# ALFP Debate: Schools/Colleges of Pharmacy Have an Obligation to Train Their Students to Use Artificial Intelligence Tools for Pharmacy Practice?

Emily McCoy[1], Edgar S. Diaz-Cruz[2], Mary Hess[3], Hala Fadda[4], Michael J. Gonyeau[5], Kelly Grindrod[6], Giuseppe Gumina[7], Abby A. Kahaleh[8], Angela Nagel[9], Ashok Phillip[10], Jarred Prudencio[11], Laurel Sampognaro[12], Kayce M. Shealy[7], Dana A. Strachan[13], Jenny A. Van Amburgh[5], Krystal L. Edwards[14]

[1]Auburn University; [2]Belmont University; [3]Jefferson University; [4]Butler University; [5]Northeastern University; [6]University of Waterloo; [7]Presbyterian College School of Pharmacy; [8]South University; [9]St. John Fisher University; [10]University of Arkansas for Medical Sciences; [11]University of Hawaii at Hilo; [12]University of Louisiana - Monroe; [13]Palm Beach Atlantic University; [14]Texas Tech University Health Sciences Center

## PRO

### KEY ARGUMENTS

**AI is putting "care" back into "health care"**
- Provides precise, evidence-based decision-making tools
- Currently integrated into pharmacy practice
- Decrease pharmacists' cognitive overload by shifting their focus from technical duties and use expertise to support patients and health systems

**Example AI applications in pharmacy**
- Streamline workflow and efficiency (e.g., automated dispensing robots, chatbots)
- Provide data-driven interventions via clinical decision support (e.g., personalized patient communication, adverse drug reaction detection, dosing recommendations)
- Utilize digital technologies to advance patient health care (e.g., health trackers/wearables, diagnostics)
- Address inequities and expand access to patients remotely

**Integrate AI into pharmacy curricula**
- Failure to train on AI could render pharmacists obsolete in healthcare technology innovation
- Other disciplines are already training students
- Interprofessional use of AI allows for collaboration and provision of holistic patient care among the healthcare team

**Ethical and professional responsibility – Oath of the Pharmacist**
- *"I will embrace and advocate changes that improve patient care"*.
- Use our knowledge, skills, experiences, and values to PREPARE THE NEXT GENTERATION OF PHARMACISTS
- AI may amplify the ethical complexities for which pharmacists are unprepared
- Role in AI design, validation, and implementation

Because pharmacists make a **commitment** to embrace and advocate changes that improve patient care, pharmacy programs **ARE OBLIGATED** to train students to use AI for clinical practice

## OBJECTIVE

- Describe the pros and cons of pharmacy programs having an **obligation** to train student to use artificial intelligence (AI) tools.

### Debate Preparation

- The Academic Leadership Fellows Program (ALFP) contributes to the development of leaders
- ALFP Fellows participate in a debate on current topics in academic pharmacy
- Members from Cohort 20 and an ALFP alumni team were assigned sides
- Literature Reviewed: PubMed, Web of Science,  and Zotero were searched. Additionally, relevant references and online resources were reviewed. Full-text articles were evaluated, and pertinent points were included.

### Are Pharmacy Programs OBLIGATED to Train Students to Use AI for Clinical Practice?

### CONCLUSIONS

- Future pharmacists will practice within a landscape where numerous digital health technologies, including those leveraging AI, will be integral to care delivery.
- Academy discussions can aid in pinpointing AI tools pertinent to pharmacy practice, determining their inclusion in curricula, and deciding the optimal timing for integration into educational programs.

## CON

### CONCERNS WITH TRAINING PHARMACY STUDENTS WITH AI

- An **OBLIGATION** is a proposition FRAUGHT with considerable challenges and implications
- AI is an important consideration that needs further exploration for its: (1) educational merits, (2) how does it 'fit' within the existing framework for pharmacy education, (3) need for faculty expertise in computer sciences

**Must consider:**
- Impact on curricular bloating, expertise and cost
- Creating 'technologically dependent' graduates vs. developing critical thinking, problem-solving skills
- Students taking personal responsibility and accountability for learning (professional obligation)

- Machine learning (ML) AI systems: significantly different from previous technologies; capable of learning, adapting and making decisions on their own
- Current laws/regulations are not designed to address liabilities, duties, rights, responsibilities and unintended consequences for AI/MLAI systems

- AI ingests everything it 'hears' and it's 'parroting' – large language model built on your actions / behaviors
- AI accuracy has room for improvement

|  | Medication Database Use (human), n=194 | AI Chatbot (non-human), n=160 |
|---|---|---|
| Acceptable completeness | 76% | 65% |
| Acceptable for safety | 83% | 71% |
| Acceptable for usefulness | 81% | 68% |
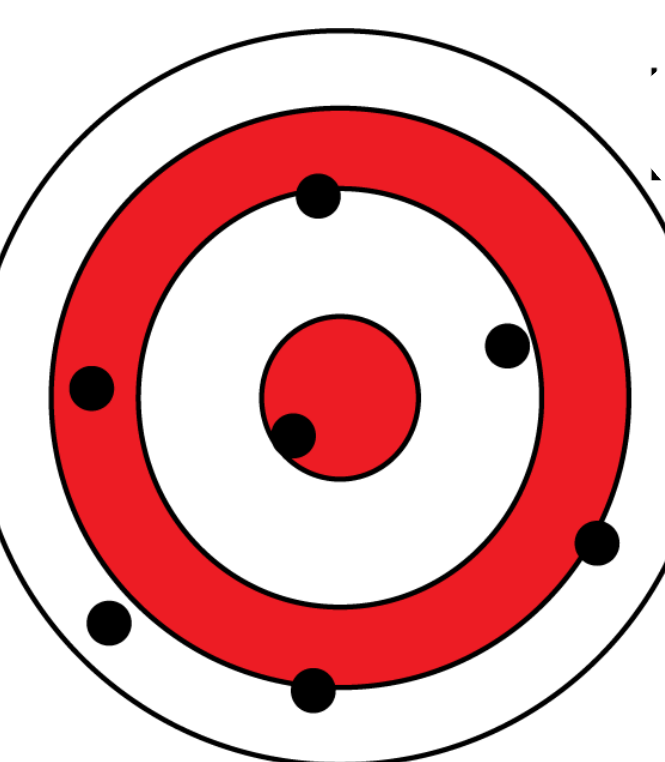
*At this time*, pharmacy programs are NOT obligated to train students to use AI as there are NO legal, moral, or social reasons for us to do so.

References
- Playle JF. Nurse Educ Today. 1996;16(3):215-20. doi: 10.1016/s0260-6917(96)80026-8
- Bunce L et al. Studies in Higher Education. 2017;42(11):1958-78. doi: 10.1080/03075079.2015.1127908
- Parsell G. Med Educ. 2000;34:328-9. doi: 10.1046/j.1365-2923.2000.00694.x
- Patrício J. Journal on Culture, Power and Society. 2017;131(3):137-149. doi: http://dx.doi.org/10.28939/iam.debats-en-2017-11
- Halbesleben JRB et al. Journal of Management Education. 2009;33(2):166–195. https://doi.org/10.1177/1052562908320658
- Holdford DA. Am J Pharm Educ. 2014 Feb 12;78(1):3. doi: 10.5688/ajpe7813
- Dentzer S. Creating the future of artificial intelligence in health-system pharmacy. Am J Health Syst Pharm 2023;12:100346.
- Chalasni SH, et al. Clin and Soc Pharmacol 2023;12:100346.
- Raza MA, et al. Innov Pharm. 2022;13(2):1-8.
- Cain J, et al. Am J Pharm Educ. 2023;87:100135.