

# Using Standardized Patients to Teach Physical Assessment Skills to Pharmacists<sup>1</sup>

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We describe how standardized patients (SPs) may be used to teach physical assessment in a continuing education format to practicing pharmacists. SPs provide an ideal practice model for the development of basic physical assessment skills and, therefore, were incorporated into the program structure. This six-contact hour program included seven stations which were run concurrently. Participants rotated through all seven stations. Each station focused on a particular physical assessment skill which may be used to evaluate drug therapy or which may be useful in practice. Each station was manned by a facilitator and four SPs. The stations were designed to demonstrate the basic physical assessment skill, allow participants to practice the skill with an SP, and evaluate participants' performance of the skill using an SP. Feedback from the participants was requested through a questionnaire. These data are presented and may be useful in structuring an entry-level doctor of pharmacy physical assessment course.

## INTRODUCTION

*If you tell me, I will forget.*

*If you show me, I will remember.*

*If you involve me, I will understand.*

Chinese Proverb

Some subjects, due to their content, require student involvement in order to provide adequate education. Listening to an expert in a lecture, or observing an expert in a traditional clerkship format, fall short of providing a student the experience needed to fully understand and integrate the information presented. Physical assessment is a component of the pharmacy curriculum that is particularly suited for "hands-on" involvement. The American Council on Pharmaceutical Education, in its proposed revision standards, recommends that physical assessment be included in all educational programs offering the Doctor of Pharmacy degree(1).

By the year 2000, approximately 75 percent of North American schools of pharmacy will offer only the PharmD as their first professional degree(2). The major organizations in the profession supported this move to the entry-level PharmD degree, with the understanding that academia would develop programs to aid current practitioners in meeting the entry-level PharmD degree competencies. Non-traditional programs, mini-clerkships, and continuing education courses are methods which have been developed to instruct entry-level PharmD competencies. Physical assessment, however, has been a particularly difficult subject to educate in a nontraditional manner.

Teaching and evaluating physical assessment requires directed practice and feedback(3). For this reason, standardized patients (SPs) are uniquely qualified for use in physical assessment courses. SPs are people who are trained to present an illness in a standardized, consistent manner(4). One cannot differentiate a properly trained SP from an actual patient(5).

Currently, SPs are used to teach and evaluate physical examination in 80 percent of North American medical schools(6). The advantages of using SPs for physical assessment training are numerous(3). For example, the SP is ideal for training the clinically naive, meaning one unskilled in physical assessment. SPs are there to aid in the examination, and tolerating mistakes or beginning a process again is part of their role. SPs provide practice that is more realistic than that offered by other classmates. Also, SPs allow students to make harmless mistakes before encounters with actual patients. Further, SPs provide feedback, which the learner can use immediately to improve technique. Improving interpersonal skills is another advantage. This paper describes how SPs may be used to teach physical assessment in a continuing education format, and we present participants' feedback regarding the learning experience.

## PROGRAM DESCRIPTION

The continuing education course, "Physical Assessment for the Pharmacist," provided six contact hours (0.6 CEUs) to the registrant upon successful completion of the program, which included attendance and submission of the evaluation forms. The objectives of the program are listed in Table I. The program was a combination of traditional didactic

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**Table I. Program objectives for a physical assessment continuing education seminar utilizing standardized patients (SPs)**

- To teach basic physical assessment skills in the evaluation of the:
  - Ears, eyes, nose and throat
  - Chest and lungs
  - Neurologic, musculoskeletal, and vascular systems
- To provide participants the opportunity to practice physical assessment techniques with SPs including:
  - Measuring blood pressure and pulse
  - Listening to breath sounds
  - Examining extremities
  - Performing a basic neurologic examination
- To increase the participants' ability to discuss physical assessment findings with other healthcare professionals
- To use physical assessment findings as a means of evaluating drug therapy outcomes

lecture and concurrent workshops. For the first 90 minutes of the program, lectures featured how to interview a patient and how to perform a review of systems. The remainder of the program consisted of seven workshops, or stations, which ran concurrently. Seven groups of participants rotated, each starting at a different station. Stations ran for approximately 30 minutes, at the end of which groups were rotated to the next numerical station. Rotation did not begin until all groups had finished the previous station.

We selected the seven content areas for stations (Table II) because these topics were identified as basic physical assessment skills used to evaluate drug therapy outcomes, or assessment skills frequently requested or useful in community and hospital practice. Selection was accomplished by polling faculty of the two pharmacy schools. Each station was manned by a facilitator and four SPs. Four facilitators were medical residents, two were nurse practitioners, and one was a pharmacist (see Table II). We selected facilitators who were generally recognized as experts in performing the respective station skills. For example, the facilitator in the skin assessment station was a medical dermatology resident; the facilitator in the musculoskeletal assessment station was an emergency medicine resident. Station organization, and therefore content, differed depending on the focus area, but stations were generally designed to demonstrate the basic physical assessment skill, to allow participants to practice the skill (with an SP), and to evaluate participants' performance of the skill (using an SP).

All SPs were trained by a pharmacy faculty member and a trainer from the college of medicine standardized patient program. Specific directions were provided to each SP, defining their role. The goal of training was to ensure a standardized stimulus to all participants. The SPs employed in the program were frequently used by the college of medicine's standardized patient program and, therefore, were familiar with the program design (*i.e.*, physical assessment stations) and with working with novice learners (*e.g.*, medical students).

Most stations began with the facilitator giving a brief introduction (approximately five minutes in length) of the skill for that station and its uses. Then, the facilitator demonstrated the physical assessment skill with one of the SPs, and illustrated appropriate and inappropriate techniques. Participants were then given time to practice the technique with SPs. SPs gave feedback to participants in an effort

**Table II. Content area for stations designed to teach physical assessment skills to pharmacists in a continuing education program.**

| Station  | Facilitator                 |
|--|-----------------------------|
| 1. Vital signs                                     | Nurse Practitioner          |
| 2. Eyes, ears, nose and throat                     | Medical resident            |
| 3. Chest and lungs                                 | Medical resident            |
| 4. Mental status examination                       | Nurse Practitioner          |
| 5. The skin  | Dermatology resident        |
| 6. Musculoskeletal assessment: sprains and strains | Emergency medicine resident |
| 7. The gastrointestinal interview                  | Pharmacist                  |

designed to improve their technique. For those participants desiring certification of their competence in performing the basic skills, their performance was evaluated. An observer, either the SP with whom the participant interacted or the station facilitator, observed the encounter between the participant and SP. A station-specific checklist (Appendix A) was then used to evaluate the interaction, similar to a method previously described(7,8). Each station's checklist consisted of performance criteria, or critical indicators, which were monitored by the observer. To pass the station, the participating pharmacist had to perform all of the listed tasks successfully.

A program manual, supplied to all participants, served several purposes. First, it was intended as a future reference. Ideally, when participants in the future attempted to use these skills in practice and questions arose, the manual could be used to define the basic skill, illustrate the technique, explain the findings, and relate the findings to drug therapy. Findings which suggested or mandated physician referral were defined in each section. Second, all discussion materials that related to the facilitators' presentation were included. Third, specific questions which pharmacists could use to elicit subjective information in the assessment of the chief complaint were provided in each section. Therefore, participants would have a source of pertinent questions for future use. The index, reflecting the manual's content, is reproduced in Appendix B.

Because of content, some stations were structured differently than described above. For example, the skin or dermatology station did not bring in patients with skin afflictions. Rather, the facilitator provided a general discussion of skin disorders, a review of specific symptoms, and a discussion of lesion identification and correlation with common skin disorders. Large photographs of lesions were then shown and discussed. To evaluate participants' skill related to skin complaints, each was asked to identify skin lesions again, this time using similar but different photographs (Appendix A).

## METHODS

At the end of the day's program, all participants were asked to complete a Likert scale questionnaire (Table III) to determine, from the participants' point of view, if the program objectives were met. At the end of the questionnaire, pharmacists were asked to provide specific and general

**Table III. Likert scale questionnaire responses obtained from pharmacists participating in a physical assessment continuing education program**

| Number | Question   | Mean <sup>a</sup> (±SD) | Median |
|--------|--|-------------------------|--------|
| 1      | After completing this CE program, I feel more confident discussing physical assessment findings with other healthcare professionals.   | 4.39 (0.54)             | 4.00   |
| 2      | This program successfully taught me the basics in physical assessment techniques.  | 4.34 (0.55)             | 4.00   |
| 3      | This program will have no influence on the way I practice at my site.  | 1.86 (0.90)             | 2.00   |
| 4      | I felt the structure of this program, using standardized patients, was beneficial because it allowed me to practice the skills I was taught.   | 4.40 (0.69)             | 4.00   |
| 5      | After completing this CE program, I can measure a blood pressure and pulse better than I could before I attended this program.   | 4.02 (0.97)             | 4.00   |
| 6      | After completing this CE program, I have a greater understanding of how physical assessment techniques can be used to evaluate drug therapy for the ears, nose and throat, such as otitis media. | 4.34 (0.64)             | 4.00   |
| 7      | As a result of this program, I better understand how physical assessment techniques can be used to evaluate drug therapy of pulmonary diseases, such as asthma.                                  | 4.20 (0.69)             | 4.00   |
| 8      | After completing this CE program, I feel I am more equipped to determine which patients should seek medical care than I was before I attended this program.                                      | 4.35 (0.56)             | 4.00   |
| 9      | The facilitators appropriately demonstrated the basic skills in each station.  | 4.62 (0.49)             | 5.00   |
| 10     | After completing this CE program, I can better use physical findings as a means of evaluating and monitoring drug therapy.   | 4.36 (0.57)             | 4.00   |
| 11     | Interacting with standardized patients added nothing to the content of the program.  | 1.43 (0.71)             | 1.00   |
| 12     | This program will influence the way I practice at my site.   | 4.03 (0.80)             | 4.00   |
| 13     | I felt comfortable interacting with standardized patients.   | 4.27 (0.75)             | 4.00   |
| 14     | I would recommend this program to other pharmacists with whom I work.  | 4.60 (0.59)             | 5.00   |

<sup>a</sup>Strongly Disagree = 1, Disagree = 2, Undecided = 3, Agree = 4, Strongly Agree = 5

comments about the program. Descriptive analysis was performed on each question, with mean and standard deviation reported. Also, median responses for all items were calculated to compensate for response extremes(9).

#### PROGRAM EVALUATION

One hundred-nineteen pharmacists attended the seminar. The median year for graduation from pharmacy school was 1975 (range 1948-1996). For those who indicated their practice site (106), 66 practiced in a community setting, 31 in hospitals, four were consultant pharmacists, one a clinical pharmacist, one a home infusion pharmacist, one a relief pharmacist, and two indicated "other" without defining the site. Of the 119 attendees, 113 (95 percent) returned questionnaires.

Results are presented in Table III. Based on item analysis, participants believed the program met the desired objectives. Questions designed to evaluate the thoroughness with which participants read the questions (numbers 3 and 11) indicated that all questions were carefully read. Table IV summarizes comments received from the participants.

Of the 113 participants who chose to undergo evaluation of their basic physical assessment abilities for certification using the checklist in Appendix A, 107 (95 percent) successfully demonstrated the ability to perform all basic skills in all seven stations.

#### DISCUSSION

SPs are the accepted means of teaching physical assessment in medical education. Their use also permits the evaluation of one's competency in performing basic assessment skills. In the described program, we successfully adapted SP use to pharmaceutical education. We used SPs both in teaching and evaluating basic assessment skills. The participants

believed this program improved their assessment techniques, increased their knowledge of how physical assessment may be used to monitor drug therapy, and would improve their confidence when discussing physical findings with other healthcare professionals. Further, the program was felt to enhance their ability to identify patients requiring physician referral.

The focus of the program was to develop, in the participants, some level of skill and confidence in using basic physical assessment techniques. Therefore, each station demonstrated the skill to participants and permitted one-on-one practice with an SP. The SP or facilitator gave feedback intended to improve participants' assessment technique. In five of the seven stations, SPs were present more for participant practice rather than "role playing" or mimicking a disease. It was in only two stations (numbers 4 and 7) where the SP played a role (see Table II). For example, in station seven, the SP presented with complaints suggesting upper gastrointestinal bleeding.

Comments regarding stations felt to be most useful to one's practice reflected the pharmacists' work situations (Table IV). For example, pharmacists working in hospital settings found the chest and lungs station beneficial because of the frequency with which pulmonary patients are hospitalized, but did not find the musculoskeletal station useful because these patients are rarely admitted. Conversely, community practitioners found the sprains and strains station beneficial because of the frequency with which they receive questions about such injuries, but generally felt the mini mental examination station was not beneficial because it afforded little use in most community settings.

Organization of this kind of program must balance time spent in each station with the total length of time a participant is willing to spend in a typical continuing education

**Table IV. Pharmacist comments regarding the use of standardized patients (SPs) in a physical assessment continuation program**

| Comments  |
|---|
| <b>Station Most Useful to Your Practice</b>   |
| Eyes, ears, nose throat—commonly asked about this area; first time to use these instruments; a lot of practical information         |
| Chest and lungs—I see a lot of COPD, etc., in the hospital where I work   |
| Vital signs—useful in community setting   |
| Sprains and strains—frequently seen in community work; cleared up some misconceptions I was given by other healthcare professionals |
| Dermatology—frequently presented with lesions in community  |
| GI—many patients ask questions in this area; important because of the new OTC agents; provided face-to-face interviewing practice   |
| <b>Station Least Useful to Your Practice</b>  |
| Sprains and strains—I work in a hospital; too simple  |
| Mini mental exam—no opportunity to use this in practice   |
| Vital signs—I already knew how to perform these well  |
| Chest and lungs—I will not use this; I cannot do this because of the store arrangement; no opportunity to use this                  |
| Dermatology—pictures were extremes and not commonly encountered; too many to tell the difference                                    |
| <b>Positive Comments</b>  |
| I liked the hands-on approach   |
| Practical information   |
| Interacting with the SPs was helpful  |
| I like the manual   |
| Good well-rounded exposure to many useful things in my practice   |
| I liked the format of small groups interacting with different instructors; facilitated asking questions                             |
| I liked the overview, explanation, and then hands-on practice   |
| I liked immediately applying what we learned  |
| Being exposed to these procedures was beneficial  |
| <b>Negative Comments</b>  |
| Not enough time in some stations and too much time in others  |
| All patients were healthy, we saw no abnormalities  |
| Too basic. I would have liked more problem-solving  |
| <b>Recommendations</b>  |
| Recruit patients with actual disease ( <i>i.e.</i> , asthma, hypertension)  |
| Recordings of abnormal breath sounds would be beneficial  |
| More detail in some areas may be helpful  |
| Smaller groups would be better  |
| Need a little more instructions on procedures   |

program. Station length was approximately 30 minutes, with five to seven minutes reserved for participant rotation to the next station. Adding the 90 minutes spent during the morning session, approximately 5.7 hours were occupied in direct contact learning. With the addition of lunch and breaks, the program filled an eight-hour day.

In order to rotate appropriately, all stations had to be of equal length. This made planning individual stations somewhat difficult because some stations inherently required more time than others. The result was reflected in participant comments. At some stations, participants finished with minutes to spare, while in others, they were rushed up to the last minute in order to complete the station tasks.

SPs offer several benefits recognized by participants (see Table IV). SPs provide “real people” experiences,

something not encountered commonly in continuing education programs. Further, participants could immediately obtain “hands-on” practice and could apply the skills discussed. SPs are usually employed in small group exercises. Participants found this advantageous in that it facilitated asking questions. Also, the feedback given by the SPs was perceived as helpful in developing these assessment techniques.

SP use is also associated with disadvantages. The first disadvantage is cost. We had to pay SPs for their time. As frequently cited in academic medicine, cost is the greatest impediment to widespread use of SPs in both teaching and evaluating clinical skills(10,11). We believed that the benefits of using “professional” patients in this setting justified the expense. In traditional education, the benefits of SP use may not outweigh costs. Each school is left to determine this on an individual basis. Both of our respective pharmacy schools are currently using SPs in the traditional physical assessment courses. One school is employing professional SPs and the other school is experimenting with volunteer SPs.

Another potential disadvantage with SP use was noted by the participants (see Table IV). All SPs we used were healthy individuals. We used no SPs with abnormal breath sounds, skin disorders, etc. Many medical schools use SPs with actual medical conditions or train SPs to portray an illness to the degree where even a skilled clinician cannot determine the patient is a “standardized” patient(5). We did not recruit SPs with actual medical conditions, nor did we ask our SPs to mimic abnormal physical findings. Their training consisted primarily in providing an appropriate history consistent with a particular disease state, where appropriate, and in giving constructive feedback to participants regarding physical assessment techniques. We did not believe it was necessary to use persons with actual problems, nor did we feel it was necessary to train them to mimic abnormal findings. This was a defect in program design we failed to recognize as important.

We offered certification in hopes of attracting more pharmacists and to make the point that these skills may aid in future reimbursement for cognitive services. Surprisingly, no comments received from participants mentioned preparation for reimbursement for cognitive services as a potential benefit of the program. Three comments were received which stated such skills as practiced in the program were needed to prepare the pharmacist for the future role of the profession.

This is the first paper in pharmaceutical education to describe the use of the medical model of SPs as a means of instructing physical assessment. Other descriptions of physical assessment courses have been published, but describe the use of other classmates as practice models(8,12). In these reports, little information is given in regards to the evaluation of student competence in the performance of these skills. SPs provide a more realistic persona as well as a potentially less embarrassing model with whom to work, especially for the novice or clinically naive, in terms of physical assessment. Further, the SP model is readily available for use as an evaluation instrument. Working with SPs was well received by our program participants, and we are incorporating their feedback into the restructuring of our respective schools’ entry-level doctor of pharmacy physical assessment courses.

## RECOMMENDATIONS

Based on comments received by the participants, several recommendations should improve SP use as a means of teaching basic physical assessment skills. Participants enjoyed working with SPs, people they did not know (*i.e.*, another classmate or teacher) and who appeared to be a "real" patient based on presentation. But, they believed SPs with abnormal findings would have been more beneficial. Recruiting SPs with actual medical conditions is a possibility, or training the SP to portray an illness in a skilled manner is another. The latter will increase training time and therefore, costs. An alternative would be to use audio recordings of abnormal findings, like breath sounds, concurrently with SPs, in a manner similar to the way we used photographs of skin disorders. This combination approach provides the opportunity to work with a "real" patient while still demonstrating abnormal physical findings to participants. Further, it would limit training time and therefore, SP costs.

In traditional classroom or laboratory settings, more time in demonstrating physical assessment skills and smaller group use may also improve the educational experience. In addition, including simple disease state monitoring devices such as peak flow meters for asthma should improve the educational outcome in terms of one's ability to evaluate drug therapy.

The purpose of this program was not to aid participants in achieving a mastery level of physical assessment, similar to that possessed by diagnosticians. Rather, we wanted to teach basic assessment skills, supply the opportunity to practice these skills, increase participant confidence in discussing physical findings with other healthcare professionals, and reinforce how physical assessment may be used to monitor the achievement of drug therapy outcomes. Based on responses, SPs allowed us to meet these goals. SPs involve the learner, supplying meaning to our adapted SP adage:

*I hear, I forget.  
I see, I remember.  
I do, I understand.*

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## APPENDIX A. PERFORMANCE CRITERIA USED FOR THE EVALUATION OF PHYSICAL ASSESSMENT SKILLS

### Physical Assessment for the Pharmacist Certification Checklist

If you are interested in receiving a Certificate of Competence in basic Physical Assessment Skills, you must interact with the standardized patient at each station and have the facilitator sign off.

#### Station One: Vital Signs

observer  
initials

1. Select a proper blood pressure cuff size.
2. Correctly position the cuff and the patient's arm.
3. Accurately auscultate blood pressure.
4. Accurately palpate a radial pulse.

#### Station Two: Eye Ear Nose and Throat

observer  
initials

1. Eye: observe gross appearance—exophthalmos, peri-orbital edema.
2. Ears: visualize tympanic membrane and cone of light.
3. Ears: note appearance of external canal and note external appearance, tophi, hearing aid.
4. Nose: visualize septum and observe for discharge or exudates.
5. Throat : visualize tonsils (if present); observe for exudates, patches, spots.

#### Station Three: Chest and Lungs

observer  
initials

1. Identify normal breath sounds.
2. Describe/recognize abnormal breath sounds.
3. Identify the use of accessory muscles in labored breathing.

#### Station Four: Mini-Mental State Examination (MMSE)

observer  
initials

1. Observe the administration of the entire MMSE.
2. Administer one of the following sections of the MMSE:
  - A. Orientation
  - B. Registration and recall
  - C. Attention and calculation
  - D. Language

**Station Five: Skin Disorders**

observer  
initials

- \_\_\_\_\_ 1. Visually identifies how a common case of acne may present.
- \_\_\_\_\_ 2. Visually identifies how a common case of atopic dermatitis may present.
- \_\_\_\_\_ 3. Visually identifies how a common case of ring-worm may present.
- \_\_\_\_\_ 4. Visually identifies how lice infestation may present.
- \_\_\_\_\_ 5. Visually identifies how a drug eruption may present.

**Station Six: Sprains and Strains**

observer  
initials

- \_\_\_\_\_ 1. Counsel a patient on RICE.
- \_\_\_\_\_ 2. Demonstrate the ability to wrap a wrist with an ACE Bandage correctly.
- \_\_\_\_\_ 3. Demonstrate the ability to wrap an ankle with an ACE Bandage correctly.

**Station Seven: Gastrointestinal Interview**

observer  
initials

- \_\_\_\_\_ 1. Demonstrate the ability to successfully interview a patient presenting with a gastrointestinal complaint seeking an OTC agent for self-treatment.

APPENDIX B. A MANUAL TO AID PHARMACISTS IN IMPLEMENTING PHYSICAL ASSESSMENT AT THEIR PRACTICE SITE

**Physical Assessment for the Pharmacist**

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