

# The Longitudinal Standardized Patient Project: Innovation From Necessity

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## Abstract

### Problem

Constraints on time and resources prevented first- and second-year medical students from having sufficient time to complete required tasks in standardized patient (SP) communication skills training sessions, and to appreciate the SP character as a “person.” Case believability was limited by having each individual SP portray multiple patients in different encounters.

### Approach

In 2010, a series of nine longitudinal SP cases was developed, in which the same SP would portray the same patient

with the same student across 19 SP encounters during the two-year preclinical Introduction to Clinical Medicine course at the University of Louisville School of Medicine. Each SP character had a unique health history and illness trajectory that matched the history-taking and communication skill content in the course.

### Outcomes

Students had more time to focus on the communication skill topic for each SP session because they did not need to spend as much time learning about the individual patient and the patient’s previous medical history. Students

learned more about continuity of care, and documented their progress notes in a longitudinal patient chart. SPs were able to identify performance issues with their continuity students more readily than if they had been seeing students for the first time.

### Next Steps

Additional case content has been developed as new SPs participate in the program, including versions of some patient cases to represent both genders. Specific outcomes measures need to be developed and researched to assess the overall impact of this program.

### Problem

Standardized patients (SPs) are widely used to teach and assess a variety of clinical skills.<sup>1–3</sup> Our preclinical Introduction to Clinical Medicine (ICM) course bears the primary responsibility for teaching students core patient history-taking, examination, and communication skills that they will need during clerkships. List 1 shows the communication skills taught in ICM.

An increase in our medical student class size (from 140 per year in 2005 to 165 per year in 2013) without a commensurate increase in SP exam rooms required us to compress the amount of time for each student encounter to 15 minutes of student–SP

interaction plus 5 minutes of SP feedback. Students were therefore sacrificing precious time to obtain past medical history and getting to know the patient instead of attending to the curricular purpose of each encounter. Various alternatives did not resolve the problem.

Communication labs represent a particularly frustrating aspect of this problem. In actual clinical situations involving complex skills, physicians often discuss sensitive topics with patients who are known to them. Students are called on to have intimate and difficult discussions with patients they are encountering for the first time, significantly impairing their ability to engage the SP in a meaningful way.

Likewise, with a limited panel of SPs who can best portray such situations, students will encounter the same person (the SP) portraying multiple patients, which limits case believability.

Other schools likely experience similar issues. The innovation we describe here, the Longitudinal SP Program (LSP), addresses these issues while allowing us to introduce humanism and continuity into our preclinical curriculum. We are unaware of any medical school program using this approach on the scale under consideration. Use of “standardized families” has been

documented by one institution,<sup>4</sup> and a short continuity series with geriatric patients has been explored in existing literature.<sup>5</sup>

### Approach

Since Fall 2010, our preclinical our students have engaged in a continuity relationship with a single SP, with whom they interact in multiple encounters across the two-year ICM course. Because the continuity relationship eliminates the need to review the patient’s history, establish a new relationship, and adapt to the patient’s communication style, students gain time to focus on the purpose of an individual learning event.

The continuity relationship also allows students to learn documentation skills such as writing an interval history for their patient, updating a problem list or medication list, or addressing routine health maintenance in the context of an SP visit, all of which depend on having a longitudinal patient chart.

In the LSP program, each student only sees “their” patient, one of the nine patient characters we have developed. Although they do not see the other patients themselves, students present and discuss their patients in small-group sessions allowing them to learn about other cases in the LSP program.

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## List 1

### Communication Skills Topics in the Introduction to Clinical Medicine Course, University of Louisville School of Medicine

Routine history-taking  
 Breaking bad news  
 Dealing with “difficult” patients  
 Assessing suicidal patients  
 Eliciting the sexual health history  
 Discussing alcohol or substance abuse  
 Assessing domestic violence history  
 Discussing do-not-resuscitate orders  
 Addressing ethical issues  
 Smoking cessation counseling  
 Diet and exercise counseling  
 Admitting a medical mistake  
 “Saying goodbye” to a dying patient

#### Case content

The LSP content in the ICM course was primarily driven by the content we wished to teach and assess; the list of SP lab topics is outlined in Table 1.

The primary creative effort involved in the initial development of this program was “storyboarding” a series of patient characters. The sequence of instructional topics was based on the existing content delivered within the course. Instructional topics are typically simpler for first-year students, focusing on routine history-taking, health maintenance visits, and health behavior counseling, with more complex visits in the second year. Communication-based topics are interspersed with symptom-driven visits (listed as “H&P” [history and physical] encounters) to allow students to practice routine history-taking and physical examination skills. The series of H&P encounters includes an increasingly challenging level of case difficulty and diagnostic reasoning.

The spectrum of character demographics was driven by the real-life demographics of SPs who would portray the cases. A panel of nine SP characters emerged; this mix of age, gender, and health history provides a suitable spectrum and variety of SP cases for the students. The SP character names, demographics, starting health histories, and subsequent medical conditions are provided in Table 2.

The story of each character was developed by considering a possible

health history trajectory, over three to four years of “patient time,” anchored by key events in the patient’s history. The delivery of bad news, the need to address do-not-resuscitate (DNR) orders or ethical dilemmas, and the desire to include important clinical diagnoses formed the main determinants of the patients’ health stories, organized around the sequence of course topics or SP–student encounters. For example, a patient diagnosed with breast cancer (“breaking bad news”) might subsequently suffer a medical error (“admitting a medical mistake”) during her hospital care, or she might develop a deep vein thrombosis or a medication side effect at subsequent H&P visits, which would require students to exercise a targeted communication skill.

Each patient was conceptualized as a typical person who could be encountered during the course of routine primary care; the storyboard intentionally avoids atypical or unusual illnesses. Nearly all LSP characters have chronic illnesses for students to manage over the two-year course cycle. Students are purposefully exposed to the changing status and adherence issues of chronic illnesses inherent in continuity care.

Some patient case histories simply would not accommodate certain topics: Some of the patients will not have health events that realistically warrant DNR discussions, and some might not believably have a substance abuse disorder. Of the 19 encounters, approximately 15 are with continuity patients, but approximately 4 remain “non-LSP cases,” in which a learner interacts with a patient unknown to him or her.

The complete patient care storyboard is provided in Supplemental Digital Appendix 1 at <http://links.lww.com/ACADMED/A247>.

#### Logistics and scheduling

The LSP program requires very particular scheduling in order to preserve instructional content and continuity, which is the primary goal of the program. Our logistical constraints determined that each LSP patient would carry a cohort of 9 to 10 students for two years. To maintain each patient–student pair, a strict schedule is followed which allows

very little flexibility to accommodate other work/school/life demands of either the LSP patient or the student. This has necessitated changes in behavior for both students and SPs.

#### Writing the SP cases

The major implementation task during the first two years was writing the SP cases. For the nine characters and 19 planned encounters, the project has involved writing roughly 170 SP cases. This process was streamlined by first developing a case template for each SP session, then filling in details to the template for each specific case.

A critical element of being able to implement this program was the receipt of a funded teaching award by a key faculty member, which allowed funded time to develop the content of this program; this was necessary for initial development but not for subsequent program development.

#### Outcomes

Preclinical students generally do not see actual patients in a continuity setting at our school; this program offers a continuity experience in the setting of an SP lab. The ongoing student–SP relationship has strong benefits for students. For example, students realize early in their medical education that patients are real people with potentially complex personal and medical histories. And students are able to experience a continuity doctor–patient relationship not otherwise available in their preclinical program.

All stakeholders—students, SP program staff, SPs, and school administration—have been overwhelmingly enthusiastic about this project. The only project costs have been faculty time to write the cases (supported as described above) and the costs of makeup SP sessions when scheduling conflicts arose. Because the total number of SP encounters was unchanged from previous years and time-neutrality for the course and the SP program was achieved, there were no major barriers to implementing this program.

Assessment of the LSP program has been somewhat hindered by lack of clear measurable outcomes. Because all previous

**Table 1**  
**Standardized Patient Lab Topics in the ICM Course, University of Louisville School of Medicine**

Session number	Session topic
<b>ICM 1 (first year)</b>	
1	History & Physical 1
2	Routine Health Maintenance
3	History & Physical 2
4	Smoking Cessation Counseling
5	Diet & Exercise Counseling
6	History & Physical 3
<b>ICM 2 (second year)</b>	
7	History & Physical 4
8	Substance Abuse History
9	Difficult Patient Interview
10	Breaking Bad News
11	Complex Communications 1 <sup>a</sup>
12	History & Physical 5
13	Complex Communications 2 <sup>a</sup>
14	Medications & Prescriptions
15	History & Physical 6
16	Ethics
17	History & Physical 7
18	Discussing Goals of Care/DNR
19	Wrap-Up Visit

Abbreviations: ICM indicates Introduction to Clinical Medicine; DNR, do not resuscitate.

<sup>a</sup> Topics include assessing suicidality, disclosing a medical error, and eliciting sexual health history.

H&P and communication-based SP encounters in this course were formative learning experiences without assessment components, we did not have clear outcomes measures that could be used to assess the skills of the preceding student years as a control group. Measuring “hard” outcomes such as diagnostic accuracy, history-taking skills, or use of specific communication methods was hampered by the lack of control groups. In the end, the outcome that we most cared about was whether students perceived the SPs as “real patients” more than they had previously, and whether students gained a greater appreciation for patient continuity. In an unpublished survey of end-of-second-year students both before and after the LSP program, we observed substantial increases in students’ perceptions that the cases were realistic, that they could learn about medical problems and about the patient as a person in the time allowed, and that SPs were useful to teach students about continuity of care.

An unanticipated benefit of this program, which has become one of its strongest features, is the role of the SPs as teachers. SPs involved in the program have developed personal teaching relationships with the students in their cohort. They are able to identify subtle changes in student skill development, lack of development, and behavior or performance problems that would be missed without a continuity relationship.

Subjectively, experience with this program has been positive for all involved. The SPs

have engaged deeply in the process, and students have become attached to “their” patients. Although challenging to measure, the outcomes of this program have exceeded expectations, in terms of allowing preclinical students to experience the joys and challenges of a long-term doctor–patient relationship. We have effectively addressed the challenges that drove implementation of this project, primarily in that students can optimize their limited SP contact time to focus on the skills that are of most relevance, without losing time on basic data gathering and background information for a new patient.

The primary challenge of this program has been scheduling. The scheduling of 330 first- and second-year students and approximately 20 SPs (some SPs manage multiple cohorts) to ensure that every student sees “their” SP during a scheduled SP encounter is very difficult. However, careful scheduling and allowing ad hoc rescheduled or “makeup” sessions have allowed the program to proceed smoothly.

As the program has evolved, we have edited some cases to accommodate a changing group of SPs. This has enriched rather than limited the program. There are no other foreseeable sustainability issues with this program, which has become a core organizing structure for the ICM course.

**Next Steps**

The LSP project is unique and innovative in its scope, its inclusion of a wide variety of clinical and educational topics, its

**Table 2**  
**Initial and Subsequent Longitudinal Standardized Patient Program Case Content Overview, Introduction to Clinical Medicine Course, University of Louisville School of Medicine**

SP name and data	Age	Gender	Starting medical history	Subsequent medical problems
Lana Pierce	23	F	healthy	systemic lupus, dyspareunia, TTP
Gordon Thompson	57	M	HTN, alcoholism, depression, substance abuse	hepatic encephalopathy, portal vein thrombosis, death
Lindsay Hollis	56	F	depression, migraines	alcohol abuse, breast cancer, coronary artery disease
Karen Duffy	38	F	anxiety, depression, hx abuse as child	IBS, fibromyalgia, depression
Johnny Hooker	72	M	arthritis, COPD, CAD	alcohol abuse, colorectal cancer, advancing COPD
Alicia Thurman	45	F	allergies, GERD, DM2, appendectomy, obesity	medication cost issues, duodenal ulcer, stroke
Colin Myers	33	M	homosexual, prior STD, otherwise healthy	chronic HIV, substance abuse, medication interactions
Janice Wagner	70	F	osteoporosis, coronary artery disease, arthritis	renal cancer, heart failure, sepsis, death
Jenna Langley	50	F	arthritis, COPD	opioid abuse, pancreatic cancer, death

Abbreviations: SP indicates standardized patient; F, female; M, male; TTP, thrombotic thrombocytopenia purpura; HTN, hypertension; hx, history of; IBS, irritable bowel syndrome; COPD, chronic obstructive pulmonary disease; CAD, coronary artery disease; GERD, gastroesophageal reflux disease; DM2, type 2 diabetes mellitus; STD, sexually transmitted disease.

implementation for a large medical school class, and its focus on continuity and longitudinal student–SP relationships throughout the course of a two-year preclinical ICM cycle. There is clearly much room to develop and evaluate the program in terms of student perceptions of continuity and patient relationship, clinical skills, the role of the patient chart and student documentation skills, student interest in primary care specialties, and many other areas. Continuity relationships truly add much to the educational benefit seen with SP-based training. Other schools should explore continuity student–SP relationships as an educational and curricular approach.

Next steps involve clarifying and assessing outcomes measures. Additional steps include strengthening the connections of this program to clinical-year skills assessments, consideration for extending the LSP sequence into the clinical years, improving ties to basic science courses, and improving the debriefing models so that students can learn from LSP patients other than their own.

This program uses no specialized tools, software, proprietary survey

instruments, or other materials. All case materials are readily available from the authors on request. Developing such a large content set is challenging, but the cases and patients represent common medical scenarios and should easily be usable or adaptable to meet the needs of other schools with much less time investment than the initial project development required. The potential generalizability of this program is very high, and it can be adapted to an individual school's educational content, organization, sequencing, etc., with suitable case development or modification. The fundamental structure of a continuity student–SP relationship, driven by longitudinal SP patients with unique health histories, is clearly available to all medical educators with time and interest in SP case development.

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