

Drug Information Curriculum and Instructional Methods: Updated Survey of US Pharmacy Schools



UNIVERSITY OF ILLINOIS CHICAGO

College of Pharmacy

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Introduction

Various PharmD program accreditation standards exist:

- Accreditation Standards and Key Elements for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree
- Center for the Advancement of Pharmacy Education (CAPE) 2013 Educational Outcomes and the Core Entrustable Professional Activities for New Pharmacy Graduates
- North American Pharmacist Licensure Examination (NAPLEX) Competency Statements

All standards include drug information (DI)-related topics. How to most effectively develop pharmacy student literature evaluation and application skills is, therefore, an important question for every college of pharmacy.

Objective

Previous surveys have evaluated DI and literature evaluation course teaching methods, but many aspects of pharmacy education have subsequently evolved.

The purpose of this study was to characterize current DI-related education practices among U.S. colleges of pharmacy.

Methods

In December 2022, a survey was sent to 140 U.S. colleges of pharmacy (those listed as accredited or accredited with probation in the ACPE online directory).

The individual most familiar with DI curriculum and instruction at the college was asked to complete the survey.

References

1. Phillips JA, Gabay MP, Ficzer C, Ward KE. Curriculum and instructional methods for drug information, literature evaluation, and biostatistics: survey of US pharmacy schools. *Ann Pharmacother*. 2012;46(6):793-801. doi:10.1345/aph.1Q813
2. Bernknopf AC, Karpinski JP, McKeever AL, et al. Drug information: from education to practice. *Pharmacotherapy*. 2009;29:331-46. doi:10.1592/phco.29.3.331
3. Accreditation Standards and Key Elements for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree. 2016. <https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf>
4. Medina MS, Plaza CM, Stowe CD, et al. Center for the Advancement of Pharmacy Education 2013 educational outcomes. *Am J Pharm Educ*. 2013;77(8). doi:10.5688/ajpe778162
5. Haines ST, Pittenger AL, Stolte SK, et al. Core Entrustable Professional Activities for New Pharmacy Graduates. *Am J Pharm Educ*. 2017;81(1). doi:10.5688/ajpe811S2
6. AACP Curriculum Outcomes and Entrustable Professional Activities (COEPA) 2022. <https://www.aacp.org/sites/default/files/2022-11/coepa-document-final.pdf>
7. NAPLEX Competency Statements. NABP. Updated January 1, 2021. <https://nabp.pharmacy/programs/examinations/naplex/competency-statements-2021/>

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All authors of this presentation have nothing to disclose

Results

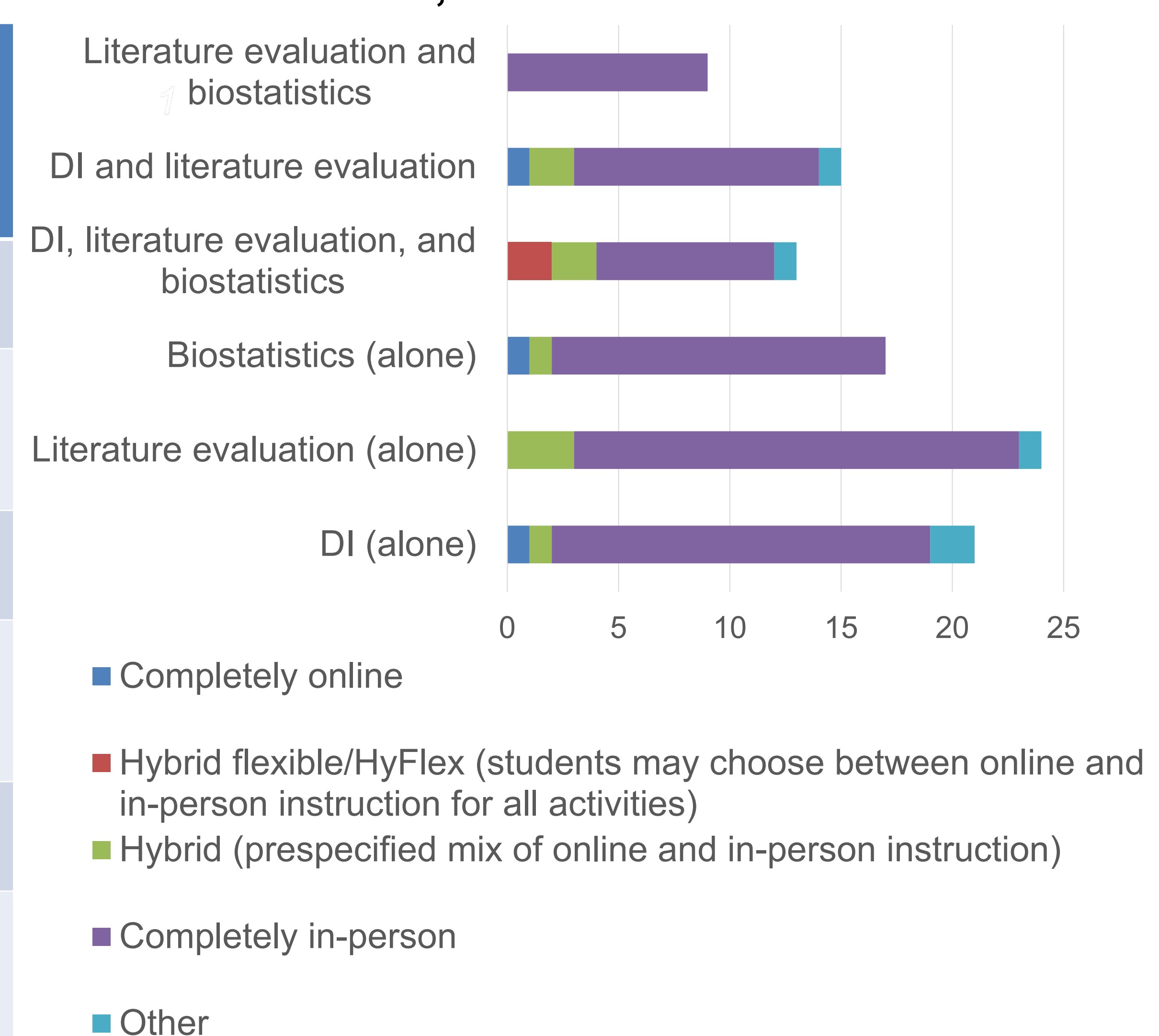
Characteristics of Responding Colleges

Characteristic	Colleges, n (%)
Program type	
4-year PharmD program	58 (78)
6-year PharmD program	7 (9)
Other	6 (8)
Region	
Midwest	22 (30)
Northeast	14 (19)
South	24 (32)
West	13 (18)
Other	1 (1)
Number of years that the pharmacy program at your institution has been in existence, median (IQR)	75.5 (15-119.5)
Number of students who graduated from the pharmacy program at your institution in 2022, median (IQR)	80 (63.8-120)
Number of institutions that require a statistics course as a pre-requisite to admission into the professional pharmacy program	53 (72.6)
Number of schools/colleges of pharmacy devote at least 1 FTE for a DI specialist	38 (51.4)
Average FTE devoted to a DI specialist	1.3

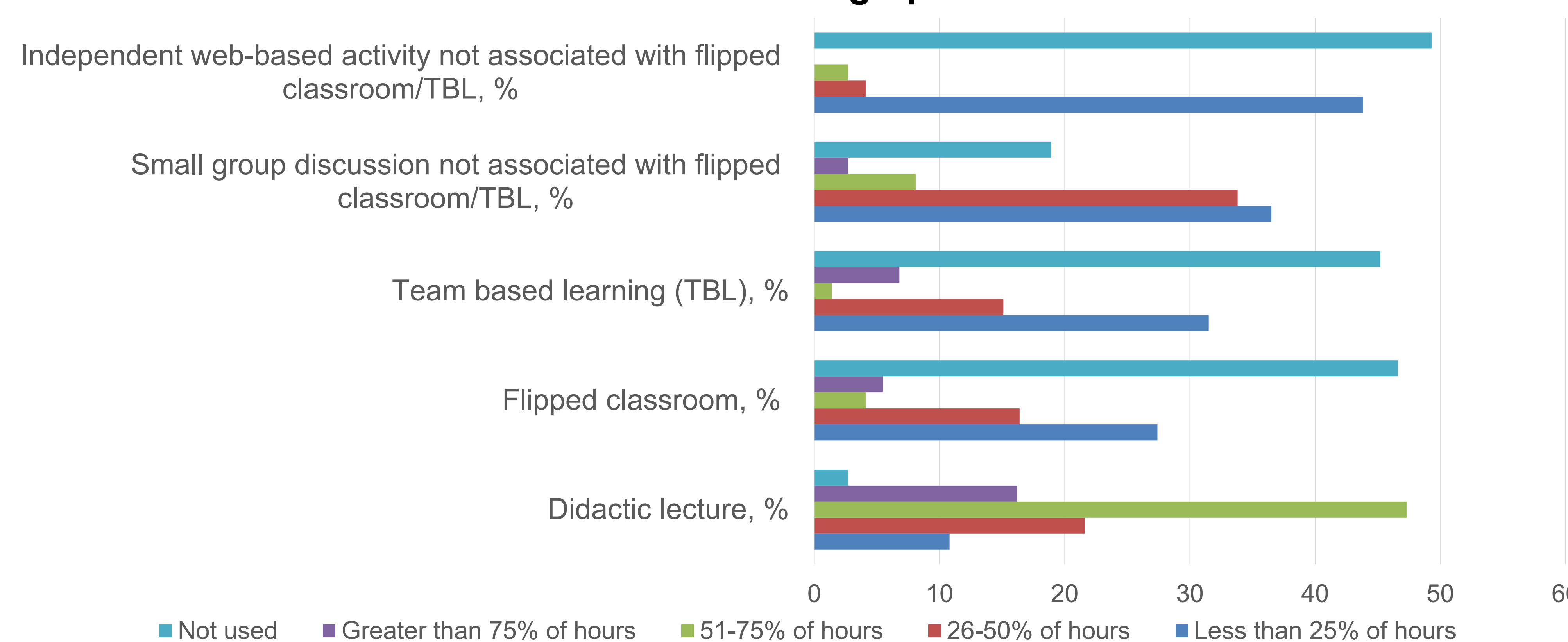
Distribution of DI, Literature Evaluation, and Biostatistics Courses

Course topics	n	Credit Hours, Median (IQR)	Most Common Curricular Position(s)
DI (alone)	21	2 (2-3)	1 st year: 13 2 nd year: 6
Literature evaluation (alone)	24	3 (2-4)	2 nd year: 15 3 rd year: 7
Biostatistics (alone)	17	3 (2-3)	1 st year: 9 2 nd year: 6
DI, literature evaluation, and biostatistics	13	5 (3-6)	1 st year: 7 2 nd year: 5
DI and literature evaluation	15	3 (3-5)	2 nd year: 8 1 st year: 4
Literature evaluation and biostatistics	9	2.5 (2-3)	2 nd year: 4

Instructional Delivery of DI, Literature Evaluation, and Biostatistics Courses



Time Devoted to Teaching Specific Activities



Results, continued

DI-Related Topics that Students Struggle with Most Commonly

Topics	Number of Times Reported, n (%)
Critically evaluating medical literature	45 (63.4)
Summarizing basic biostatistics and research design methods	43 (60.6)
Creating effective and efficient literature search strategies (e.g., systematic approach)	23 (32.4)
Distinguishing statistical versus clinical significance	18 (25.4)
Providing verbal and written responses to DI requests	15 (21.1)
Applying medical information to specific patient situations	14 (19.7)
Preparing, presenting, and participating in journal clubs	11 (15.5)
Incorporating principles and practices of evidence-based medicine into pharmaceutical care	9 (12.7)
Locating and critically evaluating medical information on the Internet	7 (9.9)
Identifying, evaluating, and utilizing key electronic sources of medical information (e.g., databases, PubMed)	6 (8.5)

Discussion and Conclusion

Unexpected Differences:

2012 Survey	2023 Survey
68% of colleges reported 1 FTE for a DI specialist (average 2.3 hours)	38/74 (51%) colleges devoted at least 1 FTE for a DI specialist (average 1.3 hours)
<50% of hours were devoted to lectures	Most colleges devoted >50% of hours to didactic lectures

In the last 5 years, 41 colleges (55%) reported a decreased emphasis on teaching in-print resources and 47 colleges (64%) reported an increased focus on teaching literature evaluation/statistical analysis skills. Increased focus on informatics (27%), medication safety (13.5%), and medication policy (13.5%) in the last 5 years was also commonly reported. An increased use of technology post-COVID was also reported by 29 (39%) colleges, including the addition of lecture recordings for 16 (22%) colleges.

Similarities:

Top 3 Topics That Students Struggled With

Topic	2012	2023
Critically evaluating medical literature	73%	63%
Summarizing basic biostatistics and research design methods	45%	61%
Creating effective and efficient literature search strategies	41.7%	32%

Conclusion:

Our survey results characterize current curricular approaches to DI content/instruction and identify topics with continued opportunity for improvement. The results of this survey may guide future curricular changes, scholarship of DI-related teaching, and desired qualifications for course instructors.