

INSTRUCTIONAL DESIGN AND ASSESSMENT

A Home Screening and Monitoring Device Elective and the Impact of a “Secret Shopper” Experience

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Objectives. To assess the impact of a “secret shopper” experience on students’ appreciation for pharmacists’ role in assisting and educating patients regarding home screening and monitoring devices.

Design. Students visited pharmacies at random and played the role of a secret shopper. Following their visit, each student wrote a reflection paper and completed a questionnaire.

Assessment. According to questionnaire responses from 46 students following this experience, most felt that having an in-depth knowledge of home screening and monitoring devices and an ability to communicate this information to patients were important traits for community pharmacists. Most students did not believe they would have been able to use the home test correctly based solely on the pharmacist’s instructions.

Conclusion. There is a need for pharmacy students to learn about home-screening and monitoring devices and how to assist and educate patients regarding them.

Keywords: home testing, elective, devices

INTRODUCTION

As the realm of consumer diagnostics continues to expand, direct-to-consumer advertising is playing a more prominent role in patients’ lives. Everywhere, patients are exposed to advertising—on the Internet, on television, in magazines, in newspapers, and on billboards. Although this wealth of information is helpful for educating patients, it can also be confusing for many. For example, imagine a patient walking down the aisle of their local pharmacy looking for the home drug-testing kit they heard about on television. They have many choices ranging from urine-based tests to hair-based tests; some are sent to a laboratory and some give rapid results. There are at least 4 different brand names available to choose from. Who do they turn to for advice? The logical choice is the pharmacist.

As this industry grows, pharmacists must position themselves to grow with it. For instance, the revenue from pregnancy, ovulation, and fertility kits and other nonprescription home diagnostic tests will grow 10% in the next 2 years from \$370 million in 2004 to \$408 million in 2006.¹ Increasing consumer demand has roused manufacturers to explore the development of new technology. Evidence of this growth can be seen in the num-

ber of FDA approved home tests over the last few years. In 1990 there were 8 and in 2001 there were 47 approved tests.¹

In 2001, a course was developed by 2 community practice-based faculty members at Drake University to address this changing environment. This 1-credit elective was titled, *The Use of Medical Devices in the Provision of Pharmaceutical Care*. The class of 9 students (second- and third-professional year students) met for 2 hours a week for half of a semester. Class size was purposely kept small due to the hands-on nature of the course, the number of devices available, and related budget issues. Devices covered in the first year are in Table 1. Selected readings and references were provided to students in advance to facilitate student preparation for class. The readings, which were discussed in class, also helped students understand how these devices can be integrated into their pharmacy practice. For the first class, students completed an assignment that involved visiting a pharmacy, locating specific types of tests, and completing a chart evaluating the pros and cons and price of each. For each subsequent class, the primary focus was providing students with hands-on practice in using each device. Students typically worked in groups of 2 to 3 and rotated through the various products. The instructors were available for questions and clarification during this time. At the conclusion of each class, the class discussed the highlights of each device. Out-of-classroom activities includ-

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Table 1. Introduction of Devices by Course Year

Year Introduced	Devices
2001	Pregnancy tests, ovulation kits, fecal occult blood tests, human immunodeficiency virus (HIV) tests, peak flow meters, the <i>Aerosol Inhalation Monitor</i> (Vitalograph, Lenexa, Kan), nebulizers, <i>Doser</i> (MediTrack, Hudson, Mass), <i>CholesTrak</i> (AccuTech, Vista, Calif), <i>Cholestech LDX</i> (Cholestech, Hayward, Calif), <i>Bioscanner 2000</i> (Polymer Technology Systems, Inc.), <i>Lifestream</i> (Lifestream Technologies Inc., Post Falls, Idaho), <i>Cardiovision</i> (International Medical Device Partners, Las Vegas, Nev), blood pressure monitors, <i>Achilles Express</i> (GE Lunar, Madison, WI), <i>OsteoCheck</i> (BodyBalance, Asheville, NC), glucometers, <i>GlucoWatch</i> (Cygnus, Inc., Redwood City, Calif), <i>CoaguChek</i> (Roche Diagnostics Corp., Indianapolis, Ind), and <i>Prottime</i> (Home Test Medical, Orlando, Fla).
2002	<i>Digiwalker</i> (New Lifestyles, Inc, Lee's Summit, Mo), <i>FemaleCheck</i> (BodyBalance, Asheville, NC), <i>A1c Now</i> (Metrika, Sunnyvale, Calif) and <i>Proview</i> (Bausch and Lomb, Inc., Rochester, NY).
2003	Body fat devices, the <i>DCA 2000</i> (Bayer, Elkhart, Ind), drug testing kits, <i>Relief Band</i> (Woodside Biomedical, Carlsbad, Calif), compliance devices and humidifiers.

ed a visit to a clinic to see how a dual-energy x-ray absorptiometry (DEXA) scan is performed and a visit to a pharmacy that offers several patient services, such as body fat analysis and bone density screenings. Grading was based on attendance, participation, the class assignment, and an oral examination. For the oral examination, the student randomly selected a device. The student was given preparation time and then required to counsel a simulated patient on appropriate use of the device.

Changes made the following year (2002) were minimal and included adding the products noted in Table 1. In terms of grading, the pharmacy visit assignment was replaced with weekly quizzes. Additional devices, donated by manufacturers or purchased with available college funds, allowed the size of the class to be increased to 25.

In its third year (2004), the title of the course was changed to *The Use of Screening/Monitoring Devices in the Provision of Pharmaceutical Care*. This change was made to better reflect the profession-specific nature of the course. It was expanded to a full semester for a 2-credit elective and 18 students enrolled. Devices to

measure body fat, drug testing kits, and other products were added to the list of devices covered (Table 1). In addition, guest speakers on the topics of ostomy and braces, assistive devices, and compression stockings were incorporated. The secret shopper experience, the focus of this paper, was introduced in this year and was included on the list of graded components for the course.

In 2004, the *Use of Screening/Monitoring Devices in the Community Setting* was taught to 28 students. The continuing goal of the course was for the student to gain an appreciation for the role of screening and monitoring devices available in the community pharmacy setting and their role in pharmaceutical care. Mechanism of action, appropriate use or technique, pros and cons, and proper counseling were aspects covered for each device discussed. The hands-on nature of the course has been continued. Student comments on course evaluations state this as one of the most positive aspects of the course. Changes from the previous year included: adding a guest speaker on spirometry, replacing the *Achilles Express* with the *Achilles InSight* (GE Lunar, Madison, Wis), and featuring a guest speaker on insulin pumps. An additional activity required students to practice counseling on these devices. When there were approximately 15 minutes left in the class, each group self-selected a device from that day and used a counseling checklist with one student being the pharmacist, one the patient, and one the observer. This activity was added to help students prepare for the format of the oral final examination. Table 2 gives the listing of the units/devices covered in the course. Students were graded on attendance and participation, quizzes, an oral final examination, and the project titled the Secret Shopper Experience.

Additional devices under consideration for future inclusion in the course are *My Allergy Test* (Home Access Health Corp., Hoffman Estates, Ill), *Dr. Brown's Home Drug Testing System* (Elan, Inc), *TSH Thyroid Test* (Biosafe, Lake Forest, Ill), *Early Alert Alzheimers Home Screening Test* (FMG Innovations, Phoenix, Ariz), *Fertilite* (Pheromone Sciences Corp, Toronto, Canada), *Estroven Menopause Monitor* (Amerifit Nutrition, Inc, Bloomfield, Conn), saliva fertility tests, and UTI tests.

The secret shopper experience was designed to help students gain an appreciation for the current role that pharmacists play regarding these devices and to demonstrate the importance of the pharmacist assisting patients in correctly using and understanding these products.

DESIGN

Twenty second-professional year students and 26 third-professional year students were asked to visit a

Table 2. Devices Covered in 2004

Unit	Devices
Fertility/HIV/fecal occult blood	Various pregnancy and ovulation kits <i>Home Access/Express</i> HIV kit <i>EZ Detect/ColoCare</i> fecal occult blood
Asthma	<i>Aerosol Inhalation Monitor</i> (AIM) Nebulizers Peak flow meters <i>Doser</i> Spirometer-guest speaker
Cardiac	<i>CholesTrak</i> <i>Cholestech LDX</i> <i>Lifestream</i> Body fat devices Automated BP monitors
Bone Density	<i>Achilles Insight</i> <i>Osteochek/Femalechek</i> DEXA-clinic visit
Ostomy-guest speaker	Various adhesives, pouches, etc.
Diabetes	Glucometers <i>Glucowatch</i> <i>AlcNow</i> <i>DCA2000</i> Insulin pumps-guest speaker
Miscellaneous	<i>Proview</i> eye pressure monitor Drug testing kits- <i>At Home</i> and <i>PDT-90</i> <i>Relief Band</i> Humidifiers Compliance devices <i>Digiwalker</i>
Braces/assistive devices/ compression stockings-guest speaker	Braces Crutches/canes Compression stockings

pharmacy of their choice, ideally outside of the local area. They were to inform the instructors of their selected pharmacy prior to making their visit to help avoid multiple visits to the same pharmacy. On the visit, the student played the role of a patient seeking an ovulation kit. Prior to the student's visit, use of ovulation kits had been covered in class. They were to ask the pharmacist to help them find the right product because the physician had suggested trying an ovulation kit. Inquiring about the proper use of the ovulation kit was part of the scenario. There were 14 males in the class who were instructed to say they were purchasing the product for their wife. The scenario is described in detail in Appendix 1.

After a classroom discussion of the secret shopper experience by all 46 students enrolled in the course, the students completed a questionnaire with a 6-item Likert-

type scale ranging from "Strongly Agree" to "Strongly Disagree." The questions asked fall into 3 main categories: pharmacist involvement with home diagnostic tests in general, encounter specific, and personal views and beliefs. The questionnaire also included one short-answer question asking students to describe how their view of the pharmacist's role in counseling patients about screening and monitoring devices changed. The Secret shopper questionnaire is found in Table 3.

Following their interaction as a secret shopper, students were asked to write a 2- to 3-page reflective paper describing their experience. Example questions included queries such as, "How did the pharmacist go about selecting a kit for you?" "What did they tell you about using this product?" and "What would you have done differently if you were the pharmacist?" Appendix 2 contains the complete list of guided questions. Students were also told to feel free to include additional information outside of the guided questions if it was pertinent to describing the interaction they experienced.

ASSESSMENT

Secret Shopper Experience

Forty-six students from 2003 and 2004 completed the secret shopper exercise (18 in 2003, 28 in 2004). Of the pharmacies visited, 28% were mass merchandisers, 28% chain, 22% grocery, and 22% unknown. Students' responses to the follow-up questionnaire were used to assess both the students' perceptions of the importance for education in medical devices and their view of the current state of knowledge and education concerning medical devices that they encountered during this exercise. The questionnaire responses (Table 3) revealed that after this experience, most students felt that in-depth knowledge of medical devices and the ability to communicate this information to patients were important traits for community pharmacists. For instance, the students strongly agreed (median score of 5 on a 6-point scale) that medical device education is important for patient care. Further, they agreed with the statement that medical device counseling is a necessary function of a community pharmacist (median 5). Most students felt that community pharmacists did not adequately educate them in the exercise. Overall, the students disagreed with the statement that community pharmacists adequately educate patients on medical device use (median 3). Finally, students agreed this exercise had changed their view of the role of pharmacists in medical device counseling (median 5), and they agreed that they would take a more active role in this patient care area (median 5).

Table 3. Results of Secret Shopper Exercise

Question	Median Rating
Through participation in the secret shopper experience, I ...	
1. Am more certain that a pharmacist's counseling is necessary for patients to understand the correct use of screening/monitoring devices.	5
2. Am more certain that patients will not use screening/monitoring devices correctly if a pharmacist does not provide adequate counseling.	4
3. Am more certain that pharmacists are doing an adequate job in helping patients with screening/monitoring devices.	3
4. Am more certain that counseling about screening/monitoring devices is an essential role for pharmacists in community practice.	5
5. Am more certain that pharmacists have an important role in educating patients on the use of screening/monitoring devices.	5
6. Feel there is a need for pharmacy students to be educated on the use on screen/monitoring devices available to patients.	6
7. Would give the following letter grade for the counseling that I observed by the pharmacist.	4
8. Believe the information conveyed to the patient was accurate.	4
9. Believe the information conveyed by the pharmacist was thorough.	3
10. Observed the pharmacist providing reassurance about the disease state/patient's condition.	3
11. Felt the pharmacist displayed empathy.	4
12. Am more firmly resolved to provide assistance to patients in my practice concerning screening/monitoring devices.	5
13. Am more confident in my ability to effectively counsel patients regarding screening/monitoring devices.	5
14. Now have a different view of the pharmacist's role in counseling on screening/monitoring devices.	5

Key for all questions except question 7: strongly agree = 6; agree = 5; somewhat agree = 4; somewhat disagree = 3; disagree = 2; strongly disagree = 1

Question 7 key: A = 5, B = 4, C = 3, D = 2, F = 1

Reflection Papers

There were a number of themes brought out in the reflection papers. The first area assessed was how the pharmacist selected a particular kit or device. Overall, most students reported that no questions were asked by the pharmacist. Fifteen students did report the pharmacist asking initial questions to assess the situation. Three pharmacists consulted additional references, including a textbook, the Internet, and the package insert. Almost all students concluded they would not be able to use the ovulation kit correctly based solely on the pharmacist's instructions. Seventeen students reported the pharmacist displayed empathy and made them feel comfortable. Some individual student comments were "...the more comfortable we as pharmacists are with the devices, the better we will communicate with our patients," "...difficult for a patient to feel welcome in asking questions and our busy impressions may actually hinder them from doing so," and "first impressions are the most important." A general theme the students learned is summed up nicely in the following comment by a student, "...just reading the box is not enough. A person must truly understand the products to effectively counsel patients on them."

DISCUSSION

A medical device elective has been successfully implemented in the pharmacy curriculum at Drake University. Since 2001 it has evolved to provide increased opportunities for students to see first-hand the emerging medical device technology. Data from our sample indicates that proper training in the education of screening and monitoring devices is a needed area of education, especially for future community-based pharmacists. Our students were surprised at the amount of information needed to properly understand the use of these types of products. Simply telling the patient 1 to 3 steps, in many cases, was not thorough enough. Pharmacists should not assume that all patients can read and/or understand the box instructions or package insert. Such advice can lead to incomplete understanding of the proper use of the device. The secret shopper experience reinforced the need for students to receive proper education and training on these devices. In addition, course evaluations include several comments that suggest this elective should be a required course.

Limiting obstacles that the instructors must overcome to preserve the viability of this course include keeping abreast of new devices entering the marketplace. This has

been done through attendance at continuing education programs, such as the American Pharmacists Association's Self Care Institute, as well as through trade journals and contact with manufacturers. Funding is another obstacle. Once the course is at a maintenance stage in terms of devices attained, funds will be necessary to replace single-use devices and acquire new devices as they are developed.

Some limitations of our data include a small number of students in our sample and subjective data from the reflection papers and graded papers may have resulted in more favorable remarks about the class. In order to assess the impact of this type of course on the practice of pharmacy, future research needs to be conducted.

CONCLUSIONS

As the number and complexity of devices available to the general public increases, the information this elective imparts regarding screening and monitoring devices will

Appendix 1. The Scenario

You have been trying to get pregnant for the past 12 months and are frustrated that nothing has happened. Your physician suggested at your last annual exam that an ovulation kit might be an option to consider. He didn't really tell you much about ovulation kits so you don't know what you're looking for. You ask the pharmacist for their advice and help in finding the right product.

Let the pharmacist choose the ovulation kit. At some point in the conversation ask why they recommend that product compared to others available. Note any questions the pharmacist asks in selecting the kit for you (ie. Did they ask you if you prefer a stick versus cup method, price, etc).

Questions to ask the pharmacist:
How do I use this?

For male shoppers, you will be purchasing this product for your wife. The rest of the scenario will remain the same. You will still need information regarding the product, etc.

Appendix 2. Guided Questions for the Reflection Paper

How did the pharmacist go about selecting a kit for you?

- Did they consult any references/package inserts?
- What questions did they ask you? (ie. What other products/methods have you tried before?)

What did they tell you about using this product?

- Did they talk about what it measures and how it measures this? Did they consult the product or package insert to determine this?
- Did they talk about the timing of use of the test?
- Did they discuss when to read the results? What the results meant?
- Did they use patient language or at what level did they discuss the product with you?
- Did they ask you if you had any questions? Did they schedule follow-up with you?

Reflecting on the pharmacist counseling with you, if you had been the pharmacist, what would you have done differently?

- What questions would you have asked the patient? Would you have asked the questions in a different manner? In a different order?
- How would you judge the pharmacist's comfort level with this product?
- As the patient, would you understand the correct use of this product based solely on the pharmacist's counseling?

From participation in the secret shopper experience, how do you view the importance of this course in your pharmacy education?

- Does hands-on experience with these devices enhance your counseling skills?
- Do you see a connection with the information provided in this course and how you will utilize it in your career as a pharmacist?

increase in importance, especially for students planning a career in community pharmacy. There is a need for this type of material in pharmacy curricula. For the benefit of our patients, pharmacists should continue to embrace the role of educator in this arena of self-care.

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