




RESEARCH ARTICLE

# Cohort assessment of medical and pharmacy student interprofessional attitudes at an academic medical centre from baseline to programme completion

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## Keywords

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## Abstract

**Background:** Interprofessional interactions between pharmacy and medical students have been emphasised by accreditation standards. This study aimed to document medical and pharmacy student cohorts' baseline and longitudinal interprofessional attitudes across four years of pre-licensure education. **Methods:** Student cohorts shared two structured interprofessional learning experiences within the first two years, then unstructured/variable learning experiences during the final two years. The 27-item Interprofessional Attitudes Scale comprising five subscales was administered upon programme entry, then towards the end of each programme year. **Results:** Baseline response rates were 73.5% and 90% for 136 medicine and 57 pharmacy students, respectively; pharmacy student responses were significantly higher for teamwork, roles, and responsibilities and significantly lower for interprofessional biases subscales. Longitudinal medical and pharmacy student responses only showed a significant increase in interprofessional biases, while medical student responses showed significant decreases in teamwork, roles, responsibilities, and community-centredness. **Conclusion:** Compared to pharmacy students, baseline responses from medical students confirm significantly lower scores for teamwork, roles, and responsibilities on programme entry, which may further decrease by the end of the first pre-clinical year. Though significant subscale changes mirrored the completion of structured pre-clinical interprofessional curricula and/or clinical education for both student cohorts, further research is needed secondary to study limitations.

## Introduction

Accreditation Council for Pharmacy Education (ACPE) Standards for pharmacy curricula, specifically Standard 11 (Accreditation Council for Pharmacy Education, 2016), outline requirements for interprofessional education (IPE) in accordance with the Interprofessional Education Collaborative (IPEC) competencies (Interprofessional Education Collaborative, 2016). ACPE subsequently placed additional expectations on the nature and timing of IPE through written communication to colleges, indicating that "before completing the didactic curriculum, all students must have participated in IPE opportunities...

that include physicians and their students, or the programme will be found out of compliance with the standard" (Accreditation Council for Pharmacy Education, 2018). Notwithstanding the importance of a collaborative team approach across all health professions, the inclusion of medical and pharmacy student interactions has been clearly emphasised by ACPE. In most instances, United States professional degree programmes for pharmacy and medicine are four years in duration, which should ideally allow interprofessional interactions to occur longitudinally. If so, assessment measures could be planned to detect the development of attitudes towards

interprofessional collaboration through matriculation prior to postgraduate training and/or practice.

A research gap currently exists in documenting baseline and longitudinal attitudes of medical and pharmacy students towards interprofessional collaboration with a single validated instrument, i.e. the Interprofessional Attitudes Scale (IPAS), which was developed after the publication of the IPEC competencies (Norris *et al.*, 2015). The IPAS has 27 survey items grouped into five subscales; it incorporates individual assessment items for each of the four IPEC competency domains. Baseline differences in attitudes upon programme entry have been documented with the IPAS instrument in pharmacy, nursing, physician assistant, and physical therapy students but not in medical students (Gillette *et al.*, 2019). For short-term educational interventions, a significant improvement in the teamwork, roles, and responsibility subscale of the IPAS has been documented for diverse, advanced-stage student teams from seven colleges (14 programmes, including medicine and pharmacy), prospectively delivering care through interprofessional ambulatory clinics over four months, relative to student teams receiving only didactic small group learning experiences (Dennis *et al.*, 2019). The IPAS instrument has also been used before and after a 3-hour interprofessional forum involving third-year pharmacy students and showed significant increases in four of five subscales, including teamwork, roles and responsibilities, community-centredness, interprofessional biases, and diversity/ethics. Nine complete programmes, including medical students, were represented, but IPAS results were only recorded for pharmacy students (Fusco *et al.*, 2019). Even less has been reported regarding the longitudinal impact/durability of IPE curricula through the totality of a professional programme. One longitudinal pilot study in Canada enrolled students from six health professions, including one cohort surveyed with the IPAS for three consecutive years, but the results of medical students were confounded by grouping together with dental students (King & Violato, 2021).

With these existing gaps in the literature, this study aimed to document medical and pharmacy students' baseline attitudes prior to any formal/structured interprofessional education experience and assess the longitudinal change of medical and pharmacy student interprofessional attitudes using the IPAS instrument.

IPAS was administered annually at planned junctures after intentionally shared/structured IPE experiences and unstructured IPE experiences that would occur through the natural course of programme delivery.

## Methods

### Design

A prospective cohort study was conducted among pharmacy and medical students admitted to professional programmes at a United States academic medical centre offering tertiary care in the fall term of 2018, the class of 2022. An observational design was chosen since the exposure was part of the typical proceedings of academic programmes, and randomisation was not possible.

Both programmes last four years, and students matriculate in parallel, although medical and pharmacy students start full-time clinical training in the third and fourth professional years, respectively. Pharmacy and medical students shared two structured interprofessional learning experiences within the first two years of their curricula (Table I).

During programme year one, medical and pharmacy students participated in two faculty-facilitated small group activities of two hours each, with introductory activities focused on IPEC competencies. The first all professions day occurred in September 2018 and focused on roles/responsibilities and interprofessional communication. The second session occurred in February 2019 and focused on values/ethics and teams/teamwork. During the second year, pharmacy students joined medical student groups for a simulated standardised patient-based learning activity focused on neurology/headache cases. Student groups jointly conducted an initial simulated 60-minute patient encounter, followed in 48 hours by a 30-minute follow-up and a two-hour de-brief in facilitated small groups, including patient presentation/case discussion. During the third and fourth professional years, pharmacy and medical students may have interacted through their assigned clinical rotation experiences but not through an intentionally designed IPE activity.

**Table 1: Structured interprofessional curriculum for medical and pharmacy students**

Variable	All professions day	Standardised patient-based learning
Programme year (sessions; total hours)	One (2;4)	Two (3;3.5)
Environment	Round tables, large conference (2 hours fall semester, 2 hours spring semester)	Simulation center (1.5-hour patient encounters); Small conference rooms (2 hour de-brief)
Student ratios (pharmacy:medicine)	1:1 <sup>a</sup>	1-2:3-4
Subject matter	Foundational (interprofessional core competencies)	Applied (team-based neurology/headache simulated patient encounters)
Trained facilitators-discipline	Multiple <sup>b</sup>	Medicine
Interprofessional competencies/objectives <sup>c</sup>	Roles/responsibilities, Communication (session 1); Values/ethics, Teams/teamwork (session 2)	Identify interdisciplinary team members' roles and responsibilities; Contribute to a climate of mutual respect; Include team members in relevant information exchange; Collaborate as a member of an interprofessional team
Assessment instrument	Interprofessional Attitudes Scale	Interprofessional Attitudes Scale

<sup>a</sup>Multiple disciplines per maximum group size of 8 students (same groups for fall and spring semesters)

<sup>b</sup>One faculty facilitator from any discipline assigned per student group

<sup>c</sup>Interprofessional Education Collaborative core competencies (2016)

### **Ethics approval and informed consent**

The University of Oklahoma Health Sciences Center Institutional Review Board Office approved this study as exempt research, with voluntary student participation, waiver of signed written consent, and an option for students to complete the survey but have their responses excluded from research (IRB# 9536).

### **Survey tool**

Permission to utilise the IPAS instrument for research purposes was granted through written communication with the corresponding author. The survey was built and deployed via REDCap (Harris *et al.*, 2009), including demographic questions and the 27 IPAS survey items, which were scored on a 7-point scale from strongly disagree to strongly agree (Appendix A). Requests for completion were distributed by the study biostatistician to students via email, which included a study description and link to the survey. Student email addresses and record IDs were maintained securely in REDCap to link longitudinal responses. The biostatistician de-identified the data upon exporting it for analysis to preserve confidentiality. Pharmacy and medical students were surveyed prior to all professions day one (baseline, August 2018), immediately following all professions day two (year 1, February 2019), after the standardised patient-based learning simulation (year 2, December 2019), and again at the end of the third and fourth professional years (year three, April 2021 and year four, February 2022). It should be noted that the 2021 and 2022 surveys were concurrent with the COVID-19 pandemic, an unexpected event in the context of education programmes for health professionals. With each of the five survey

administration junctures, email reminders containing details of the study were automatically distributed to non-respondent students at one-week intervals for five weeks. Students were included in all the planned IPE events, regardless of their choice to participate in the voluntary survey research, which had no bearing on formal grading processes. To further avoid coercion, no incentives were provided to students for completion of the survey.

### **Statistical analysis**

Descriptive statistics were used to summarise the data, including means (standard deviations) for continuous variables and frequencies (percentages) for categorical data. A linear mixed model was used to simulate a repeated measures analysis of variance design (RMANOVA), as mixed models provide robust estimates notwithstanding missing follow-up assessments when compared to the traditional RMANOVA approach. An autoregressive covariance structure was used to model the repeated measurements. Pairwise comparisons were completed separately for medical and pharmacy students to test within subscale differences between baseline assessments using Bonferroni adjustments and follow-up assessments using Tukey's method. Internal consistency or reliability was measured using Cronbach's alpha at each assessment for each subscale. The data analysis for this study was generated using SAS software version 9.4 (SAS Institute, Cary, NC) and Tableau Desktop version 2023 (Tableau, Seattle, WA). Alpha was set at 0.05.

## Results

Reliability for the IPAS subscales was aligned with the original validation study (Norris *et al.*, 2015). The baseline (follow-up minimum, maximum) Cronbach's alpha results for each subscale were as follows: teamwork, roles, and responsibilities 0.84 (0.89, 0.94), patient-centredness 0.80 (0.56, 0.85), interprofessional biases 0.69 (0.53, 0.68), diversity and ethics 0.70 (0.69, 0.82), and community centredness 0.84 (0.87, 0.95). The original validation study found estimates between 0.62 and 0.92.

Table II summarises baseline response rates and respondents' demographics, indicating predominantly white student populations of comparable average age and a higher percentage of female pharmacy students. Table III displays the longitudinal changes in student responses by programme year, with a notation of structured vs unstructured IPE learning experiences. At programme entry, baseline medical student responses were significantly lower than pharmacy student responses for the teamwork, roles, and responsibilities subscale, but the reverse pattern was seen for the interprofessional biases subscale. Longitudinal medical student responses showed significant changes for all subscales, except for diversity/ethics and patient-centredness at the end of programme year four. The interprofessional biases subscale analysis showed statistically significant increases for both pharmacy and medical students with longitudinal percentage disagreement/agreement comparisons outlined in Figure 1 (absolute respondent counts for baseline through year four are included in Table III). In response to whether other disciplines have prejudices/make assumptions about them, medical students showed more agreement upon entry and throughout their programme, while pharmacy student responses shifted from baseline disagreement to agreement after the structured pre-clinical IPE simulation (year two) and

showed predominant agreement after clinical education (year four). Regarding whether they have prejudices/make assumptions about other disciplines, both medical and pharmacy students showed higher disagreement at baseline, with a shift towards agreement by medical students after clinical education (year three). More disagreement remained for pharmacy students at the end of programme year four. Medical and pharmacy students predominantly agreed that prejudices/assumptions about other disciplines impede healthcare delivery, regardless of the programme year.

**Table II: Baseline demographics for medical and pharmacy student respondents**

Variable	Medicine (n=136)	Pharmacy (n=57)
Responses (percent)	100 (73.5)	53 (90)
Age, years – mean (SD)	23.6 (2.7)	24 (5)
<b>Gender (percent)</b>		
Female	40 (40)	28 (53)
Male	60 (60)	25 (47)
<b>Race (percent)<sup>a</sup></b>		
Native American or Alaska Native	8 (8)	3 (6)
Asian	24 (24)	16 (30)
Black or African American	2 (2)	5 (9)
Hispanic	3 (3)	3 (6)
Native Hawaiian or Pacific Islander	0 (0)	0 (0)
White	75 (75)	30 (57)
Other	0 (0)	1 (2)
Previous healthcare-related degree (percent)	2 (2)	2 (4)

SD=standard deviation

<sup>a</sup>Total may exceed 100% due to multiple selections by student(s)

**Table III: Longitudinal changes in mean annual IPAS responses of medical and pharmacy students in the classes of 2022**

IPAS subscale <sup>a</sup>	Medical students, n=136 [respondents (percent)]				
	Baseline [100 (73.5)]	Δ Year 1 [53 (39)]	Δ Year 2 <sup>b</sup> [24 (17.6)]	Δ Year 3 <sup>c</sup> [24 (17.6)]	Δ Year 4 [23 (16.9)]
Teamwork, roles, and responsibilities	6.12 <sup>d</sup>	-0.47 <sup>d</sup>	-0.50 <sup>d</sup>	-0.64 <sup>d</sup>	-0.78 <sup>d</sup>
Community-centeredness	6.44	-0.09	-0.13	-0.35 <sup>d</sup>	-0.37 <sup>d</sup>
Diversity & ethics	6.78	-0.02	0.00	-0.13	-0.05
Interprofessional biases	4.78 <sup>d</sup>	0.43	0.81 <sup>d</sup>	0.91 <sup>d</sup>	0.59 <sup>d</sup>
Patient-centeredness	6.82	-0.01	-0.04	-0.07	0.00
Total score	6.27	-0.13	-0.11	-0.22	-0.29 <sup>d</sup>

**Table III: Longitudinal changes in mean annual IPAS responses of medical and pharmacy students in the classes of 2022 (Continued)**

IPAS subscale <sup>a</sup>	Pharmacy students, n=57 [respondents (percent)]				
	Baseline [53 (90)]	Δ Year 1 <sup>b</sup> [29 (50.9)]	Δ Year 2 <sup>c</sup> [32 (56.1)]	Δ Year 3 [23 (40.4)]	Δ Year 4 <sup>d</sup> [21 (36.8)]
Teamwork, roles, and responsibilities	6.47 <sup>e</sup>	-0.14	-0.30	-0.13	-0.15
Community-centeredness	6.60	-0.15	-0.13	-0.08	-0.12
Diversity & ethics	6.85	-0.03	-0.01	-0.08	-0.11
Interprofessional biases	<b>3.89<sup>e</sup></b>	0.64	<b>0.89<sup>e</sup></b>	0.41	<b>1.30<sup>e</sup></b>
Patient-centeredness	6.80	-0.08	-0.11	-0.01	-0.10
Total score	6.33	-0.03	-0.05	-0.03	0.03

IPAS = Interprofessional attitudes scale; Δ = change from baseline to the end of respective program year

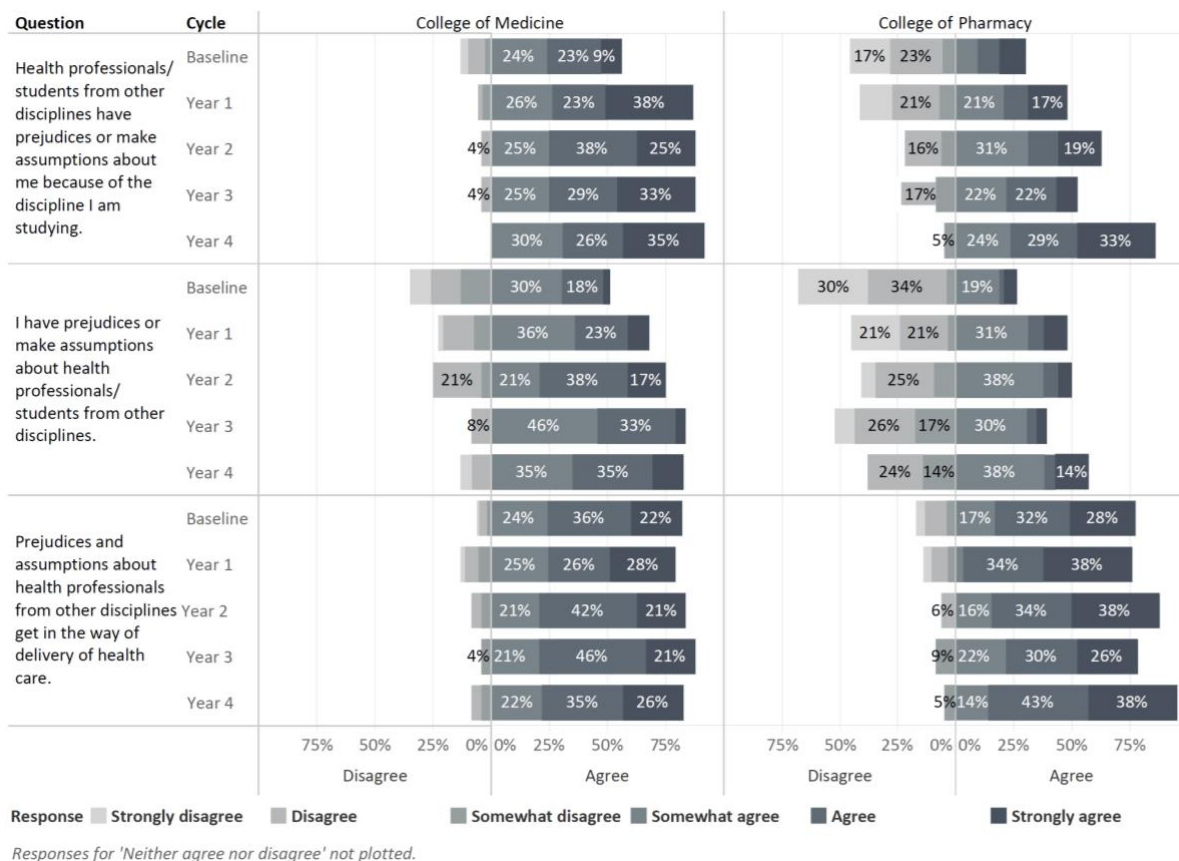
<sup>a</sup>scale range 1 (strongly disagree) to 7 (strongly agree)

<sup>b</sup>end of structured interprofessional learning experiences

<sup>c</sup>end of required clinical learning experiences

<sup>d</sup>p < 0.05 for baseline between colleges using Bonferroni-adjusted pairwise comparisons

<sup>e</sup>p < 0.05 by linear mixed model simulating repeated analysis of variance design; pairwise comparisons completed using Tukey's method



**Figure 1: Longitudinal responses to the interprofessional biases subscale of the Interprofessional Attitudes Scale by college and year**

**Discussion**

This report captures representative baseline responses from cohorts of medical and pharmacy students using the IPAS instrument and includes demographic

information, which is a strength of this study. Documentation of interprofessional attitudes for medical and pharmacy student cohorts across four years was also accomplished, but the attrition of longitudinal responses must be acknowledged, and

related findings should be interpreted with caution. Baseline results suggest that, on programme entry, medical students have significantly lower IPAS teamwork, roles, and responsibilities scores but comparable patient-centeredness and diversity & ethics scores relative to pharmacy students. For medical students, significant decreases in responses for the IPAS teamwork, roles, and responsibilities subscale occurred after completing introductory IPEC competency team activities at the end of the programme year one. Most of the nine items in this subscale are framed in the context of benefits from shared learning, problem-solving, and understanding one's limitations. Lower baseline responses for medical students on programme entry may reflect an innate expectation for leadership and knowledge competence versus interdependence, which might be further reinforced during the first curricular year when additional decline in this subscale was seen.

In contrast, significant decreases in the IPAS community-centredness subscale were not observed in medical students until the end of the required medical clerkships in year three. It is conceivable that substantial patient-centred care demands highlighted challenges to achieving population-level goals that are aspirational and influenced by external factors such as public policy. These observations reinforce the importance of early/ongoing interprofessional socialisation towards teamwork and highlight the potential for attrition of community-centredness during clinical education.

Students entering the medical school exhibited significantly more agreement with the IPAS interprofessional biases subscale than pharmacy students. This difference could be attributed to profession-specific perceptions based on the hierarchy of medical care established within society. Of note, no significant increases in the interprofessional biases subscale were seen for both medical and pharmacy students until the completion of the team-based pre-clinical patient simulation activity in year two, which was the first patient-specific simulation with expectations for collaboration. This activity required medical and pharmacy students to navigate individual and shared roles to accomplish the learning objectives (Table I), which may have revealed interprofessional dynamics not initially appreciated at the baseline assessment.

The quantitative findings of the present work for baseline interprofessional biases support a qualitative study that included Canadian medical and pharmacy students in months preceding programme entry, reporting preconceived/hierarchical beliefs for consideration in designing early interprofessional

coursework to promote interprofessional socialisation (Price *et al.*, 2021). The IPAS interprofessional biases subscale increases were higher for both professions following required patient care clinical education when authentic interprofessional exposure occurred, but these observations require additional investigations, and qualitative data would aid with interpretation.

### **Implications for collaborative practice research**

Revisions to the IPEC core competencies for interprofessional collaborative practice have been completed and will provide future guidance to health professions curricula (Interprofessional Education Collaborative, 2023). Designing, executing, and assessing IPE with the intent to develop collaborative healthcare professionals is as complicated as it is exciting. Programmes clearly receive individuals into these professions with a host of experiences, personalities, and stereotypes (Olsson *et al.*, 2020; Gualdo *et al.*, 2021), which should be recognised and barriers hopefully mitigated by IPE to advance collaborative practice. Research demonstrating outcome measures of IPE and collaborative practice in clinical environments is lacking, with heterogeneity similar to pre-clinical IPE interventions, complicating replication/generalisability (Guitar & Connelly, 2021). Efforts to study and report findings related to IPE are increasing, though methodologic design features to advance the quality and consistency of findings are also needed for future interprofessional research (Gualdo *et al.*, 2023).

### **Limitations**

Limitations to generalisability and interpretation include self-reported interprofessional attitudes of students from a single United States academic medical centre. Due to the voluntary nature of participation, self-selection bias could positively or negatively impact the decision to complete the survey. Coupled with the low longitudinal response rate despite a systematic method of email reminders, the authors cannot characterise results as a representative sample. This limitation is a cautionary tale for large-scale survey follow-up of student cohorts across multiple years, especially given the limited ability to course correct in an area where research and assessment methods are rapidly evolving. The development of succinct, validated tools that minimise response burden may mitigate low response rates for studies of longer duration.

In addition, the third and final IPAS survey administrations occurred during the COVID-19 pandemic, which may have affected student responsiveness and certainly impacted the nature of

clinical learning secondary to public health efforts to mitigate the number of individuals in clinical areas. The direction and magnitude of student response regarding the public health environment are uncertain because reliance on interprofessional colleagues for decision-making may have anecdotally been increased even despite alteration of physical proximity (i.e. telecommunication). A recent international survey of perceived COVID-19 impact on IPE and collaborative practice cited both detracting (de-prioritisation) and enabling (telehealth/regulatory allowance) themes (Xyrichis *et al.*, 2023). During the COVID-19 pandemic, both medical and pharmacy students continued in their respective programmes and the study protocol was maintained as originally planned. Finally, the question of the extent to which statistically significant changes in the various IPAS subscales translate into positive or negative interprofessional collaboration arises for all studies of this nature.

A natural inference for positively worded scales is that higher agreement/favourable attitudes may facilitate desired actions for the patient, team, and/or community. However, these measurements should be viewed as formative in the present context, providing information regarding how student responses evolve with the instrument. Additional research is needed to couple qualitative student data and faculty observations to determine factors that enable the desired interprofessional collaboration.

## Conclusion

While acknowledging its limitations, the present study provides findings in three main areas. First, upon programme entry and compared to medical students, pharmacy students registered significantly more agreement with the IPAS teamwork, roles, and responsibilities subscale and significantly less agreement with the interprofessional biases subscale. Second, medical student responses to the teamwork subscale declined significantly by the end of programme year one and were persistently lower through programme year four. Third, both medical and pharmacy student responses to the interprofessional biases subscale showed significant increases (agreement) from baseline to year two, immediately following a shared, structured interprofessional patient care simulation; these significant increases persisted at the end of each subsequent programme year where unstructured interprofessional clinical learning experiences occurred (years three and four for medical students, year four for pharmacy students).

Given these findings were observational across the natural course of programme delivery, future research must offer additional frames of reference to explore implications. Qualitative student data acquired in response to structured interprofessional learning activities could add thematic explanations to quantitative findings. Beyond the measurement of attitudes, behavioural observations with formative feedback to achieve interprofessional education outcomes in clinical care are additional areas for research (Mattiuzzi *et al.*, 2023).

Finally, in addition to efforts directed towards improving medical and pharmacy curricula in support of interprofessional collaboration, whether positive gains will be continued into postgraduate training is an area for research that has recently been explored for medicine and nursing (Kempner *et al.*, 2020). Evidence to describe optimal IPE and collaborative practice will continue to evolve for professional education and should extend into postgraduate training/practice to regularly inform the continuum of pre-licensure curriculum development, with the ultimate aim being optimal patient care.

## Conflict of interest

The authors declare no conflict of interest.

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**Appendix A: Survey fields for interprofessional attitudes scale administration to medical and pharmacy students**

## Current College

- College of Medicine
- College of Pharmacy

- Q1.Age
- A Enter/select actual age
- B Decline to answer

## Q2.Gender

- Male
- Female
- Non-binary
- Decline to answer
- Other \_\_\_\_\_

## Q3.Race and ethnicity (select all that apply)

- Native American or Alaska Native
- Asian
- Black or African American
- Hispanic
- Native Hawaiian or Other Pacific Islander
- White
- Other \_\_\_\_\_
- Decline to answer

**Subscales of the Interprofessional Attitudes Scale (for manuscript purposes, not included in the student survey)**

- Teamwork, Roles, and Responsibilities subscale: Q4 to Q12
- Patient-Centeredness subscale: Q13 to Q17
- Interprofessional Biases subscale: Q18 to Q20
- Diversity & Ethics subscale: Q21 to Q24
- Community-Centeredness subscale: Q25 to Q30

## Q4. Learning with other health care trainees will help me become a more effective member of a health care team.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

## Q5. Patients ultimately benefit if health care professionals worked together to solve patient problems.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree

- Agree
- Strongly Agree

Q6. Shared learning experiences with other health care trainees will increase my ability to understand clinical problems.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q7. Shared learning experiences with other health care trainees will help me think positively about other health care professionals.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q8. Shared learning experiences will help me understand my own limitations.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q9. It is not necessary for health care trainees to learn together.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q10. Shared learning experiences with other health care trainees will help me communicate better with patients and other professionals.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q11. I welcome the opportunity to work on small-group projects with other health care professions.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q12. Shared learning before graduation will help me become a better team player.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q13. It is important for me to understand the patient's side of the problem.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q14. Establishing trust with my patients is important to me.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q15. It is important for me to communicate compassion to my patients.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q16. Thinking about the patient as a person is important in getting treatment right.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q17. In my profession one needs skills in interacting and co-operating with patients.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q18. Health professionals/students from other disciplines have prejudices or make assumptions about me because of the discipline I am studying.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q19. I have prejudices or make assumptions about health professionals/students from other disciplines.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q20. Prejudices and assumptions about health professionals from other disciplines get in the way of delivery of health care.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q21. It is important for health professionals to respect the dignity and privacy of patients while maintaining confidentiality in the delivery of team-based care.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q22. It is important for health professionals to provide excellent treatment to patients regardless of their background, e.g., race, ethnicity, gender, sexual orientation, religion, class, national origin, immigration status, or ability.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q23. It is important for health professionals to respect the unique cultures, values, roles/responsibilities, and expertise of other health professions.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q24. It is important for health professionals to understand what it takes to effectively communicate across cultures

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q25. It is important for health professionals to work with public health administrators and policy makers to improve delivery of health care.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q26. It is important for health professionals to work with non-clinicians to deliver more effective health care.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q27. It is important for health professionals to work on projects to promote community and public health.

- Strongly Disagree
- Disagree
- Somewhat Disagree

- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q28. It is important for health professionals to be advocates for the health of patients and communities.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q29. It is important for health professionals to work with legislators to develop laws, regulations, and policies that improve health care.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q30. It is important for health professionals to focus on populations and communities, in addition to individual patients, to deliver effective health care.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree