1 N = 72	PY2 N = 189	PY3 N = 198
Confidence	If you think back to the time before you had the chance to use the simulation stethoscope, how confident were you in conducting physical assessments? *	Very Confident / Extremely Confident	N (%) 11(15)	N (%) 27 (14)	N (%) 37(19)
	Now that you've completed this activity, how confident are you in conducting physical assessments in future practice? *	Very Confident / Extreme Confident	20(28)	57 (30)	72(36)
Effectiveness	How effective was the simulation stethoscope and standardized patient in preparing you for physical assessments in future practice? **	Very Useful / Extremely Useful	58(81)	152 (80)	150(76)
	Increase in confidence rating in conducting physical assessment pre and post simulation stethoscope cases	Likert scale categorical increase	35(49)	106 (56)	106 (54)
Willingness	How willing are you to conduct physical assessments in future practice? ***	Very Willing / Extremely Willing	31 (44)	103 (54)	83 (42)

*Surveyed with a five-point Likert scale: Not at all confident, slightly confident, moderately confident, very confident, extremely confident.

**Surveyed with a five-point Likert scale: Not at all useful, slightly useful, moderately useful, very useful, extremely useful.

*** Surveyed with a five-point Likert scale: Not at all willing, slightly willing, moderately willing, very willing, extremely willing.

4. Dissemination – Please provide a list of **past** and **upcoming** scholarly activities (e.g. publications, presentations, invited talks, etc.) in which you or anyone from your team have shared information regarding this project.

Chan, F., Kanji, T., Seet, T., Ladak, A. R., Grosshuesch, J. M., Hughes, L., Seto, K., MacNeil, K., Pai, A., Kain, S., Ahmed, M. (2019, June). *The SIMpathetic Program: Implementing the use of simulation stethoscopes in an E2P PharmD Program at the University of British Columbia*. Poster session presented at the annual meetings of the Association of Faculties of Pharmacy of Canada, Edmonton, AB.

5. 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?

Physical assessments are part of an expanded scope of practice and are a new competency which aligns with the newly appointed doctorate level degree to better manage patients more globally in addition to just providing medication management. In our program, we employ licensed pharmacists to facilitate our learning and teaching activities including teaching physical assessment techniques. Because this competence is an expanded scope of practice for pharmacists who may not have been trained to do physical assessments in their undergrad or workplace training, we trained a body of pharmacists to conduct physical assessments. We did so in order to have pharmacists who could fulfill their responsibilities as pharmacist facilitators in the E2P Pharm D program who were tasked with giving students feedback on their physical assessment skills.

Second, these practical sessions are developed to allow students to apply the skills and knowledge learned across the curriculum. Patient cases were produced using this as a foundation. The use of the simulation stethoscopes along with the standardized patient actors then provided a new teaching and assessment modality for students and pharmacists. This initiative allowed for the application and measurement of knowledge and competency in physical assessment skills with a 'real' patient for the first time.



Finally, the feedback and recommendations received from the students, standardized patients, and the pharmacists involved with the initiative will further improve and enhance the methodology in which these sessions will be taught and assessed in subsequent years.

6. 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 achieving the expected long-term impacts listed above?*

Overall, we feel the inclusion of the simulation stethoscopes in our program to be a step forward for teaching physical assessment skills for our students given the opportunity they provide to bridge real-life interactions with standardized sounds for diagnostic purposes. In terms of cost, this is still a step up from our human patient simulators (i.e., mannequins) which cost approximately \$20,000 each and constrain students' opportunities to practice their communication and bedside manner skills.

However, we experienced difficulties with the reliability of the equipment itself and are looking to other brands to purchase for the future. We are also learning from student and facilitator surveys about how to implement the technology into our curriculum differently. We hope to adjust the setting of implementation, the timeframe for each session as well as increase the frequency of sessions over the year. Further, we are building up training for students *before* they engage with the technology to maximize each session's efficacy.



Appendix A

Student Post-Session Survey

1. How effective was the simulation stethoscope and standardized patient in preparing you for physical assessments in future practice? (*Likert scale*)

1 – Not useful...

5 – Extremely useful

2. a) If you think back to the time before you had the chance to use the simulation stethoscope, how confident were you in conducting physical assessments? (*Likert scale*)

1 – Not confident...

5 – Very confident...

2. b) Now that you've completed this activity, how confident are you in conducting physical assessments in future practice? (*Likert scale*)

1 – Not confident...

5 – Very confident

2. c) Why?

3. What aspects of your learning did this activity support?

- (*tick boxes; select all that apply*)
 - Bedside manner
 - Communication
 - Physical assessment technique
 - Medication management in response to physical assessment findings
 - Other (*open-ended*)

4. How willing are you to conduct physical assessments in future practice? (*Likert scale*)

1 – Not willing...

5 – Willing and looking forward to it.



5. What components of this activity supported your learning? (*tick boxes; select all that apply*)

- Pre-session materials
- Practice with equipment
- Ability to practice
- Interaction with human
- Feedback from actor
- Feedback from PF
- Authenticity of experience
- Other (*open-ended*)

6. How could this activity be changed to better support your learning? (*open-ended*)