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A method for teaching continuous quality improvement to student pharmacists through a practical application project

Susan J. Skledar, BS MPH[a,b,*], Teresa P. McKaveney, BS[a]

[a] *University of Pittsburgh School of Pharmacy, Pittsburgh, PA*
[b] *University of Pittsburgh Medical Center, Pittsburgh, PA*

Abstract

Objective: To provide future pharmacists with the skills and knowledge they need to use the continuous quality improvement (CQI) process to solve problems in a variety of practice settings.
Material and methods: At the University of Pittsburgh School of Pharmacy, the theory of CQI is presented to third-year pharmacy students in two lectures, followed by a practicum assignment. Student groups select a pharmacy, medical, or other identified problem and devise a solution through application of CQI principles. A member of each group presents the completed project to the class and a panel of CQI experts who judge project quality.
Practice innovation: Students apply learned CQI principles through a problem-based practicum assignment in which they create a plan to solve a real health care or non–health care problem.
Main outcome measure: Student learning was assessed through the project presentation and examination questions. A voluntary formative evaluation examined student attitudes toward the CQI module, applicability of CQI to pharmacy practice, and the most effective strategy for learning CQI concepts.
Results: Mean scores for presentations were 93%, reflecting a high level of ability to apply CQI principles. In the formative evaluation, 80% of students reported that lectures were informative or necessary; however, all responding students reported learning more through practicum experience as opposed to the lecture alone. Ninety-seven percent of students were able to provide examples of CQI opportunities in their career interest area.
Conclusion: This structured learning opportunity teaches students a systematic approach to identifying and solving system problems by applying CQI principles.

Keywords: Quality improvement; Pharmacy education; Practical application; Student pharmacists

Introduction

Systems for assessing quality of care, identifying areas for improvement and determining a means to create improvements are being developed and applied within health care to support the provision of quality patient care.[1–4] Continuous quality improvement (CQI) provides a structured, organizational process for involving personnel in planning and executing a continual flow of improvements, with the goal of providing quality health care that meets or exceeds expectations.[5] Demonstrating the use of CQI methods to improve patient outcomes and increase safety and treatment efficiency is currently a requirement to maintain hospital and managed care organization accreditation status. Agencies and regulatory groups such as The Joint Commission, the National Committee on Quality Assurance, and the Centers for Medicare and Medicaid Services have established national quality measures for health care institutions and managed care organizations.

* Corresponding author. Susan J. Skledar, BS MPH, Associate Professor, Department of Pharmacy and Therapeutics, Director of the Drug Use and Disease State Management Program, University of Pittsburgh School of Pharmacy and University of Pittsburgh Medical Center, 302 Scaife Hall, 200 Lothrop Street, Pittsburgh, PA 15213.
E-mail address: skledarsj@upmc.edu.

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A new collaborative group, the Pharmacy Quality Alliance (PQA), was formed in 2006 with the mission "to improve health care quality and patient safety through a collaborative process in which the key stakeholders agree on a strategy for measuring performance at the pharmacy and pharmacist-levels; collecting data in the least burdensome way; and reporting meaningful information to consumers, pharmacists, employers, payers, and other healthcare decision-makers to help make informed choices, improve outcomes and stimulate the development of new payment models."[6] The interdisciplinary members of the PQA will be working toward development of educational programs, performance metrics, and data-reporting mechanisms for pharmacists and pharmacy practice sites across the United States. The data provided by the performance metrics (e.g., diabetes-based measures) are key sources for consumers and practitioners to compare quality of services.

Because CQI maximizes the quality and efficiency of care for patients and providers, this improvement process can be directed toward clinical or administrative processes within the health care system.[7] Interdisciplinary CQI teams now include pharmacists, whose expertise in drug therapy management serves to improve the care of patients with conditions such as pneumonia, heart failure, and diabetes. Pharmacists can also apply expertise toward improvements in medication systems and various steps in the medication use process, such as dispensing and medication administration. Health care quality measures that are routinely monitored include: (1) clinical outcomes such as length of stay, readmissions, adverse drug events, or mortality; (2) process measures such as medication delivery turnaround time, client satisfaction, and types and/or causes of medication errors; and (3) economic measures such as drug expenditures, drug cost per patient day, and total treatment cost.

In its standards for the Doctor of Pharmacy degree, the Accreditation Council for Pharmacy Education (ACPE) puts emphasis on professional competencies, patient safety, interprofessional teamwork, and evaluation/assessment. Standard 12 denotes the importance of the interprofessional health care team in making evidence-based decisions, managing medication use systems, improving therapeutic outcomes, and developing health policy.[8] The accompanying guideline highlights the need for pharmacy graduates to use quality improvement strategies to assess and address change, use problem-solving techniques, apply methods of outcome monitoring, and develop health policy, all of which relate to understanding CQI methodology.

Limited published data exist regarding the teaching of continuous quality improvement in pharmacy schools.[9–12] Jackson reports a quality assurance course at Midwestern University Chicago College of Pharmacy in which pharmacy students work with preceptors longitudinally over a semester to develop and implement a plan to reduce medication errors in a clinical setting.[13] This focused experience demonstrated to students the great potential that pharmacists have to improve medication safety in their workplace. A recent review of health care basic concepts for clinicians noted that "front-line health care professionals will be most effective in optimally improving quality and performance in their environment if they first appreciate the characteristics and tools available for enhancing quality of care . . ."[14] Our paper reports an approach to teaching CQI that focuses on teaching CQI principles and application tools to students at the University of Pittsburgh School of Pharmacy through lectures and a broad health care application of learned concepts in a group project.

Design

The CQI learning module entitled "Continuous Quality Improvement: Theory and Application to Practice" is part of a three-credit course on Health Care Outcomes and Pharmacoeconomics in the Profession of Pharmacy series. This required course, taken by pharmacy students in their third professional year, is designed to develop competence in health care decision-making through an understanding of economic, clinical, and humanistic outcomes.

Specific to the CQI portion of the course, the student is expected to be able to describe the principles and processes of CQI, compare and contrast methods of measuring quality in health care, and understand the impact of CQI on the provision of health care services. The educational objectives for the CQI segment are for students to learn: (1) to evaluate patient- and population-specific data, quality assurance strategies, and research processes to identify problems and create possible solutions that optimize therapeutic outcomes of the medication use process; and (2) to develop patient-centered and population-based drug therapy decisions on the basis of quality assurance strategies, medication use review, and patient safety data.

The theory of CQI is presented in two 2-hour lectures. Lecture one covers CQI theory and the explanation of different performance improvement models. Students are taught about the different organizations and agencies that regulate quality in health care, sources for health care quality indicator measures, how to distinguish between quality improvement and research, and several different quality improvement models in use today. The model that is explained in detail to the students is the "FOCUS-PDCA" performance improvement model, which is a stepwise approach to teaching how to design, implement, and evaluate a quality improvement initiative.[15] Lecture two includes two example CQI presentations, as well as a critique/discussion of the presentation during the class. The first example presentation, entitled "Collaborative Quality Improvement of Patient Education," and presented in the FOCUS-PDCA format, was implemented at the University of Pittsburgh Medical Center (UPMC) by one of the School of Pharmacy faculty as part of an interdisciplinary care team.[3] This quality improvement project won the award for Patient Safety at the UPMC annual Quality and Innovation Fair. Presented by the expert faculty member, this project exemplifies the role of the pharmacist on the problem-solving