Training Future Pharmacists to Optimize the Healthcare Workforce

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Abstract

Many efforts are taking place to improve the quality of healthcare and reduce healthcare cost. Pharmacists play a key role in optimizing the healthcare workforce, and colleges of pharmacy are adapting to this need by emphasizing skills needed to improve quality health measures, interprofessional collaboration and communication, and supplying quality drug information. The University of Hawai'i at Hilo Daniel K. Inouye College of Pharmacy has incorporated additional pharmacy practice experience electives to teach pharmacy students to analyze and optimize workflow, identify high-risk patients in need of intervention, and work collaboratively with providers to decrease patient burden. The pharmacy curriculum has also increased the number of interprofessional educational events for enhancing interprofessional collaboration and communication, including in a telehealth setting.

Furthermore, the college of pharmacy has increased the number of drug information assignments and practical exams to increase competency and the speed of providing quality, evidence-based drug information to providers. This article presents on overview of the health care workforce needs and examples of the increased efforts to train future pharmacists in Hawai'i to improve healthcare access and quality of patient care, as well as decrease healthcare costs.

Keywords

healthcare payment reform; quality improvement; pharmacy education; interprofessional education; interprofessional collaboration; drug information

Introduction

When comparing the expenditure on healthcare and the present healthcare burden, the United States (US) has a wide gap. According to the 2015 Commonwealth Fund brief, the US spent nearly twice as much on healthcare as the average developed country and yet maintained the lowest life expectancy and the highest rates of disease burden, obesity and suicide.[1] In 2018, the US spent 17.7% of its gross domestic product on healthcare which is a 4.6% increase from the previous year.[2] Proposed reasons for this discrepancy in cost and care include a shortage of primary care providers leading to fewer physician visits compared to other countries, an increased rate of hospitalizations and preventable deaths, as well as increasing drug costs.[3]

The current fee-for service payment model may be a barrier to healthcare access. Fee-for-service is the traditional healthcare payment model utilized in the US in which individual services are paid for. This payment model inherently discourages the maintenance of a healthy patient population. Furthermore, the fee-for-service model may be contributing to the estimates that 30% of healthcare expenditures may not impact health outcomes.[4] In an effort to control healthcare costs while increasing quality of care, payment reform towards a value-based healthcare system has been implemented as a way to increase coordination amongst healthcare providers, to incentivize providers to proactively maintain patients' health, and to improve health outcomes by utilizing cost- effective, evidence based treatment modalities.[4]

For payment reform to be successful, however, it is vital that institutions responsible for the training of healthcare providers, such as colleges of pharmacy, adapt their curriculum to ensure that their graduates possess the necessary skills and competencies to ensure a value-based healthcare system. There is only 1 college of pharmacy in the State of Hawai'i, of which more than 50% of the students are Hawai'i residents. The University of Hawai'i at Hilo, Daniel K. Inouye College of Pharmacy plays a large role in supplying future pharmacists for the local community. Thus, its curriculum remains fluid to the changing needs of both the local and national healthcare workforce. The curriculum works towards the improvement of healthcare quality measures by building a strong foundation in pharmacotherapy and drug information to optimize medication regimens and working effectively in interdisciplinary healthcare teams, while incorporating modern technology. In providing future pharmacists with these skills, not only will the capacity of primary care providers to provide access to care increase, but the quality of evidence-based practice provided to patients will also increase, ultimately leading to improved patient care.

Improvement in Quality Measures

Key features of a value-based payment model include incentivizing health maintenance by instituting a capped reimbursement rate that is linked to the obtainment of key quality measures such as cardiovascular risk reduction, blood pressure and blood glucose control, as well as vaccination against diseases linked to hospitalization and mortality such as pneumonia. Pharmacists are uniquely trained to manage many chronic disease states, such as diabetes, hypertension, and hyperlipidemia, ensuring patients receive effective medications while mitigating potential adverse events and taking into consideration economic factors such as medication coverage and cost. The importance of these performance measures and the impact they have on reimbursement to primary care providers is evident in various payment transformation initiatives. One of the 2020 quality measure benchmarks in the Centers for Medicare and Medicaid Services

(CMS) Medicare Shared Savings Program measures the use of statin therapy for the prevention and treatment of cardiovascular disease. This metric tracks the percentage of males aged 21-75 years and females aged 40-75 years with cardiovascular disease who were dispensed at least 1 statin medication during the measured year. Other key measures of the program that fall within the scope of pharmacists' training include blood pressure control, diabetes control based on hemoglobin A1c (HbA1c) laboratory test, and appropriate effective medication therapy to prevent complications from medical conditions. Examples include angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers for nephropathy, influenza immunization, and tobacco cessation intervention.[5]

To better prepare pharmacy students to improve performance in quality measures in an efficient and effective manner, novel Advanced Pharmacy Practice Experience (APPE) electives were initiated with a focus on population health management and development of standardized workflows and clinical algorithms for identifying patients with the highest potential for intervention. Students enrolled in these electives review physician scorecards to identify potential high yield areas for improvement. Students then work to design workflows, treatment algorithms, and collaborative practice agreements to allow pharmacists to make the necessary changes while minimizing any additional burden on prescribers. Lastly, students prepare presentations to illustrate the models to community pharmacy and physician office staff. The aim of these projects is to develop and present a model where a single pharmacist or pharmacist team can provide services for multiple physician groups across different geographic locations. The recent COVID-19 pandemic necessitated that these activities be done virtually, which provided students with the additional opportunity to work with informatics and remote patient monitoring platforms (eg, self-monitored blood pressure and blood glucose) to maximize patient care while allowing those at risk to maintain social distancing.

Interprofessional Education

Healthcare has moved away from a group of individual experts to an interprofessional collaborative practice model. Interest in interprofessional team collaboration has increased to improve patient safety, provide cost effective quality health care, and decrease medical errors. Interprofessional teams have been shown to improve patient care and are now expected by many as a standard of care in ambulatory and acute care practice settings.[6-8]

Interprofessional education prepares future pharmacists for team-based care. The University of Hawai'i at Hilo, Daniel K. Inouye College of Pharmacy curriculum has incorporated student interactions and learning experiences that optimize collaboration with other healthcare professionals starting in the first year of pharmacy school. Each interprofessional education event places students in more complex situations with a larger variety of disciplines where communication and collaboration are practiced. After each scenario, co-debriefing with faculty from the different disciplines is essential for emphasizing the take-away points and lessons learned from the event.[9] The students' understanding of their own role and those of other healthcare professionals, communication skills, and collaboration abilities grow with each interprofessional education event making the expected transition to an interprofessional collaborative practice as a new practitioner more seamless.[10,11]

Another area that is changing the way the workforce trained is the growth of telehealth services which provide clinical and non-clinical services. Innovative pharmacy services using technology continue to grow in demand. The use of telehealth services expanded during the COVID-19 pandemic and these innovative pharmacy services can also be used to increase access to healthcare.[12,13] Clinical pharmacist services delivered via telehealth showed positive patient outcomes, such as adherence to medications.[14] The communication skills required for interprofessional collaborative care over distance technology can be taught and practiced during interprofessional education events. One interprofessional telehealth event allowed the pharmacy students in Hilo, Hawai'i to utilize a telepresence robot to interact with nursing students and a manikin patient at the nursing school simulation center on O'ahu. The pharmacy students and nursing students were able to collaborate and solve a medication related problem.[11]

Interprofessional education is a key addition to pharmacy curriculum to meet workforce needs. These education events provide students with the knowledge, skills, and attitudes needed for an interprofessional collaborative practice. The culture of collaboration can improve patient care, reduce errors, reduce costs, and improve communication.[8] Training students together with other health care disciplines will prepare them for the interprofessional team collaboration expected in patient care.

Competency in Drug Information Skills

Applying evidence-based medicine in practice is considered a core component in health profession programs for providing quality patient care.[15-17] Nevertheless, there are many barriers for providers to evidence- based practice. Some barriers of health care providers include the large volume of new evidence and the lack of time to review them, inadequate access to resources, inadequate research skills, and lack of motivation to update ones' knowledge.[18] In Hawai'i, especially, with a physician workforce that is far below the demands of the aging population,[19] practicing with the most up-to-date information remains challenging.

The role of the pharmacist in providing drug information to healthcare providers and patients is essential for improved patient care. Thus, accredited colleges of pharmacy are required to include health information retrieval and evaluation in the curriculum.[20] Colleges of pharmacy incorporate the use of

drug information skills, such as the ability to research, find, summarize, and communicate evidence-based information in both their didactic and experiential courses.[20,21] In addition to the stand alone courses of drug information, evidence based medicine, and biostatistics, the pharmacy curriculum at the Daniel K. Inouye College of Pharmacy has, in recent years, integrated and increased the number of drug information assignments and practical examinations throughout the curriculum, requiring competency and speed of drug information skills in addition to knowledge in pharmacotherapy. Students are required to utilize multiple types of drug information sources, evaluate literature and research, answer formal drug information requests, and apply the latest evidence-based practice to specific patient situations.

Conclusion

While the healthcare providers in Hawai‘i are diligently working towards providing care for the state's population, colleges of pharmacy are adapting to the challenges and needs of the healthcare workforce to help deliver quality patient care. Incorporating layered learning and experiences in pharmacy schools' curricula focusing on interprofessional collaboration skills, telehealth communication and collaboration, and drug information skills will ensure that future pharmacists will aid in the provision of improved results for healthcare quality measures both in Hawai‘i and in the rest of the nation.

Conflict of Interest

None of the authors identify a conflict of interest.

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