

Novel Online Pharmacy Education Addresses Workforce Needs and Expands Access to Learners

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Abstract

The Daniel K. Inouye College of Pharmacy Scripts is a column by the University of Hawai'i at Hilo Daniel K. Inouye College of Pharmacy (DKICP). It is edited by Nicole Young, PharmD, BCCCP, Associate Professor and Chair of the Department of Pharmacy Practice.

In January 2026, the Daniel K. Inouye College of Pharmacy (DKICP) launched an extended, online PharmD pathway (PharmD-XO) in addition to its existing on-campus program. PharmD-XO spans 5.5 years and is 1 of the 2 extended online Doctor of Pharmacy (PharmD) programs in the US.¹ The mostly asynchronous coursework with once a year in-person immersion weeks for labs and skills training during the first 4.5 years of the program allows more flexibility for students who need to work or have caregiving responsibilities and are not able to move to Hilo. The final year of the PharmD-XO comprises full-time clinical rotations. While there are biases when it comes to online professional education,² online programs are prevalent in other professional schools, such as nursing.³ Additionally, there has been a steady increase in online PharmD programs since the pandemic,¹ and the concept of an extended online PharmD program is responsive to the evolving needs of the profession and trends in higher education.

Higher education trends

Recent trends in higher education include an increase in the proportion of non-traditional adult learners enrolled in college, and a growing preference for hybrid or online classes among students.^{4,5} National data shows that over 40% of students are over the age of 22 and are considered time poor with increasing demographics of working adults, parents, and care givers.⁴ The elimination of GradPlus loans⁶ which have been a major source of financial aid for PharmD students is expected to increase the need for students to work while pursuing their degrees. Moreover, the number of high school graduates is projected to decline by 13% nationally over the next 15 years, with Hawai'i experiencing the largest decline in the nation at 33%.⁷ With a current insufficient supply of applicants to fill available seats in pharmacy programs⁸ including in Hawai'i, it is anticipated that the enrollment gap will be filled, at least in part, by increased recruitment of non-traditional learners. When taken together, these trends suggest that there are projected to be fewer applicants from the traditional high school graduate demographic, and an increase in the proportion of non-traditional adult learners who must work

while pursuing higher education. Designed with adult learners with work and caregiving responsibilities in mind, the PharmD-XO pathway offers a proactive solution to the evolving landscape in higher education.

Pharmacy workforce needs

The demand for pharmacists is projected to increase in the coming years, with an insufficient supply of graduates to meet these needs. The pharmacist profession is projected to grow 5% in the next 10 years nationally, which is higher than the average for all professions, with over 14000 openings each year from 2024-2034.⁹ The demand is driven by a combination of factors, including pharmacists leaving the workforce due to retirements and burn out¹⁰ and the greater health care demands associated with the aging demographics in our country.¹¹

In contrast to the projected need for pharmacists, the American Association of Colleges of Pharmacy has reported year-to-year decreases in PharmD degrees conferred since 2019, with less than 12000 graduates in 2024 and about 8000 graduates expected in 2026.¹² The landscape regarding future pharmacist shortages in Hawai'i is particularly concerning because there has been a 71% decrease in applicants to pharmacy school in Hawai'i between 2012 and 2022 and a 44% decrease in PharmD graduates from UH Hilo between 2013-2014 and 2023-2024.¹² By providing a viable pathway to a pharmacy degree for prospective students who are unable to pursue full-time studies in Hilo, the PharmD-XO pathway is expected to expand the number of PharmD students and graduates from the DKICP.

In addition to proactively addressing future workforce needs, the PharmD-XO is also responsive to current workforce stresses. Up to 71% of DKICP students in a PharmD class have worked as pharmacy technicians. Pharmacy technicians work under the supervision of a pharmacist to ensure that essential pharmacy services are provided to patients. Employers, especially on the neighbor islands and other underserved locations, have expressed concerns that it can be difficult to replace these valued employees when they leave to pursue full-time PharmD studies and that they often do not return following graduation. By providing a path to a PharmD degree while continuing to live and work in their communities (often as pharmacy technicians), the likelihood of PharmD-XO students staying in their communities to work as a pharmacist upon graduation is higher by helping to retain and grow talent in communities where they are already embedded and needed.

Access to quality health care

With 90% of Americans living within 5 miles of a pharmacy, pharmacists are among the most accessible health care professionals.¹³ Patients visit community pharmacies about 12 times as often as primary care physician offices,¹³ with pharmacists strongly embedded as trusted resources in many remote communities, particularly across neighbor islands. With a doctoral level of expertise and clinical training, pharmacists are recognized as critical members of health care teams. With longstanding physician shortages in Hawai'i, especially on the neighbor islands,¹⁴ pharmacists are positioned to help bridge health care access, especially with regard to preventative care (eg, administering immunizations), chronic disease state management (ie, helping patients manage diseases that once diagnosed are treated with medications), and medication therapy management (ie, optimizing the safe and effective use of medications that have been prescribed).

By 2035, it is projected that 1 in 4 people in Hawai'i will be 65 years or older.¹⁵ This underscores the need for a robust pharmacist workforce because as people age, physiological changes can increase susceptibility to disease and the need for more medications.¹⁶ These physiological changes can also modify the responsiveness to medications, making older patients more susceptible to side effects and interactions when multiple drugs are taken together.¹⁶ Therefore, the role of pharmacists for safe and effective medication therapy management becomes particularly important.

Discussion and conclusion

While the PharmD-XO addresses many unmet future needs, areas of concern remain in pursuing pharmacy education in Hawai'i, and the DKICP continues to work toward finding viable solutions for them. Some of these concerns relate to the cost of higher education, the high cost of living and affordable housing in the state, and the scope of pharmacy practice in Hawai'i.

Regarding the high cost of higher education, the PharmD degree at DKICP offers financial advantages over other options. First, the in-state tuition (currently \$24 096/year) is lower than the national average (currently \$34 000/year)¹⁷ and the fees are much lower than most other schools.¹⁸ This includes the PharmD-XO, which prorates the tuition to equal the cost of the full-time on-campus PharmD program.¹⁹ DKICP's tuition is also under the new borrowing caps for federal financial aid for professional students (\$50 000 per year and \$200 000 total).⁶ This helps the PharmD degree to remain a viable option for individuals interested in pursuing careers in the health professions.

In addition, admissions into the DKICP PharmD program does not require completion of a bachelor's degree. There are pre-requisite requirements for program eligibility,¹⁹

and also an option to earn a bachelor's degree while completing PharmD degree requirements at UH Hilo.²⁰ This can reduce the time and expenses for completing a bachelor's degree and streamline the path into the PharmD program, especially if resources provided through the Pharmacy Learning and Experiences (PhLex) program are utilized.²¹

For high achieving high school and undergraduate students, the DKICP has created the Pharmacy Admissions Success Track (PhAST) to guide learners to the pharmacy profession and decrease education costs. This glide path guarantees early admissions to the DKICP PharmD program as long as GPA and other requirements are met and maintained.²² With the PhAST pathway, select students have the opportunity to obtain a PharmD degree in as little as 6 years after high school graduation.

The high cost of living can be a deterrent to practicing in Hawai'i. The average pharmacist salary in Hawai'i is competitive, but is the lowest in the country when adjusted for cost-of-living.²³ Related to this are concerns about affordable housing which is a documented barrier for meeting workforce needs for other health professions in the state.²⁴ As a result, many graduates of health professions program in Hawai'i, including pharmacy, choose to practice on the continent. To address this, the state has created incentive programs including loan repayment and preceptor tax credits^{25,26} to offset part of the financial burden of practicing in the state. However, additional incentives, some of which may require private partnerships, such as favorable interest rates for home loans for health care professions, are options to consider for the future.

An additional consideration for the profession is the scope of pharmacy practice which varies across the nation, with Hawai'i historically having legislation that lags behind many of our competitor states for pharmacist jobs on the West Coast of the continent. The DKICP has thus been partnering with the Hawai'i Pharmacists Association and Hawai'i Board of Pharmacy to modernize laws in the state that are related to the profession to create a more impactful practice environment for pharmacists.

In summary, the DKICP is working to create solutions that will graduate and retain pharmacists in Hawai'i to meet the workforce needs of the state. The recently launched PharmD-XO pathway offers new opportunities for today's adult learners in a way that expands access by acknowledging their personal and professional responsibilities, providing a financially viable path forward, while also addressing current workforce stresses in the profession, especially on the neighbor islands and other medically underserved areas of the state.

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