

**Research Report****PROJECT TITLE & AUTHORS**

Project Title:	Evaluation of Pharmacy Student Knowledge in Industry Pharmacy	
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**PROPOSAL CHECKLIST**

Completed (Y)	Checklist item
Y	Project title is clear and concise.
Y	Names and emails for project advisor(s) and up to five students per group are provided.
Y	Abstract is no more than 250 words and retains headings

Y	Introduction provides a definition of the topic under study, importance of the topic, and the issue addressed by the study and is no more than one single-spaced page.
Y	There is NO literature review section
Y	Purpose of project is clearly and concisely stated
Y	Methods section uses headings and represents a summary of the methods used. (Actual methods used should be described if they were modified from the proposal.)
Y	Data analysis described is appropriate and responds to the purpose.
Y	Appropriate tables are included in the results section.
Y	Text of results section interprets the findings reported in the tables, not repeating them.
Y	The discussion section includes a description of the most important findings and relates findings to the literature.
Y	The final section of the discussion is the limitations section.
Y	The conclusions respond to the purpose statement.

Y	Reference list is complete and contains appropriate references, and reference style is applied correctly and consistently.
Y	Data collection/recording form(s) and/or questionnaire(s) are included in the appendix.
Y	Information is placed in the appropriate section—introduction, methods, results, etc.
Y	Template structure is maintained, and all required sections are included. Red text instructions/examples are removed. Proposal is written in Times New Roman 12-point font and does not exceed 10 single-spaced pages (excluding appendices). Proposal has been spell-checked and grammar checked.

## ABSTRACT

**Specific Aims:** Examine the validity and reliability of a pilot questionnaire given to pharmacy students who are either in the University of Arizona Industry Pharmacists Organization (IPhO) chapter or have expressed interest in it.

**Methods:** Questionnaires administered to University of Arizona pharmacy students who have expressed prior interest in or are current members of the IPhO chapter since October 1, 2020. Data were collected to assess student pharmacists' knowledge of industry pharmacy in the four different functional areas by answering five multiple choice questions for each category. The primary validity endpoint was overall score in those who had participated in the IPhO case competition versus those who did not. The primary reliability endpoint was a Cronbach's alpha measure based on the number of correct responses for each question. Data on student's year in pharmacy school, IPhO competition exposure status, prior industry pharmacy experience, and area of industry pharmacy the student is most interested in were also collected.

**Results:** Questionnaires were completed by thirteen student pharmacists, four of whom participated in the IPhO case competition. For the primary validity endpoint, the average score of the "Participated" group was compared to the "Did not Participate" group, yielding 52.5% and 44.5% respectively ( $p$ -value = 0.4398). The Cronbach's alpha value for the entire questionnaire as a whole was 0.647.

**Conclusions:** Data gathered from our questionnaire mildly support that the questionnaire is reliable but does not support that the questionnaire is valid based on the marker of IPhO case competition participants.

## INTRODUCTION

The pharmaceutical industry employs diverse teams of medical professionals that account for the development of all drugs in the pharmacopeia and continues to bring innovative therapies to market<sup>1</sup>. Specifically, industry pharmacy offers many career paths for pharmacists in clinical development, regulatory affairs, medical affairs, and marketing, each of which are necessary to introducing a drug to market<sup>2</sup>. Pharmacists are essential to industry pharmacy as they make up a substantial portion of professionals in each of these four areas. According to a survey conducted by the Medical Science Liaison Society, pharmacists accounted for 40% of the professionals in medical affairs, which is a larger percentage than any other professional employed in medical affairs<sup>3</sup>. However, student pharmacists interested in pursuing careers in industry pharmacy may not be fully aware of what the job entails.

Though pharmacy curricula often describe the drug discovery process and offer pharmacoeconomics and applicable electives, they do not always offer education on what industry pharmacy is, and each role a pharmacist can take on<sup>4</sup>. Henceforth, students do not have many opportunities for hands-on learning about specific industry roles often filled by those of a pharmacy background<sup>5</sup>. Due to this, pharmacy students with less experiential opportunities are ill-equipped with the knowledge needed to be competitive in the industry field<sup>5</sup>. Ultimately, this lack of experience makes it harder for students to enter the industry job market as compared with students who were exposed to industry pharmacy during their curriculum<sup>5</sup>. Therefore, our goal is to measure pharmacy student's knowledge on industry pharmacy and on each of the areas involved in industry pharmacy (clinical development, regulatory affairs, medical affairs, and marketing). The purpose of this study is to develop a questionnaire used to assess pharmacy students' knowledge of industry pharmacy by testing the validity and reliability of a pilot questionnaire.

## METHODS

### Design

This was a survey-based cross-sectional study, which was approved by the University of Arizona Institutional Review Board.

### Subjects

To be eligible for this study, participants must have expressed prior interest in the University of Arizona Industry Pharmacists Organization (IPhO) chapter via an interest form or email no sooner than September 22, 2021, or were current members of the club since October 1<sup>st</sup>, 2020. University of Arizona student pharmacists who have not previously expressed interest in the club were excluded, as well as student pharmacists who did not attend the University of Arizona. Incomplete questionnaire submissions were also excluded from data analysis.

### Measures

Data were collected via an online questionnaire administered through Research Electronic Data Capture (REDCap). The link to the questionnaire was provided in the recruitment email. Students were asked to answer all questions from four separate sections of the questionnaire: clinical development, regulatory affairs, medical affairs, and marketing. Each section consisted of five knowledge-based multiple-choice questions that had one correct answer. At the end of the questionnaire, students were prompted to answer four demographic questions. Demographic data were collected on the student's year in pharmacy school (year 1- year 4),

IPhO competition participation status (participant vs. non-participant), prior industry pharmacy experience, and area of industry pharmacy the student is most interested in. These questions were used to group students into two main categories of competition participation, and to identify students who may have increased industry pharmacy exposure, knowledge, and interest.

The reliability of this questionnaire was tested by measuring a Cronbach's alpha value based on the number of correct responses for each question. A secondary reliability endpoint was the measured Cronbach's alpha value of individual sections of the questionnaire. The primary validity endpoint of this questionnaire was the difference in average number of correct answers overall between the IPhO case competition participant group and the non-participant group. Secondary endpoints were differences within subgroups based on the demographics of the year in pharmacy school and prior industry experience. An exploratory endpoint of this study was the average number of correct answers per section for each area of interest.

### **Data Collection**

REDCap links to the questionnaire were emailed to all students meeting the eligibility criteria. Reminder emails with the link to the questionnaire were sent three and six weeks from the date of the initial email participation request. All students meeting the eligibility criteria, regardless of whether they had already completed the questionnaire, were sent the reminders.

### **Data Analysis**

Based on student enrollment in the University of Arizona IPhO chapter and the number of interest forms/emails submitted, the sample size was estimated to be approximately sixty students. Assuming that 50% of the study participants participated in the competition and 50% of study participants did not participate in the competition, the study was powered to determine a difference between the two group's questionnaire scores at an alpha level of 0.05 if fifty-two responses were completed. A two-sample t-test was used to measure the difference between these groups in overall correct answers. A Cronbach's alpha test was used to measure the reliability of responses to individual questions between submissions. The test is normally performed using a Likert scale and in this case a score of zero was assigned for an incorrect answer while a score of one was assigned if the student got the correct answer.

## **RESULTS**

### **Demographics**

Out of the thirteen total participants, six students had prior industry pharmacy experience and seven students had no prior experience (See Table 1). The only first year pharmacy student in the sample did not participate in the IPhO case competition, and the only fourth year student did participate in the competition. Seventy-five percent of second and seventy-one percent of third year student pharmacists did not participate in the competition. The majority of students had an interest in medical affairs (54%), followed by regulatory affairs (15%) and "unsure" interest (15%). Clinical development and marketing had the least interest reported (8% each). All of the students interested in clinical development, regulatory affairs, and marketing did not participate in the competition. All of the students who reported an "unsure" interest did participate in the competition. Seventy-one percent of pharmacy students interested in medical affairs did not participate in the competition.

**Reliability**

A Cronbach's alpha test was performed to measure the internal consistency of the questionnaire as a whole as a primary endpoint and for each individual section as a secondary endpoint (See Table 2). The test took into account those who participated in the IPhO case competition and those who did not. The primary reliability endpoint for the entire questionnaire was a Cronbach's alpha level of 0.647. Additionally, the Cronbach's alpha for regulatory affairs, medical affairs, and marketing were 0.35, 0.68, and 0.23, respectively. In contrast, the Cronbach's alpha for the clinical development section was -1.86.

**Validity**

For the primary validity endpoint, the average score of the participant group was compared to the non-participant group, showing 52.5% and 44.5% respectively (p-value = 0.4, See Table 3). This confirms that there is no significant difference in average score between the two groups. Additional secondary endpoints based on the population demographics also fail to show differences between the groups. These demographics included comparing groups within a single year of pharmacy school and within those that had prior experience in industry and those that did not.

**Functional Area Interest**

For an exploratory endpoint, student scores for sections they had interest in were compared to their scores on the other three sections. Pharmacy students who expressed an interest in medical affairs on average scored their highest on the medical affairs section of the questionnaire (12% answers correct, See Table 4). Students who had an interest in clinical development had their second-best average score in the clinical development section (5%). Those who had an interest in regulatory affairs had their lowest average score in the regulatory and medical affairs sections (7.5% in both). Those who had an interest in marketing had their lowest average score in the marketing section (0%). Lastly, students who had an "unsure" interest had their highest average score in the regulatory affairs section (15% answers correct), followed by medical affairs and marketing (12.5% in both), and clinical development (10%) sections.

**DISCUSSION**

The majority of students who completed the questionnaire were third- and second-year students, which reflects the general population of club members (see Table 1). Perhaps fourth year students were limited in the sample size due to barriers in access to club information and sign up (fourth year courses were conducted off campus). First year students may have been limited due to unfamiliarity with joining clubs or further unfamiliarity with industry pharmacy as compared to student pharmacists in a higher school year. Surprisingly, about half of the sample population had prior industry experience, but more than half of study participants did not participate in the IPhO case competition. The sample size of those who competed in the competition is skewed since there were about twenty total participants in the competition, but only four of whom completed the questionnaire.

A Cronbach's alpha test was chosen to assess the internal consistency of our knowledge-based questionnaire as indicated in Table 2. A general rule is that an alpha value of 0.6-0.7 is an acceptable value for reliability, while a value of 0.8 or higher is indicative of an even higher value for reliability. Because the Cronbach's alpha level for the entire questionnaire was 0.65,

this value meets the range for an acceptable value for reliability and deems the questionnaire favorable. In contrast, Cronbach's alpha for the clinical development section was -1.86. The clinical development section had the lowest variance of total scores (0.44) compared to any of the other three functional areas which could explain the negative Cronbach's alpha value. Common reasons for a negative Cronbach's alpha value include sampling error or incompetence of the collected sample in measuring the respective questionnaire instrument. To improve the overall reliability, a larger sample should be used or items that correlate low with the other items in the subset can be deleted. In contrast, the Cronbach's alpha for all other areas including regulatory affairs, medical affairs, and marketing were positive with values of 0.35, 0.68, and 0.23. Medical affairs therefore had the highest reliability, and this could be due to all the items in the questionnaire being correlated well together.

Because neither the primary nor secondary validity endpoints showed significant differences in average scores between the participant and non-participant groups, it is not possible to suggest that the competition is a marker of external validity for this questionnaire. A trend in the data (see Table 3) suggests that the competition has the greatest positive impact on those that had no prior experience with industry pharmacy, but this difference was still not significant.

As for the exploratory endpoint in Table 4, for each area of interest (aside from medical affairs), study participants did not have the highest average score in that particular section of the questionnaire. Surprisingly, those who had an interest in regulatory affairs and marketing had their lowest scoring average in those prospective sections, and those who were "unsure" of having a particular area of interest had the most consistent scores across all sections. This may be due to the fact that all of the participants who were unsure of their interest area participated in the IPhO case competition, which accounted for 50% of the total sample size of those who did participate in the competition. The other 50% of those who participated in the competition had an interest in medical affairs, and those study participants had their highest average score in the medical affairs section. However, the composite of study participants who had an interest in medical affairs was significantly larger than the number of study participants in all other areas of interest. Therefore, confounders between each functional area of interest may be impacting results, such as an unbalanced sample size and an unbalanced number of those who participated in the IPhO case competition.

In similar studies, Atkinson et al. administered a questionnaire to compare industry pharmacy competencies between those who practice industry pharmacy versus those who practice community pharmacy. This study tested knowledge in each of the differing functional areas of industry pharmacy, which is similar to the present study. Their study's results illustrated that industry pharmacists ranked higher than community pharmacists in all of the competency areas tested<sup>5</sup>. Exact relevance of the reference study cannot be compared to this study because those who participated in the reference study and had industry pharmacy experience were considered experts in the field. In this study, questionnaires were administered to student pharmacists who have not yet obtained licensure or specialization in industry pharmacy. Although, it was expected that having industry pharmacy exposure through the IPhO case competition would have some relation to the reference study.

In another similar study, a cross sectional questionnaire-based survey was given to student pharmacists in Saudi Arabia to determine willingness of students to be involved in the pharmaceutical industry. Results of this study indicated that 83% of students reported they did not receive training in the pharmaceutical industry, and 8% of students chose to work in industry

pharmacy after graduation<sup>4</sup>. In the present study, comparable results were expected, however about half of the students that partook in this study indicated that they had prior industry experience unlike in the reference study. This result could be skewed given the small sample size. The limited number of students included in this study that participated in the IPhO case competition could be reflective of actual willingness to pursue industry pharmacy, which is similar to what was seen in the 8% of students in the reference study.

In order to increase validity and reliability in future studies, a questionnaire of this nature should be administered to study participants consisting of industry pharmacy experts and other pharmacists not in industry pharmacy rather than student pharmacists<sup>5</sup>. Additionally, the questionnaire would require a larger sample size in order to confirm validity and reliability<sup>6</sup>.

The biggest limitation of this study is its small sample size. With a sample size of 13 completed responses, the study is not powered to measure a significant difference between the IPhO case competition participant group (n=4) and the non-participant group (n=9). Similarly, secondary, and exploratory endpoints that assess subgroups of this population lack any substantial sample size, with some of these subgroups containing only one subject. Various methods could be employed in the future to emphasize the importance of this survey to better capture all participants of the competition. Generalizability could also be limited in trying to reproduce this questionnaire at other pharmacy schools as not all pharmacy schools have an IPhO chapter established<sup>7</sup>.

## **CONCLUSION**

In conclusion, the data gathered from our questionnaire provides some evidence supporting that the questionnaire is reliable, but does not support that the questionnaire is valid based on the marker of IPhO case competition participants. The sample size and distribution of study participants between the two comparison groups limits the ability to suggest that the questionnaire is highly reliable or valid.



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**TABLES AND FIGURES****Table 1. Demographic Characteristics of Study Participants**

Demographic Characteristics		Total N = 13	Group 1: Participated in IPhO Case Competition N = 4 (31%)	Group 2: Did not Participate in IPhO Case Competition N= 9 (69%)
<b>Year In Pharmacy School</b>				
	P1	1	0 (0%)	1 (100%)
	P2	4	1 (25%)	3 (75%)
	P3	7	2 (29%)	5 (71%)
	P4	1	1 (100%)	0 (0%)
<b>Prior Industry Pharmacy Experience</b>				
	Yes	6	2 (33%)	4 (67%)
	No	7	2 (29%)	5 (71%)
<b>Interest in Specific Functional Area</b>				
	Clinical Development	1	0 (0%)	1 (100%)
	Regulatory Affairs	2	0 (0%)	2 (100%)
	Medical Affairs	7	2 (29%)	5 (71%)
	Marketing	1	0 (0%)	1 (100%)
	Unsure	2	2 (100%)	0 (0%)

**Table 2. Number of Correct Responses for Each Question and Cronbach's Alpha Per Section**

Characteristics	Total N = _13_(%);	Group 1: Participated in IPhO Case Competition N = _4_(%)	Group 2: Did not Participate in IPhO Case Competition N= _9_(%)	Cronbach's Alpha
<b>Clinical Development</b>				-1.86
Question 1	4/13 (31%)	0/4 (0%)	4/9 (44%)	
Question 2	9/13 (69%)	3/4 (75%)	6/9 (66%)	
Question 3	3/13 (23%)	1/4 (25%)	2/9 (22%)	
Question 4	5/13 (38%)	2/4 (50%)	3/9 (33%)	
Question 5	7/13 (54%)	2/4 (50%)	5/9 (56%)	
<b>Regulatory Affairs</b>				0.35
Question 1	9/13 (69%)	3/4 (75%)	6/9 (66%)	
Question 2	8/13 (62%)	3/4 (75%)	5/9 (56%)	
Question 3	5/13 (38%)	1/4 (25%)	4/9 (44%)	
Question 4	5/13 (38%)	1/4 (25%)	4/9 (44%)	
Question 5	7/13 (54%)	2/4 (50%)	5/9 (56%)	
<b>Medical Affairs</b>				0.68
Question 1	11/13 (85%)	4/4 (100%)	7/9 (78%)	
Question 2	8/13 (62%)	3/4 (75%)	5/9 (56%)	
Question 3	6/13 (46%)	2/4 (50%)	4/9 (44%)	
Question 4	3/13 (23%)	1/4 (25%)	2/9 (22%)	
Question 5	5/13 (38%)	2/4 (50%)	3/9 (33%)	
<b>Marketing</b>				0.23
Question 1	4/13 (31%)	1/4 (25%)	3/9 (33%)	
Question 2	4/13 (31%)	3/4 (75%)	1/9 (11%)	
Question 3	7/13 (54%)	4/4 (100%)	3/9 (33%)	
Question 4	9/13 (69%)	3/4 (75%)	6/9 (66%)	
Question 5	3/13 (23%)	0/4 (0%)	3/9 (33%)	
<b>Total</b>				0.65

**Table 3. Average Number of Correct Answers Overall and by Subgroup**

Scores		Total Average Number of Correct Answers (%)	Group 1: (Participated in IPhO Case Competition) Average Number of Correct Answers (%)	Group 2: (Did not Participate in IPhO Case Competition) Average Number of Correct Answers (%)	Two-sample T-test (p-value)
<b>Overall</b>		9.4/20 (47.0%) n=13	10.5/20 (52.5%) n=4	8.9/20 (44.5%) n=9	0.44
<b>Year In Pharmacy School</b>					
	P1	5/20 (25%) n=1	-	5/20 (25%) n=1	-
	P2	10.3/20 (51.3%) n= 4	10/20 (50%) n=1	10.3/20 (51.3%) n=3	0.85
	P3	8.9/20 (44.5%) n=7	9/20 (45%) n=2	8.8/20 (44%) n=5	0.95
	P4	14/20 (70%) n=1	14/20 (70%) n=1	-	-
<b>Prior Industry Pharmacy Experience</b>					
	Yes	10.3/20 (51.5%) n=6	11/20 (55%) n=2	10/20 (50%) n=4	0.78
	No	8.6/20 (43%) n=7	10/20 (50%) n=2	8/20 (40%) n=5	0.42

**Table 4. Average Number of Correct Answers Per Section for Each Area of Interest**

Scores		Clinical Development Average Number of Correct Answers (%)	Regulatory Affairs Average Number of Correct Answers (%)	Medical Affairs Average Number of Correct Answers (%)	Marketing Average Number of Correct Answers (%)
<b>Interest in Specific Functional Area</b>					
	Clinical Development	1/20 (5%)	2/20 (10%)	0/20 (0%)	1/20 (5%)
	Regulatory Affairs	2.5/20 (12.5%)	1.5/20 (7.5%)	1.5/20 (7.5%)	2.5/20 (12.5%)
	Medical Affairs	2.4/20 (12%)	2.9/20 (14.5%)	3.4/20 (17%)	2.3/20 (11.5%)
	Marketing	1/20 (5%)	3/20 (15%)	1/20 (5%)	0/20 (0%)
	Unsure	2/20 (10%)	3/20 (15%)	2.5/20 (12.5%)	2.5/20 (12.5%)

## APPENDICES

### Appendix A: Data Collection Form

#### Industry Pharmacist Roles Questionnaire



You are being asked to participate in a research study. Your participation in this research study is voluntary and you do not have to participate. However, by completing the questionnaire, you will be providing consent for your response to be used in research. This document contains important information about this study and what to expect if you decide to participate. Please consider the information carefully. Feel free to ask questions before making your decision whether or not to participate.

The purpose of this study is to develop a questionnaire used to assess pharmacy students' knowledge of industry pharmacy by testing the validity and reliability of a pilot questionnaire, and adjusting questions based on the findings.

The expected duration to complete the questionnaire should take no more than 15 minutes. To be eligible for this study, participants must meet all of the following requirements:

- Be students of the University of Arizona College of Pharmacy
- Have either expressed interest in the University of Arizona Industry Pharmacists Organization via an interest form or email or are current members of the University of Arizona Industry Pharmacists Organization

There are no expected risks or benefits to you by participation in this study.

The information that you provide in the study will be handled confidentially and will not be shared or used for future research. Through the use of "REDCap" we will not be collecting any personal information other than demographics. However, there may be circumstances where your response to this questionnaire must be released or shared as required by law. The University of Arizona Institutional Review Board may review the research records for monitoring purposes.

The information that you give in the study will be anonymous. Your name will not be collected or linked to your answers. Research data will be encrypted and password protected.

Because of the nature of the data, it may be possible to deduce your identity; however, there will be no attempt to do so and your data will be reported in a way that will not identify you. Information collected about you will not be used or shared for future research studies.

For questions, concerns, or complaints about the study, you may contact Dr. Gallo at [gallo@pharmacy.arizona.edu](mailto:gallo@pharmacy.arizona.edu) or 602-827-2696.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact the Human Subjects Protection Program Director at 520-626-8630 or online at <http://rgw.arizona.edu/compliance/human-subjects-protection-program>.

Section 1: Clinical Development	
1 What phase of clinical development is solely focused on assessing drug efficacy?	<input type="radio"/> Phase 1 <input type="radio"/> Phase 2 <input type="radio"/> Phase 3 <input type="radio"/> Phase 4
	<a href="#">reset</a>
2 Which agency does not always regulate clinical trials?	<input type="radio"/> Food Drug and Administration (FDA) <input type="radio"/> Office of Good Clinical Practice (OGCP) <input type="radio"/> Drug Enforcement Agency (DEA) <input type="radio"/> Department of Human Health Services (DHHS)
	<a href="#">reset</a>
3 Which best describes an exploratory endpoint?	<input type="radio"/> Used in treatment comparisons and unplanned subgroup analysis <input type="radio"/> Used in identifying additional events of interests <input type="radio"/> Used in identifying specific events of interests <input type="radio"/> Used to determine which procedures need to be done and when
	<a href="#">reset</a>
4 What is the correct filing order?	<input type="radio"/> NDA, ANDA, IND, IRB <input type="radio"/> IRB, IND, NDA, ANDA <input type="radio"/> IRB, ANDA, NDA, IND <input type="radio"/> IND, IRB, NDA, ANDA
	<a href="#">reset</a>
5 During what phase are diseased patients first used as volunteers?	<input type="radio"/> Phase 1 <input type="radio"/> Phase 2 <input type="radio"/> Phase 3 <input type="radio"/> Phase 4
	<a href="#">reset</a>

Section 2: Regulatory Affairs	
<b>1 What is the main purpose of regulatory affairs?</b>	<input type="radio"/> Protect public health <input type="radio"/> Assess participant eligibility in clinical trials <input type="radio"/> Support internal training programs <input type="radio"/> Hold medical educational events <a href="#">reset</a>
<b>2 Which of the following does regulatory affairs not assess?</b>	<input type="radio"/> INDs and NDAs <input type="radio"/> Advertising compliance <input type="radio"/> Trial design validity <input type="radio"/> Clinical trial applications and biologic license applications <a href="#">reset</a>
<b>3 If your drug demonstrates in pre-clinical studies the potential to address an unmet medical need, but you have yet to acquire clinical data, what expedited program would you apply for?</b>	<input type="radio"/> Fast Track (FT) Designation <input type="radio"/> Breakthrough Therapy (BT) Designation <input type="radio"/> Priority Review (PR) <input type="radio"/> Accelerated Approval (AA) <a href="#">reset</a>
<b>4 Where are promotional materials submitted?</b>	<input type="radio"/> FDA's office of Prescription Drug Programs <input type="radio"/> FDA's office of Regulatory Affairs <input type="radio"/> FDA's office of Code of Federal Regulations <input type="radio"/> FDA's office of the Federal Register <a href="#">reset</a>
<b>5 All of the following choices are examples of type B meetings with the FDA, except:</b>	<input type="radio"/> Pre IND meetings <input type="radio"/> Critical Path meetings <input type="radio"/> End of Phase 2 meetings <input type="radio"/> Pre NDA meetings <a href="#">reset</a>



Section 3: Medical Affairs	
1 In the pharmaceutical industry, what does KOL stand for?	<input type="radio"/> Knowledge of Literature <input type="radio"/> Knock-Out Law <input type="radio"/> Kefauver-Harris Obligation Litigation <input type="radio"/> Key Opinion Leader
2 Which of these titles does NOT fall under the umbrella of Medical Affairs?	<input type="radio"/> Medical Information <input type="radio"/> Medical Science Liaison <input type="radio"/> Health Economics Outcomes Research <input type="radio"/> Clinical Trials Coordinator
3 Which of the following might an MSL (Medical Science Liaison) be involved in? I. Training sales team II. Delivering scientific presentations III. KOL relationship management IV. Competitive intelligence	<input type="radio"/> I and III <input type="radio"/> II, III, and IV <input type="radio"/> I, III, and III <input type="radio"/> I, II, III, and IV
4 Which of the following is true about Medical Science Liaisons (MSLs)?	<input type="radio"/> They provide physicians with promotional material that display the benefits of their product over competitors <input type="radio"/> They negotiate with payers on an appropriate price for their product <input type="radio"/> They can respond to unsolicited questions from physicians about their product's off-label information <input type="radio"/> They can present at events that provide recreational activities to guests as long as they only present evidence-based information
5 Which of the following statements would provide the weakest argument for adding your drug Respeos to a formulary?	<input type="radio"/> Ease-of-use score from patient feedback on Respeos was an average of 9/10 compared to benralizumab's 5/10 <input type="radio"/> Respeos demonstrated non-inferiority to benralizumab in reduction of eosinophils <input type="radio"/> Number of exacerbations that required hospitalization decreased by 10% in Respeos patients compared to benralizumab patients <input type="radio"/> Fills for short-acting beta agonists was 1.25 times/month in Respeos patients vs 1.2 times/month in benralizumab patients

Section 4: Marketing	
<b>1 What is the definition of market access?</b>	<ul style="list-style-type: none"><li><input type="radio"/> The process of targeting patients that would benefit from drug therapy</li><li><input type="radio"/> The process through which the appropriate patients would get rapid and maintained access to the right treatment quickly at a reasonable price</li><li><input type="radio"/> The study of trade-offs that dictate the use of resources in health care services</li><li><input type="radio"/> A and C</li></ul> <p style="text-align: right;"><a href="#">reset</a></p>
<b>2 A product positioning statement should include answers to all of the following except:</b>	<ul style="list-style-type: none"><li><input type="radio"/> Who is the treatment for?</li><li><input type="radio"/> What does the treatment do?</li><li><input type="radio"/> What does the product do for health care professionals?</li><li><input type="radio"/> What is the chemical structure of the drug?</li><li><input type="radio"/> What differentiates this product from others?</li></ul> <p style="text-align: right;"><a href="#">reset</a></p>
<b>3 Who are key targets in market research?</b>	<ul style="list-style-type: none"><li><input type="radio"/> Physician</li><li><input type="radio"/> Patient</li><li><input type="radio"/> Insurance companies</li><li><input type="radio"/> Advertising companies</li><li><input type="radio"/> A,B,C</li><li><input type="radio"/> All of the above</li></ul> <p style="text-align: right;"><a href="#">reset</a></p>
<b>4 Why is payer marketing important?</b>	<ul style="list-style-type: none"><li><input type="radio"/> Payers are gaining influence on decision-makers and prescribers</li><li><input type="radio"/> To understand how payers make their judgement</li><li><input type="radio"/> Payers are often gatekeepers to patient access</li><li><input type="radio"/> Because they coordinate efforts with sales and managed markets</li><li><input type="radio"/> A,B, C</li><li><input type="radio"/> All of the above</li></ul> <p style="text-align: right;"><a href="#">reset</a></p>
<b>5 All of the following must be incorporated on direct consumer advertising except?</b>	<ul style="list-style-type: none"><li><input type="radio"/> Toll-free numbers</li><li><input type="radio"/> Risks associated with taking medicine</li><li><input type="radio"/> Referral to physician</li><li><input type="radio"/> Efficacy results from clinical trials</li><li><input type="radio"/> C and D do not need to be included</li><li><input type="radio"/> FDA approved indications</li></ul> <p style="text-align: right;"><a href="#">reset</a></p>

Demographics	
What year of pharmacy school are you in?	<input type="text" value="v"/>
Did you participate in the 2020-2021 VIP Case Competition?	<input type="radio"/> No <input type="radio"/> Yes <span style="float: right;">reset</span>
Outside of IPhO, do you have any other industry pharmacy experiences such as electives, internships, or other experiential exposure?	<input type="radio"/> Yes <input type="radio"/> No <span style="float: right;">reset</span>
What area of industry are you most interested in pursuing currently?	<input type="text" value="v"/>
<input type="button" value="Submit"/> <input type="button" value="Save &amp; Return Later"/>	