EDUCATING FOR SAFETY

Faculty Perceptions of the Educating Pharmacy Students to Improve Quality (EPIQ) Program

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Objective. To investigate users' initial perceptions of and potential applications for the Educating Pharmacy Students and Pharmacists to Improve Quality (EPIQ) program, a 5-module education program designed to educate pharmacists and pharmacy students about quality improvement in pharmacy practice.

Methods. The 5-module EPIQ program was distributed to pharmacy faculty members, pharmacy practitioners, and other health professionals across the country upon request. A 6-item survey instrument was sent to the first 97 people who requested the program.

Results. Twenty-seven (56%) of the 55 respondents had reviewed the EPIQ program and 22 (82%) intended to use some or all of the content to teach about quality improvement or patient safety primarily in pharmacy management and medication safety courses.

Conclusion. Initial perceptions of the EPIQ program were positive; however, further evaluation is needed after more extensive implementation of the program in pharmacy colleges and schools and other settings.

Keywords: medication safety, qualitative research, science of safety, education, pharmacy curriculum

INTRODUCTION

There are increasing calls from accrediting bodies and national academies for change in how healthcare professionals are educated about safety and quality improvement. The Institute of Medicine (IOM) stated "Health care has safety and quality problems because it relies on outmoded systems of work. Poor designs set the workforce up to fail, regardless of how hard they try,"¹ and called for the future health care workforce to be taught the skills necessary to facilitate change. In response to the IOM's call for change, accrediting councils for both medical and pharmacy education have emphasized the importance of quality improvement education. For example, the Accreditation Council for Graduate Medical Education requires quality improvement and patient safety education as core competencies in medical residency curricula.² The American Association of Colleges of Pharmacy (AACP) and the Accreditation Council for Pharmacy Education (ACPE) also recognize the need for future pharmacists to understand patient safety and quality improvement and encourage the addition of "quality improvement" to the

curricula of colleges and schools of pharmacy.³ In their 2007 accreditation standards, the ACPE states "...pharmacists must be educated to deliver patient-centered care as members of an inter-professional team, emphasizing evidence-based practice, quality improvement approaches, and informatics."^{3(p14)}

In response to these calls for more attention to quality in health care, the Pharmacy Quality Alliance (PQA), a collaborative organization involving over 50 professional pharmacy organizations, healthcare providers, and payers formed to improve quality in pharmacy practice. The PQA is committed to improving medication use through pharmacist-delivered care and services (<http://www.pqaalliance.org>). While developing pharmacy performance measures and tools to improve quality in pharmacy practice, the PQA recognized a need for a comprehensive educational program pertaining to pharmacy performance measures, reporting, and quality improvement. The PQA funded the development of Educating Pharmacy Students and Pharmacists to Improve Quality (EPIQ), curricular content that pharmacy faculty members could incorporate into college and school of pharmacy curricula and continuing education programs.

A search was performed to determine whether similar quality improvement courses or programs were described in the literature. Several articles were identified that describe

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medication error or patient safety education for health professionals⁴⁻¹⁸ and included information on undergraduate and professional,^{6,8,9,11-15,19-23} and on-the-job training in medication error reduction for pharmacists,^{5,15,16,18} physicians,^{7,9-11,17,18,24-28} nurses,^{4,16,29} and interprofessional groups.^{12,13,30,31} Most of the programs were developed for medical students and residents and a few were implemented in interdisciplinary settings; however, none of the identified articles mentioned a comprehensive quality improvement course for pharmacists or pharmacy students such as the EPIQ program.

The aim in creating the EPIQ program was to provide a quality improvement resource that could be used by pharmacy faculty members and others to educate pharmacy students, pharmacists, and other stakeholders about measuring, reporting, and improving quality in pharmacy practice. After completion, the EPIQ program was made available free of charge to pharmacy faculty members, pharmacists, and other stakeholders in 2009. The purpose of this study was to investigate initial perceptions of and potential uses for the EPIQ program and to introduce the EPIQ program to an academic audience.

METHODS

The EPIQ program was designed by 3 of the authors (T.L.W., D.W., and D.H.) with the assistance of an advisory board that included representatives from PQA, the pharmacy community, and the pharmaceutical industry. The EPIQ curriculum contains 17 sessions divided into 5 modules, which include almost all of the content recommended for a patient safety curriculum: (1) status of quality improvement and reporting in the US health care system; (2) quality improvement concepts; (3) quality measurement; (4) quality-based interventions and incentives; and (5) application of quality improvement to the pharmacy practice setting (Table 1).³² The program is self-contained and includes all materials needed for administration of a 3-credit class (ie, overarching coordinators guide, PowerPoint slide sets, lecture notes, syllabi, case studies, reading assignments and discussion topics, learning activities, student feedback forms, and suggestions for projects). EPIQ was designed in a modular format to allow for adaptation; the 5 standalone modules allow the content to be presented in any order. Modules are intended for use in the pharmacy classroom or in experiential education environments.³³

EPIQ program availability was announced during presentations at local and national conferences (eg, AACP meetings, PQA meetings, and several state pharmacy association meetings) and in newsletters for pharmacy educator groups several times since program creation. In addition, in fall 2009 a letter announcing EPIQ availability was mailed

Table 1. Educating Pharmacy Students to Improve Quality (EPIQ) Program Content

Module I – Status of Quality Improvement (QI) and Reporting in US Health Care System
Session 1 – Quality and the Future of Health Care
Session 2 – Understanding Problems in the Use of Medications
Session 3 – The Business Case for Pharmacy Quality
Session 4 – Organizations Involved in Quality Measurement and Reporting
Module II – Quality Improvement Concepts
Session 5 – What is Quality Improvement?
Session 6 – Recognizing and Defining Quality Problems
Session 7 – Identifying Causes of Quality Problems
Session 8 – Statistical Process Control
Module III - Quality Measurement
Session 9 – Measurement of Safety and Quality
Session 10 - CAHPS Measures
Session 11 – Risk Management
Module IV - Quality-Based Interventions and Incentives
Session 12 – Implementing Changes to Enhance Quality
Session 13 – Improving the QI Process With Technology
Session 14 - Reporting on Health Care Quality
Session 15 - Payment incentives
Module V - Application of QI to the Pharmacy Practice Setting
Session 16 - Responding to an Outside Assessment of Pharmacy Quality
Session 17 - Implementing Your Own Pharmacy QI Program

to every college and school of pharmacy in the United States. EPIQ was distributed upon request via e-mail or computer disc (CD). A record was maintained detailing recipients' contact information, including their address, phone number, e-mail, and university or organizational affiliation.

A survey instrument was developed to determine: whether recipients had reviewed the EPIQ program materials; what recipients' perceptions of the EPIQ program content were; how recipients intended to use the EPIQ program; what barriers to using the program existed; and whether recipients were interested in participating in an evaluation of EPIQ program implementation.

The 6-item survey instrument reflected study aims. The first 2 items inquired whether individuals had received the EPIQ program as requested, and if not, whether they were interested in receiving a copy. Item 3 asked whether recipients reviewed the content, needed more time to review it, or had forwarded the program to another individual at their institution. Item 4 asked respondents to rate their perception of the program's content on a 3-point scale (1 = not particularly valuable, 2 = valuable, 3 = extremely valuable). Respondents also were asked to pro-

vide comments about program content. Item 5 asked respondents about their intention to use the EPIQ program or any portion of it at their institution and how it would be used. Finally, item 6 asked respondents whether they would be willing to participate in an evaluation of EPIQ implementation at pharmacy colleges and schools. Data were collected from February through August 2010.

EPIQ program recipients were initially contacted and offered the opportunity to complete the questionnaire via telephone. If the respondent preferred to reply via e-mail, a survey instrument was sent to them by e-mail. When an individual could not be contacted by phone, a standard phone message was left explaining the purpose of the call and requesting that the recipient check his/her e-mail for the questionnaire. The questionnaire was sent to the EPIQ program recipients until a response was received, with a maximum of 3 requests sent. The second e-mail was sent approximately 1 month after the first e-mail, and the third e-mail was sent approximately 2 months after the second e-mail. In addition, any recipient who had not responded to the e-mail survey or had indicated they needed more time to review the materials was called 6 months after the initial contact attempt was made.

Data analysis was performed using Microsoft Excel. Responses to items 1, 2, 3, 5, and 6 were coded using 1 = yes and 2 = no, and responses to item 4 were coded using the 3-point scale defined above. Due to time limitations and the nature of the study, no additional demographic

data were collected from recipients. Each individual in the distribution list was assigned an identification number to track responses. Human subjects research approval was received from all applicable Institutional Review Boards.

RESULTS

Of the 97 individuals who were contacted to participate in the survey because they had requested the EPIQ program, 55 (56.7%) responded. Of those, 48 had received the EPIQ program and 7 had not. Although these 7 individuals were sent a second copy of the EPIQ program and contacted again at a later date to participate in the follow-up survey, none responded.

Of the 97 who received the EPIQ program, the majority (73%) were pharmacy faculty members (Figure 1). Twenty-seven (56%) of the 48 recipients had reviewed the program content. While the other 21 respondents were not asked why they did not review the program, most mentioned having limited time to review the content in depth, and others indicated they had no current interest in the topic or had difficulty opening some of the files on the CD.

Ten (37%) of the 27 who had reviewed the EPIQ program materials rated the content as extremely valuable and indicated it would not require significant adaptation for use in their setting (Table 2). Another 44% rated the content as valuable but indicated they would have to customize it to meet their needs. Most of the comments were

Figure 1. Professional affiliation of the first 97 people who requested the Educating Pharmacy Students to Improve Quality (EPIQ) program.

Table 2. Pharmacy Faculty Members' and Other Health Professionals' Assessment of the Educating Pharmacy Students to Improve Quality (EPIQ) Program

Survey Item	No. (%)
Opinion of Content	
Extremely valuable	10 (37)
Valuable	12 (44)
No rating provided	5 (19)
Intend to use	
Yes	22 (82)
No	3 (11)
No response	2 (7)
Participation in evaluation study	
Yes	17 (63)
No	4 (15)
No response	6 (22)

short and general in nature; however, they did provide insight into the respondents' overall perception of EPIQ program content. When asked whether they intended to use the EPIQ program or portions of it, 9 reviewers indicated they had used the program and 13 indicated they planned to use it. Faculty members generally intended to use the content or portions of it in medication safety and quality improvement coursework and/or as part of pharmacy management courses (Table 3). Pharmacists working in other settings saw potential in its use with pharmacy students at experiential sites.

Barriers to using the EPIQ program stated by 3 of the respondents included not teaching in an academic or classroom setting, not interacting with students, not having a plan for where the content fit in their college or school's curriculum, and/or believing the content was too in depth for their current needs.

When asked whether they were willing to participate in an evaluation study of EPIQ program implementation,

63% (17/27) agreed to participate, 15% (4/27) did not want to participate, and 22% (6/27) did not respond to the question.

DISCUSSION

A majority of the individuals who requested the EPIQ program were pharmacy faculty members. Other recipients included pharmacists and other healthcare professionals working in consulting, managed care, government, industry, and hospital settings. There is a need for quality improvement educational materials in several other settings as evident by the percentage of requests from individuals outside of academia. However, this conclusion is tentative as the respondents were asked to indicate only one affiliation or area of practice on the questionnaire and this may not have been the venue in which they intended to use the EPIQ program. For example, a pharmacist who identified industry as his work setting also may have been a clerkship preceptor for a college of pharmacy. On the other hand, some of the faculty members who requested the program also may have been preceptors and intended to use the EPIQ program inside and/or outside the traditional classroom setting.

The overall response rate was somewhat lower than desired (57%, 55/97). Several who requested the EPIQ program reported not receiving a CD (n = 7). Possible explanations include incorrect mailing addresses or CDs lost in the mail. Of those who received the EPIQ program, only 56% (27/48) had reviewed the contents. This percentage was not as high as expected considering that each recipient had requested the program. Investigators were unable to provide those who requested but did not receive a CD or had not yet reviewed it with additional time to review and evaluate the program because of the need to complete the study on schedule. Another reason that respondents cited for not viewing the EPIQ program was

Table 3. Theme Analysis of Reviewers' Comments on the Educating Pharmacy Students to Improve Quality (EPIQ) Program

Perceived Value	Perceived Usefulness	Barriers to Use
<ul style="list-style-type: none"> Interactive and customizable Very valuable in several courses Activities and instructor guides very helpful in planning a course Greatly help students who work in pharmacy setting where they may get no exposure to quality improvement Useful as introduction to quality improvement 	<ul style="list-style-type: none"> Classroom-based courses including pharmacy management, medication/ patient safety, public health, healthcare systems, disease prevention, quality improvement, other electives Experiential training 	<ul style="list-style-type: none"> Time: to review, condense, and incorporate into specific courses (too extensive, not enough time in curriculum, too in depth) Setting: less useful if not teaching in an academic setting

difficulty opening certain files or difficulty understanding the file organization. Improvements that will be made to address these problems on future versions of the program include providing text files in a word processing format that is compatible with more computer systems, organizing the files in a more user-friendly layout, and including a printed program guide to assist recipients with program navigation.

In general, those who reviewed EPIQ thought the materials were comprehensive and useful. This feedback helps the investigators assess the degree to which they achieved their goal of developing a quality improvement educational resource that could be used by pharmacy faculty members and others to educate pharmacy students, pharmacists, and other stakeholders about measuring, reporting, and improving quality in pharmacy practice.

Twelve (44%) of the 27 EPIQ program reviewers indicated that some resources would be needed to customize the program to meet their needs. The EPIQ program was designed as an adaptable tool so that users could better match the material to the learner population in a particular environment. However, the need for adaption might indicate that EPIQ developers should consider revising EPIQ to better meet end user needs. To identify specific areas for improvement, future studies will investigate why users perceived that revisions were needed.

Approximately 82% of reviewers indicated they had or were planning on using EPIQ program content in specific courses as part of their pharmacy management or medication safety curriculum or to teach pharmacy students at experiential sites. This means that some portion of the EPIQ program will be incorporated into pharmacy education at 22 different classroom or experiential sites. As mentioned earlier, the PQA, IOM, and AACP have recognized the need for a comprehensive educational program pertaining to pharmacy performance measures, reporting, and quality improvement. Dissemination of the EPIQ program at these 22 sites will help the pharmacy profession reach this goal, as few, if any, similar comprehensive pharmacy quality improvement programs exist. The results of a study to evaluate EPIQ implementation at 8 colleges of pharmacy may provide further insight into opportunities and challenges of EPIQ use. In addition, the EPIQ program is being adapted for an interprofessional health care provider audience and integrated into a master in public health (MPH) degree quality improvement track. Implementation of EPIQ within a medical education context also has been considered with at least one medical school planning to adapt EPIQ in an online format and to incorporate it into its required curriculum.

Barriers to use of the EPIQ program included having a job site outside the academic or pharmacy classroom

setting; not interacting with students; not having an identified plan of where the content fit in their college or school's curriculum; and believing content was too in depth for their college or school's curricular needs. EPIQ developers can address these barriers by providing suggestions on how material can be shortened and used in courses other than a dedicated patient safety course. The investigators also could develop and disseminate a few overview lectures or better adapt the EPIQ program for non-classroom environments.

This study has some limitations. Because the investigators were concerned about acquiescent response bias, a graduate student not involved with development of the EPIQ program conducted data collection and analysis. Nonresponse bias was not examined and may have affected the results. Also, the questionnaire used was of limited scope and contained few questions. The purpose of this study was to get initial feedback about the EPIQ program. In future evaluations, an increased number of questions will be used to improve reliability and validity.

CONCLUSION

The EPIQ program is a comprehensive and valuable educational resource for quality improvement in pharmacy. Twenty-two of the survey respondents planned to implement the program in their college or school or other setting. Future studies will assess the success of program implementation and the role of EPIQ program content in pharmacy curricula.

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