

The Evolving Role of the Pharmacist in Interprofessional Practice

K. Paige D. Brown, Gabriella Salerno, Lina Poindexter, Katie Trotta

An important facet of pharmacist training is interprofessional education (IPE), which prepares students to think and practice collaboratively. As health profession programs continue to emphasize IPE across curricula, it is also important to integrate IPE into continuing education programming for licensed clinicians to promote improved patient care and outcomes.

Within the state of North Carolina, student pharmacist training has historically included didactic work in a classroom in addition to interwoven experiential or hands-on training. These activities serve as a capstone to completing the doctorate program. Over the last decade, schools of pharmacy altered their approach to educating future pharmacists to include active and team-based learning through various certificate programs and interprofessional experiences [1, 2]. Training of student pharmacists, as well as continuing to educate licensed practitioners in the area of interprofessional education (IPE), has also become a focus in recent years. Teaching all health care professionals to work collaboratively will continue to improve patient outcomes and enhance professional practice models.

With the updates to accreditation standards from accreditation agencies, as well as the pharmacist's evolving role, schools of pharmacy found curriculum alterations were necessary. In 1990, Hepler and Strand challenged the status quo with their definition of pharmaceutical care: "the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life" [3]. Their paper brought recognition to the vast skill set of a pharmacist and catalyzed a movement to refine pharmacists' role in patient-oriented practice. With one in every three elderly patients taking five or more concurrent medications, pharmacists' interventions are crucial for effectively managing this patient population [4]. In 1998, researchers Monae, Matthias, and Nagle demonstrated that the use of a computer-based drug utilization review (DUR) system enhanced communication between pharmacists and medical providers, which ultimately streamlined prescribing patterns and improved patient outcomes [5]. As the health care system shifted to a team-based approach focused on patient care, North Carolina instituted 21 NCAC 46.3101 (the Clinical Pharmacist Practitioner Act) to facilitate inter-

professional collaboration by implementing clinical practice agreements between physicians and pharmacists, thus the development of the clinical pharmacist practitioner (CPP) role [6]. The Clinical Pharmacist Practitioner Act was implemented in North Carolina in 2000 and allows pharmacists to practice under a protocol and have full patient autonomy [6]. CPPs are allowed to start new medications, change regimens, refill existing prescriptions, order labs, and initiate referrals as established by the scope of the protocol and the pharmacist's supervising physician. With their expanded role in medication management, CPPs play an integral part in establishing accessible health care, especially in rural and underserved communities [7]. Preparing student pharmacists to practice in their evolving role necessitates a shift to a curriculum that offers additional exposure and collaborative opportunities with other health care professions.

Current Interprofessional Training

Pharmacist training in North Carolina evolved over the last decade to include interaction between students in multiple health professions programs. This training concept is a direct correlation to the ever-changing health care landscape that includes interprofessional teams working collaboratively in various settings to establish care plans for their patients. IPE is defined by the World Health Organization as "occurring when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" [8]. Pharmacy schools across the nation are beginning to integrate various interprofessional active learning experiences to challenge their students to practice collaboration and apply the concepts learned in their traditional didactic classes [9]. Specifically in North Carolina, all pharmacy schools' didactic coursework includes integrated pharmaceutical and clinical sciences, as well as immersion in direct patient care to prepare students for a future as a clinical practitioner. In addition, these schools, as

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Address correspondence to K. Paige D. Brown, Department of Pharmacy Practice, Campbell University College of Pharmacy & Health Sciences, PO Box 1090, Buies Creek, North Carolina 27506 (brownnp@campbell.edu).

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well as numerous other health sciences programs, require students to participate in IPE activities such as simulation or clinical case activities throughout their didactic curriculum to encourage collaboration among those training in different disciplines.

Campbell University has a student-run interprofessional community care clinic for uninsured patients of the surrounding rural community [10]. This clinic highlights the benefits of interprofessional education and collaboration by allowing students from multiple health science disciplines to work together in creating optimal patient care plans. On a regular basis, pharmacy students have an integral role in demonstrating how to write a prescription for patients. Additionally, students are able to work together to comprehensively care for patients with diabetes. Doctor of osteopathic medicine (DO) students conduct a physical exam, pharmacy students contribute recommendations for therapeutic modifications, and physician assistant students demonstrate how to perform a monofilament foot exam. Each profession offers specific contributions to patient care while also learning from each other.

By altering didactic and experiential trainings, students are better equipped for their roles as future pharmacists in the constantly changing field. This integrated approach and mindset is starting earlier in students' educational journey, as educators add more real-world examples to expose students to a more practice-oriented outlook rather than hypothetical educational experiences.

Collaboration between Pharmacists and Dentists

Although interprofessional training collaboration has increased greatly, there is still potential for further interactions. Collaborations between dentists and pharmacists can potentially have a positive impact on patient care, but currently relationships between these professionals are limited [11]. Pharmacist-dentist relationships can benefit patients in far greater ways than just conversations regarding prescription clarification or slight therapy modifications. Improved documentation of medication histories, recommendations for pain management and infection prevention, patient triage for oral care issues, and management of adverse drug effects relating to oral health are just some examples of how these relationships can advance patient care [11-13]. Pharmacist completion of medication histories tends to result in a much more comprehensive record than histories taken by other health care professionals. A study by Choi et al assessed the number and type of medication discrepancies discovered as part of usual care at a free dental clinic [14]. This study determined that medication omissions are the most commonly identified discrepancy, with omitted medications causing potential adverse effects important to oral care [14].

Despite evidence that improved collaboration between pharmacists and dentists will likely improve patient care, few examples of realistic practice models between these

disciplines exist. Challenges to this collaboration exist mainly because of the fact that dentists and community pharmacists traditionally operate in "silos," independent of other health care providers and with their own electronic health records which are not integrated with the rest of the patient's medical records [11]. Interprofessional training of pharmacy and dental students has the potential to fill some of these gaps. Pharmacy students can teach dental students how to gather and document a thorough medication history while dental students can reinforce drug knowledge on how certain medications impact oral care [14]. Ongoing, professional relationships between dentists and pharmacists will improve comprehensive patient care as each professional provides their own expertise.

Moving Forward

In addition to the traditional ways IPE is integrated into health profession curriculums, some schools in the United States are expanding their platform extensively by offering certificate programs that allow students to develop an expertise in IPE. One of the forerunners of this IPE expansion is the Midwest Interprofessional Practice, Education, and Research Center. Five years ago, this program began enrolling students from Grand Valley State University, Michigan State University College of Human Medicine, Ferris State University College of Pharmacy, and Central Michigan University College of Medicine in its IPE Student Certificate [1]. This one-year, self-paced program is designed to challenge students to apply what they learned in their respective disciplines and collaborate with at least one other health professions student. With each completed module, students learn more about other professionals, as well as practice working with a team to create collaborative patient care plans. The aim of this certification program is to train students on how to provide more comprehensive care to a patient while ultimately reducing errors and the overall cost to the health care system. In addition to improving patient outcomes, future practitioners gain invaluable life experiences that would likely not be obtained by only practicing within the parameters of the profession in which they are trained [1].

In addition to the certification advances made in the Midwest, the Asheville campus of the University of North Carolina Eshelman School of Pharmacy recently established a Rural Pharmacy Health Certificate program. This initiative allows students to learn about the challenges associated with rural health management including limited health literacy, inadequate access to health care, the increased incidence of chronic disease, and financial difficulties. Throughout the three-year curriculum, students invest in their "adopted community" by developing a population health project that presents interventions for a previously unmet health care needs present within that community [15]. Through this program, not only are students collaborating interprofessionally with UNC School of Medicine students, but they are also

experiencing humbling encounters one would only receive when focused on helping the underserved. Certificate programs such as the one mentioned above emphasize tangible real-life examples of clinical practice as opposed to rote memorization of fabricated tables, charts, or the ever so common PowerPoint slide. This focus on a more application-based style of learning instead of traditional didactic lecturing keeps learners from getting bogged down by the immense amount of information and prevents them from losing the “patient-centered care” mindset essential to all health care providers.

One of the challenges facing pharmacy schools today is determining how to best shift the focus from a passive, teacher-centered method of learning to a more active, problem-centered method of learning. Hands-on learning should be implemented earlier in the curriculum and reinforced throughout professional training. Because many students enter pharmacy programs with little to no prior interprofessional experience, it is essential for schools to provide opportunities where students collaborate with providers ranging from new alumni to veteran practitioners. Through these interactions, a clinical rapport is developed, and the foundation set for future interprofessional clinical practice [16]. Establishing these relationships during a pharmacy student’s training prepares them to enter the workforce ready to interact with other professions and competent in the holistic care of their patients.

Interprofessional Continuing Education

As IPE continues to develop, it is not only important to consider didactic coursework for health profession students, but also continuing education for seasoned health care providers. Any continuing education program where providers are learning with, from, and about professionals from a different health care field is considered continuing interprofessional education (CIPE) [8]. CIPE not only educates providers on health care-related topics, but also improves cultural competency, compassion, and values. A key component to the delivery of CIPE is to deemphasize didactic presentation and instead focus on interactive, collaborative learning that can easily be applied to clinical practice [17]. It is also essential to integrate skills-based learning so clinicians can learn new skills that will improve patient care delivery and outcomes.

An example of a continuing education program which highlights the benefits of CIPE was a day-long opioid symposium hosted by Campbell University to develop and train clinicians across the state on their role in the opioid epidemic. This symposium was held in Johnston County in February and New Hanover County in September of 2018 and included pharmacists, physicians, physician assistants, nurses, nurse practitioners, and social workers. The morning session consisted of traditional lecture-based coursework with a presentation from a physician and a pharmacist about the scope of the opioid epidemic across North Carolina

and emphasized strategies health care professionals could implement to aid in mitigating the problem. During the afternoon session, five roundtable discussions were led by health care providers from different fields on a variety of topics applicable to improving care for patients with opioid use disorders and their family members. Participants were divided into five groups, with an even mix of professions from each field in each group, and teams worked together to learn new strategies and discuss successful practices already implemented. The symposium highlighted how each profession can work together to positively impact patients using opioids to manage pain as well as those with opioid use disorders. This symposium demonstrates how CIPE events can facilitate discussion between health care providers, encouraging clinicians to learn from each other.

Summary

As we reflect on the recent advances in pharmacy education and training, one can only imagine what the future will entail. With the pharmacist’s expanding role and increased opportunities to serve in an interprofessional clinical setting, educators must train pharmacy students to work effectively with other health care professionals in a team-based model of care. Certainly, one ever-growing and important addition to a pharmacist’s training is IPE. This facet directly complements the model of health care professional training currently being utilized across many health sciences programs in North Carolina and throughout the nation. Even beyond graduation, it is essential to engage in CIPE, which strengthens the rapport between the various health care professions and focus on the patient-centered mindset integral to every field in health care. Through curricular advances and modifications that include educating student pharmacists on the principles of interprofessionalism, as well as experiential training in interprofessional clinical practice sites, North Carolina schools of pharmacy are progressively developing practitioners that will change health care for years to come. **NCMJ**

K. Paige D. Brown, PharmD assistant dean of interprofessional education and clinical assistant professor, Department of Pharmacy Practice, Campbell University College of Pharmacy & Health Sciences, Buies Creek, North Carolina.

Gabriella Salerno PharmD candidate, Campbell University College of Pharmacy & Health Sciences, Buies Creek, North Carolina.

Lina Poindexter PharmD candidate, Campbell University College of Pharmacy & Health Sciences, Buies Creek, North Carolina.

Katie Trotta, PharmD, BCACP clinical assistant professor, Department of Pharmacy Practice, Campbell University College of Pharmacy & Health Sciences, Buies Creek, North Carolina.

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