INSTRUCTIONAL DESIGN AND ASSESSMENT

Use of E-Mail Communication to Develop Relationships Between Pharmacy Students and Patients

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Objective. To design and implement a course to aid in the professionalization of pharmacy students through communication with patients regarding the human aspects of disease.

Design. Individual students were provided one unique patient and assigned weekly topics to discuss with their patient via e-mail. The class met weekly to share and analyze these e-mail conversations and to discuss related topics using active-learning methods.

Assessment. An anonymous exit survey, assessment of student assignments, and class discussions revealed that the majority of students communicated regularly with their patient and gained insight into illness from a patient perspective. Additionally, many students reported learning about the value of communication with patients. A final essay demonstrated that most students learned about and employed appropriate mechanisms of patient communication.

Conclusion. The electronic patient communication program enabled students to develop communication skills while gaining insight into the human aspects of disease.

Keywords: patients, patient communication, e-mail

INTRODUCTION

Pharmacists who are caring communicators are crucial in this pharmaceutical care era because enhancing care and improving clinical outcomes requires actually interacting with patients—communication cannot occur in a vacuum. The important role that communication has for today’s pharmacists is reflected in the professional competencies from the Accreditation Council for Pharmacy Education (ACPE) accreditation standards and the educational outcomes from the Center for the Advancement of Pharmaceutical Education (CAPE). Both documents call for pharmacy school graduates who can provide effective communication (written, verbal, and nonverbal) in a patient-centered manner.1,2

Patient-centered communication goes beyond the customary emphasis placed on pharmacists being able to transmit a message. Patient-centered communication necessitates that pharmacists display narrative competence, ie, the ability to absorb, interpret, and respond to patient narration.3 Narrative competence can only be achieved when pharmacists listen in order to understand their patients’ unique medication experiences. Listening requires more than the technical aspects of verbal and nonverbal communication. To practice patient-centered communication in the context of pharmaceutical care, the ability to listen and to respond appropriately must be combined with a desire to listen and intervene. This yearning to act requires pharmacists and pharmacy students who display humanism in medicine. Humanism involves attitudes and actions that demonstrate interest in and respect for the patient.4 Humanistic attitudes about patients require patient contact and insight gained from therapeutic alliances. Without sincere interest in patients, pharmacists would be unable to provide the patient-centered care that pharmaceutical care demands.

It was the authors’ desire to develop a course for pharmacy students that enhanced communication skills through the exploration and discussion of the human aspects of disease. Furthermore, the opportunity for students to listen to actual patient concerns about medicine, medical illness, and health care was deemed more valuable than merely having professors lecture on their impressions of patient concerns. Thus, the electronic patient interaction program was created based on the previously mentioned desires and prior success of an e-mail based mentoring program between pharmacy students and pharmacists.5

The pharmacy curriculum outlined in ACPE’s accreditation standards calls for schools to embrace contemporary practice while exploring emerging practice roles. The use of e-mail and the Internet as links between health care providers and their patients is becoming more
Table 1. Course Design and Associated Assessment

<table>
<thead>
<tr>
<th>Course Goal</th>
<th>Course Objectives</th>
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<tbody>
<tr>
<td>Aid in the professionalization of second semester pharmacy students while providing students with an opportunity to develop communication skills when discussing the human aspects of disease with patients*†‡§</td>
<td>i. describe the patient’s medical condition*†‡</td>
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<td>ii. develop a patient-specific medication profile‡§</td>
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<td></td>
<td>iii. describe the nature and essential clinical and personal manifestations of the principal medical problem*‡</td>
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<td></td>
<td>iv. define patient-specific health-related goals and outcomes*‡‡§</td>
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<td></td>
<td>v. discuss various patient-centered aspects of medical illness and health care*‡‡§</td>
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</table>

Associated Actions
*Patient care topic(s) assigned as e-mail communication
†Topic(s) discussed in class
‡Student reflections (ie, discussion portfolio) evaluated by instructor
§Student communications (ie, e-mail log) evaluated by instructor

of a reality. In a national survey of individuals at least 21 years of age who claimed to be Internet users, 40% of respondents reported using the Internet during the past year to look for advice or information about health and health care. Other surveys have reported that nearly a quarter of practicing doctors have communicated with a patient by e-mail. Although electronic mail communication between health care providers and their patients has drawbacks, a number of potential benefits exist including (1) enhanced access because e-mail does not require simultaneous availability, (2) increased time for clinicians and patients to think before responding, (3) improved openness in information exchange, (4) increased efficiency of office visits, (5) increased involvement of patients in their health care, and (6) an enhanced platform for telehealth activities.

Course Goals
The overarching goal of the electronic patient communication program was to aid in the professionalization of second-semester pharmacy students. Students were provided with the opportunity to develop communication skills with real patients while focusing on topics related to the human aspects of disease. These topics were selected to address the secondary purpose of the course, which was to enhance student’s humanism and narrative competence in the context of pharmaceutical care. Upon successful completion of the course, students were expected to be able or have the ability to develop a relationship with a given patient and obtain information in order to (1) describe the patient’s medical condition, (2) develop a patient-specific medication profile, (3) describe the nature and essential clinical and personal manifestations of the principal medical problem, (4) define patient-specific health-related goals and outcomes, and (5) discuss various patient-centered aspects of medical illness and health care. The research objectives related to our examination of the course were to assess the feasibility and effectiveness, especially the effects on technical aspects of communication. The purpose of this paper is to describe the design, implementation, and feasibility of an electronic patient interaction program.

METHODS
The electronic patient communication program is a second-semester course designed as a component of the Wingate University School of Pharmacy’s professionalization sequence. This 6-semester sequence is designed to aid in the development of students into professional pharmacists by providing a variety of learning experiences including networking electronically with a pharmacist mentor (first year), developing a healthcare-related community outreach project (second year), discussing psychosocial aspects of illness (second year), and participating in ethical decision-making coursework (third year). The pervasive use of e-mail in the electronic patient interaction program blended into the wireless electronic environment that all Wingate University School of Pharmacy students use on a daily basis.

According to Branch and colleagues, teaching the human dimensions of care to clinicians should involve the use of active-learning methods that engage students in “doing, discussing, and reflecting.” Therefore, electronic patient communication program class periods were comprised of student discussions, active-learning exercises, and lectures. An e-mail topic was assigned at the end of each class period. Students were expected to converse with their patient about the assigned topic during the week between classes and then come to class the following week ready to share information. The first half of the class period was devoted to students discussing responses from their patients and analyzing these responses with material from the previous lecture. Discussion topics and exercises were tied to course objectives (see Table 1). A variety of topics were discussed such as communication with health care professionals, patient communication techniques, electronic communication, setting treatment goals, adverse effects, cost of illness, quality of life, patient supports, and knowledge and insight. At the conclusion of a discussion, the professor introduced a new topic and lectured

for the duration of the class period before assigning a new e-mail topic related to the current lecture. Lectures frequently included active-learning exercises. The active-learning activities included exercises such as students developing written patient information from package inserts, improving sample questions to patients, and students predicting their patient’s treatment goals and then evaluating their predictions against their patient’s actual treatment goals. To facilitate the lecture topics and associated discussions, the course instructors provided 2 lectures during the fall semester, briefly describing the disease states students would be encountering in the electronic patient communication program during the spring semester (Table 1).

Recruitment of patients began 4 months prior to starting the electronic patient communication program. The course instructors posted program information on a variety of Internet discussion boards dedicated to disease-specific support groups and self-help organizations. Interested volunteers were asked to e-mail the course instructors. Participants who responded were then provided additional information and sent several e-mail updates until the course began. Beginning in January 2004, each student was assigned a single, unique patient. The initial communication between a student and their patient was a simple self-introduction and summary of the course. Patients were told to provide only information that they were comfortable sharing. To maintain confidentiality, students removed all patient identifiers when discussing patients in class and when turning in written assignments. Only the student and course coordinator knew the name and e-mail address of their patient. In consideration of the goals of the course and the knowledge, skills, and abilities of second semester pharmacy students, the purpose of the electronic communications was to create weekly dialogue between a student and their patient. The primary role of the pharmacy student was as a questioner and listener, not as a provider of advice or care. Students were expected to query patients about, gather information from, and respond to patient care–related issues without providing therapeutic opinions, assessments, or recommendations on their own. If such therapeutic questions arose, students were expected to contact the course instructor and/or their electronic pharmacist mentor from the previous semester. To emphasize this point, all student e-mail messages to patients included a disclaimer at the end that described the nature of the student communications.

Students’ grades were assessed based on evaluation of their work log and portfolio, quiz scores, participation score, and final essay. The majority of the course grade was determined from evaluations of a student’s work log (ie, hard copies of e-mail conversations) and portfolio (ie, summary of learning issues and knowledge gained from individual course topics). Both the log and portfolio grade had quantitative and qualitative assessment components. The quantitative assessments of a log and portfolio related to the number of e-mail communications and reflections, respectively. The qualitative assessment of a log primarily focused on the technical issues of communication such as the clarity of communications, presence of empathic/sympathetic and other reflective responses, appropriateness of questioning, and effectiveness in eliciting patient responses. Each student’s portfolio evaluation also contained a qualitative component, although the portfolio was assessed in a more exploratory manner. The instructor examined portfolio entries for the presence of a student’s appreciation of humanism in medicine. For each portfolio entry, students were asked to detail the knowledge they gained from their patients and to also synthesize their patient–derived knowledge with class discussions and other sources of information used as part of the course. Because a student’s grade could be influenced by the participation of their assigned electronic patient, each student was responsible for maintaining communication with their patient and informing the instructors when e-mail difficulties occurred. New patient assignments were made on an as needed basis throughout the semester.

Students’ rationale for communicating with patients using electronic media was also evaluated, in an exploratory manner, via the final essay. For this writing assignment, students were prompted to briefly describe to a fellow student how to effectively communicate with a patient using e-mail. No other specific instructions were provided. To receive full credit, a student must have included a description of at least 4 of the following 5 topics: (1) type (eg, open-ended, close-ended) and amount of questioning, (2) empathy, sympathy, and other reflections, (3) professionalism in communication, (4) lay language, and (5) methods for addressing the lack of non-verbal communication in e-mail. All of these topics were discussed at various points in the course.

RESULTS

All 59 full-time first-year pharmacy students took part in the electronic patient communication program that was conducted during the 2004 spring semester. Classes were held once weekly for 1 hour each. During the semester, 14 e-mail topics were assigned to students. Twelve assignments were questions linked to lecture topics and 2 assignments were free topics to allow students to catch up on communication with their patient.
Students turned in an e-mail log and portfolio at the end of the semester. To receive full credit on the quantitative grading portion of the course, students had to hand in a log containing at least 10 e-mail conversations and a portfolio containing at least 10 topics tied to weekly e-mail assignments. The students turned in an average of 9.8 ± 1.3 e-mail conversations for the log and 9.5 ± 1.4 topics for the portfolio. Thus, a majority of students received complete or nearly complete credit on the quantitative aspect of the course grade. To facilitate timely communication and regular class discussion, a portion of the e-mail log grade was based on whether students sent their weekly communications within 48 hours of a topic being assigned in class. The mean number of e-mail messages being sent in a timely manner (out of 10) was 9.4 ± 1.5. Thus, the majority of students communicated with their patients on a regular basis throughout the semester.

Instructors examined the quality of work logs primarily to assess technical issues surrounding communication. This evaluation was based on the clarity of communications, presence of reflective responses, appropriateness of questioning, and effectiveness in eliciting patient responses. The mean score on this component of the work log evaluation was 87.2% ± 6.4%. The most common areas for improvement were not asking too many questions per e-mail (31% of students), the need for more empathic/sympathetic reflections (9% of students), and not asking leading questions (5% of students). Each student’s understanding of how to communicate effectively with patients using e-mail was also subjectively assessed in the final essay. The final essay prompted students to briefly explain to a classmate how to communicate with a patient by e-mail. The mean score on the final essay was 86.2% ± 6.2%. The percent of students who described the key communication components included in the grading criteria were (1) type and amount of questioning (81%), (2) empathy, sympathy, and other reflections (67%), (3) professionalism in communication (78%), (4) lay language (41%), and (5) methods to address the lack of nonverbal communication in e-mail (59%).

The quantitative component of the electronic patient communication program was important to ensure regular contact, meaningful class discussion, and coverage of the various course topics; however, the qualitative aspect of the course was imperative to assess the course goals and objectives. Weekly class discussions proved to be worthwhile as students shared candid information about their patients and discussed and analyzed related course topics. To examine student satisfaction and student appreciation of humanism in medicine, students were asked to voluntarily complete an anonymous exit survey. This exploratory survey consisted of 6 open-ended short-answer questions that queried students about their likes and dislikes concerning the course, knowledge gained from the course, suggestions for improvement, and a description of communication with their patient. Answers to several of these questions are presented in Table 2 and Figure 1. Exit survey responses demonstrated that the majority of students (66%) reflected favorably on their patient’s communication. In addition, a majority of students (70%) reported that they completed the course having achieved at least one of the major

Table 2. Results of Exit Interview Questions

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<tr>
<th>Questions and Answers (N=Number of Responses)</th>
<th>Percent of Students</th>
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<tbody>
<tr>
<td>List one or more meaningful concepts/ideas/facts you learned. (N = 50)</td>
<td></td>
</tr>
<tr>
<td>Gained insight into disease states</td>
<td>46</td>
</tr>
<tr>
<td>Learned more about how to communicate with patients</td>
<td>18</td>
</tr>
<tr>
<td>Importance of grounding when interacting with patients</td>
<td>6</td>
</tr>
<tr>
<td>Gained insight into the health care system</td>
<td>4</td>
</tr>
<tr>
<td>Nothing</td>
<td>4</td>
</tr>
<tr>
<td>Variety of other responses</td>
<td>22</td>
</tr>
<tr>
<td>How will this class be useful to you in the future? (N = 47)</td>
<td></td>
</tr>
<tr>
<td>Gained insight into illness from a patient’s perspective</td>
<td>40</td>
</tr>
<tr>
<td>Learned the importance of health care professionals that can communicate</td>
<td>28</td>
</tr>
<tr>
<td>Gained ability to connect/relate to patients</td>
<td>13</td>
</tr>
<tr>
<td>Unsure</td>
<td>9</td>
</tr>
<tr>
<td>Variety of other responses</td>
<td>11</td>
</tr>
</tbody>
</table>
course goals (eg, gain insight and knowledge about illness from a patient’s perspective and understand the importance of effective patient communication).

Approximately 120 patients expressed initial interest in the electronic patient interaction program. Of those, the first 101 who responded to messages from either of the 2 instructors were included in the program. The instructors had determined a priori to enroll approximately 100 patients so that a ratio of at least 1.5 patients per student existed. The patients enrolled in the program reported the following disease states as their primary concern (listed from most frequently reported to least frequently reported): cluster headache, irritable bowel disease, interstitial cystitis, reflex sympathetic dystrophy, depression, arthritis, chronic obstructive pulmonary disease, inflammatory bowel disease, thyroid disorder, and heart failure. During the course of the semester, 98 of the 101 patients were assigned to students. For a variety of reasons, 24 of the 59 students were unable to communicate with the patient originally assigned to them so an additional patient(s) had to be assigned during the semester. The most common reasons for students being assigned new patients were patients not responding in a timely manner, patient communication stopping as the semester progressed, technical issues (eg, e-mail address errors/computer server problems), and no responses received to introduction e-mails sent from students. Eighteen of the 24 students who experienced difficulties were able to communicate successfully with the second patient assigned, while 6 students continued to encounter problems and a total of 3 or more patients had to be assigned to them during the course.

The exit survey also queried students on their suggestions of how the electronic patient communication program could be improved. The most common responses were a desire for more responsive patients and patients with greater awareness of the course expectations. Students also requested more flexibility in questioning their patients in order for the course to appear more spontaneous.

DISCUSSION

Our exploratory analysis of the electronic patient communication program, based on instructor evaluation of assignments and feedback received from students, demonstrated that the program was a success. The course was designed to be an interactive e-mail-based class that provided students with the opportunity to practice and improve communication skills through one-on-one student and patient communication. The e-mail conversations, associated in-class lectures, and active-learning exercises were designed to achieve the secondary purpose of the course: to help students gain insight into medicine, disease, and health care from a patient perspective. The success of the program is apparent on several levels. First, students were able to communicate regularly with their assigned patient. Although a number of students required more than 1 patient during the semester, the majority of students were able to complete all or nearly all of the required communications. Second, many students reflected back to the instructors that they learned about the human aspects of medical illness from their patient and gained an appreciation for and an understanding of good patient communication. Third, students learned how to ask questions that allowed patients to describe their experiences and perspectives in detail, without interruption. Fourth, students demonstrated their communication skills as assessed by instructors.

The grading design of the course was also an important component. The electronic patient interaction program was created to foster quality communication with patients and provide reflection on communications; nevertheless, quantity of content was also necessary in order to cover a variety of topics and encourage student participation throughout the semester. For this reason grading consisted of both a quantitative and qualitative component in order to reward students who exceeded expectations throughout the semester.

The electronic patient course was feasible from a student, instructor, and facility perspective. All students bring laptop computers to class each day and have wireless access to the Internet. Students use the electronic capabilities in many ways such as downloading class notes, receiving and submitting assignments, using e-mail, and communicating via discussion groups. The on-campus electronic infrastructure and off-campus e-mail availability made communication via e-mail a relatively easy undertaking for students. The most challenging aspect of the course was recruiting and then maintaining openly communicative patients. Considerable time was spent finding Internet sites, posting program information, and then responding to interested patients. Throughout the semester, instructors spent substantial time working with students to foster and maintain patient communication and to assign new patients when necessary. The need to recruit different patients for future electronic patient courses will also be a challenge.

The electronic patient interaction program at the Wingate University School of Pharmacy is now a required second-semester course for all first-year pharmacy students. The format will be largely unchanged, although some modifications will be made based on instructor and student feedback. There are plans to invite
a few patients from the community to participate in the
class at the beginning of the semester for the instructors
to demonstrate and then discuss patient communication.
In order to address student concerns about patient com-
munication being sporadic, lacking, or tapering off, the
instructors plan to collect more precourse information
from interested patients in order to increase patient
awareness of the program and its requirements.
Additionally, several e-mail newsletters will be sent out
to participants prior to the program starting, and an e-
mail querying patients about their level of commitment
to the program will be sent out in the 1 to 2 weeks prior
to the first course meeting.
Other adjustments to the course may be made to
address several limitations of the current study. To better
assess the course, more formal data will be collected from
students and possibly from patients. Course evaluations
delivered in a manner other than voluntary student reports
could decrease the chance for biased reporting. In addi-
tion, a more formal evaluation of the quality of student-
patient interactions would enhance the assessment of stu-
dent achievement. Furthermore, baseline data from stu-
dents may be collected in order to more formally assess
student progress. The instructors also plan to follow up
with students to gauge student-patient relationships over
time. Finally, the instructors will restructure the e-mail
topic sequence in order to decrease the occurrence of
seemingly repetitive questions and answers from patients.

CONCLUSIONS
The electronic patient interaction program represents
an innovative method to encourage professionalism in
pharmacy students early in their pharmacy education.
The use of e-mail as a medium for developing student-
patient relationships appears to be feasible. This course
not only prepares students to communicate with patients,
but to communicate with patients using an increasingly
popular format. Most importantly, the electronic patient
communication program appears to help pharmacy stu-
dents gain insight into the human aspects of disease and
patient perspectives on the health care system.

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