

# Field-Based Pharmaceutical Industry Clerkships for Doctor of Pharmacy Candidates

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**ABSTRACT.** Clerkships in the pharmaceutical industry can provide a unique experience for pharmacy students. They provide benefits to students, preceptors, pharmaceutical companies, and the collaborative universities. Pharmaceutical industry clerkships can include experiences in marketing, regulatory, health outcomes, manufacturing, pharmacovigilance, clinical research, or medical information. Pharmacists working as field-based Medical Liaisons for the pharmaceutical industry are in a unique position to provide additional opportunities for industry-based clerkships. Advanced practice experiences with field-based Medical Liaisons allow students to be exposed to the internal workings of a pharmaceutical company while still having the flexibility of working with an employee who is not based at company headquarters. Medical Liaisons anywhere in the country can precept students, opening up a large number of opportunities for additional industry experiences. The following article discusses the objectives, expected outcomes, and

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### INTRODUCTION

Schools and colleges of pharmacy continue to educate increasing numbers of Doctor of Pharmacy (Pharm.D.) candidates. With the increasing interest in this professional degree, finding quality clerkship sites for Pharm.D. candidates continues to be an important issue for colleges of pharmacy and the profession itself (1). Clerkship sites for Pharm.D. candidates commonly include acute care, ambulatory care, community practice, and hospital practice (2). At a time when colleges of pharmacy are looking for additional quality clerkship sites, the pharmaceutical industry represents a potential area for growth.

Pharmaceutical industry clerkships have been in existence for many years, and provide benefit to the companies, preceptors, students, and the collaborative universities (3-7). Reported benefits for pharmaceutical companies include assistance with project completion, assistance in medical information, as well as pharmaceutical industry promotion and education. In a study of students who completed an industry clerkship, there was an improvement in students' attitudes and knowledge of the pharmaceutical industry after completion of their clerkship (8). Pharmacy students can also provide pharmaceutical companies with a fresh perspective and new, innovative ideas. In addition, clerkships provide the industry with a means to assess students as potential candidates for future employment.

Preceptors of Pharm.D. candidates have also reported benefits from participating in these educational partnerships (4-7). Preceptors further develop their skills in providing feedback, coaching, and mentoring. Additionally, preceptors have reported an increase in job satisfaction as a result of having students on clerkships (7). Relationships between preceptors and students have increased preceptors' self-confidence, improved their job performance, and aided in the expansion of networking skills

and relationship building. There is also the additional benefit of earning the position of affiliate faculty with the associated college of pharmacy (4).

There are several beneficial aspects of pharmaceutical clerkships for the participating students (4-7). Students strengthen their ability to complete comprehensive literature evaluations, improve their written and verbal communication skills, maximize resource utilization, experience teamwork interactions, hone their presentation skills, and better understand the corporate environment. More specifically, many industry clerkships develop students' formal written and verbal communications skills by preparing responses to drug information questions to health care professionals (6, 7). Students are also given the opportunity of exploring potential career paths available in the pharmaceutical industry. This can be facilitated through interactions with health care professionals in various divisions of the company. This exposure can include, but is not limited to, marketing, regulatory, drug safety, information management, health outcomes research, manufacturing, pharmacovigilance, clinical trials/research, and medical information (5, 7). In a survey of pharmacy students taking a required industry clerkship, the majority of students felt that the clerkship was a valuable educational experience and improved their overall perceptions of industry and the opportunities to be gained within the industry setting (3).

Pharmaceutical industry clerkships can provide an important opportunity for a diverse Pharm.D. curriculum. Industry clerkships provide expanded educational opportunities for students, but the relationship between the industry and universities can also provide additional perspective on curricular development for colleges of pharmacy (5, 6). These relationships can also benefit the universities through increased opportunities for research partnerships, increased student interest in their program, and heightened visibility of the school within the industry.

Not all colleges of pharmacy are located near pharmaceutical companies, and unfortunately, geography can be a major barrier to placing students in pharmaceutical industry clerkships. In an informal study of 10 pharmacy schools across the country, we found that the majority of students do not complete pharmaceutical industry clerkships. Besides geography, availability of clerkships can also affect the ability of schools of pharmacy to place more students on industry electives. Additionally, another survey found that only 28% of respondent pharmaceutical companies indicated that they served as clerkship sites for students (9).

One way to address these limitations would be to utilize pharmaceutical industry employees who are based in the field rather than at a research facility or corporate headquarters. Field-based employees do not

generally live in their company's headquarters city and, thus, pharmacy student clerkships can be set up almost anywhere if there is a willing and qualified preceptor. Because a pharmaceutical company's field-based employees are often spread across the country, they offer additional industry clerkship opportunities for most pharmacy schools. The remainder of this paper describes two such field-based pharmacy clerkships within two different pharmaceutical companies. Although these clerkships are conducted at two different companies, the objectives, activities, and assessments are very similar, and could be replicated at other companies.

### ***MEDICAL LIAISON: A FIELD-BASED MEDICAL POSITION***

The existence of field-based positions within the pharmaceutical industry is becoming more common. Field-based sales positions have existed since the late 1800s (10), but today there are many field-based, non-sales positions available. These positions enable health care practitioners to have a medical career with a pharmaceutical company without having to move to a company's headquarters city. There are many different types of field-based medical positions available, such as regional research managers, clinical research associates, managed care liaisons, health outcomes liaisons, and liaison program development trainers. It is feasible that any of these field-based medical positions could support a field-based industry clerkship for pharmacy students. In this article, the two clerkships described are both precepted by field-based Medical Liaisons with Pharm.D. degrees.

The mission of the Medical Liaison position is to contribute to improved health care for patients. This is accomplished through the timely, responsive dissemination of medical information by exploring mutual clinical and scientific interests with health care providers, by facilitating professional education, and through growth in understanding the dynamics and unmet needs within therapeutic arenas.

The primary focus of the Medical Liaison role is to develop and enhance collaborative relationships with Key Opinion Leaders (KOLs) within the health care community. KOLs are those health care practitioners who are well known within their respective fields for their research, publications, speaking, or influence (11).

Key Opinion Leaders have special needs which generally cannot be met by sales representatives. The need for in-depth and cutting-edge

information about drug products is foremost since these practitioners are in a position to design and implement new research, teach students and colleagues, and provide added-expertise consultation for clinical problems. A pharmaceutical company's Medical Liaison program is designed to meet these needs with a field-based group of individuals who have deep content knowledge about disease states and products marketed by their company and competitors. They are also knowledgeable of research in their field, regulations affecting drug testing and use, and the medical education environment.

Educational and experience requirements of Medical Liaisons vary from company to company. Most Medical Liaison groups comprised practitioners with advanced health science degrees, the majority being Pharm.D.s (12, 13). This makes medical liaisons an untapped resource for pharmacy student clerkship preceptors. Besides having an advanced degree in health sciences (e.g., Pharm.D., Ph.D., M.D.), many companies require relevant clinical or therapeutic experience. The amount or length of that clinical experience will vary between companies and between therapeutic areas.

## ***CLERKSHIP DESIGN***

### ***Objectives and Expected Outcomes***

Objectives for a field-based pharmaceutical industry clerkship are presented in Table 1. As with any pharmaceutical industry clerkship, a primary objective is to provide the student with experience in the industry. Through these clerkships, students gain a better understanding of the inner workings of a pharmaceutical company. Students also gain insight into the time and commitment needed to research, gain approval, and market a drug product. They also learn about post-marketing safety surveillance and medical division activities. At the end of the clerkship, students should be able to discuss topics such as industry-sponsored research, drug development, regulatory environment, industry perception, ethics, and compliance.

A secondary objective is to introduce the student to field-based medical positions as well as other opportunities for pharmacists within the industry. Many students are unaware of the vast number of pharmacists working in different capacities within the industry. These clerkships provide students with exposure to opportunities that they may have not known existed. Upon completion of the clerkship, students should be

TABLE 1. Rotation Objectives for Field-Based Pharmaceutical Industry Rotations for Pharmacy Students

Rotation Objectives
At the end of the rotation the student will be able to:
<ul style="list-style-type: none"> <li>• discuss important pharmaceutical industry topics, such as industry-sponsored research, drug development, regulatory environment, industry perception, ethics, and compliance;</li> <li>• describe opportunities for pharmacists within the pharmaceutical industry;</li> <li>• demonstrate proficiency searching medical literature;</li> <li>• critically evaluate and summarize medical literature;</li> <li>• display appropriate verbal communication skills as evidenced through a formal journal club and major project presentation;</li> <li>• demonstrate the ability to collate medical data into a written document.</li> </ul>

able to describe opportunities for pharmacists within the pharmaceutical industry.

Another clerkship objective is to strengthen the student's verbal and written communication skills. Students on clerkship should be able to display appropriate verbal and written communication skills. These objectives are accomplished through assignments and projects such as journal clubs, therapeutic presentations, and answering ad hoc medical information requests. Preceptors work closely with the students to enhance their communication skills through these projects.

Lastly, through coaching and practice, the clerkship is designed to strengthen the student's drug information skills. Specific drug information skills required in these clerkships include literature searching, use of medical information resources, critical evaluation and summary of medical literature, and medical writing. Students should be able to demonstrate proficiency in these skills as well as demonstrate the ability to collate medical data into a written document.

### ***Educational Environment***

There are currently two educational environment models in practice. One model places the student in a field-based environment. A field-based Medical Liaison clerkship overcomes geography, one of the primary obstacles to placing pharmacy students into industry clerkships. Medical Liaisons anywhere in the country can precept pharmacy students, opening up a number of opportunities for additional industry experiences for colleges of pharmacy. Field-based Medical Liaisons do not work in

the traditional corporate office environment. The majority of Medical Liaisons work from their homes. Students generally are not provided an office and must have access to their own computer and telephone to communicate with their preceptor via e-mail and phone calls. In addition, students must have access to a car in order to meet with preceptor and go on clerkship appointments.

The student and preceptor are expected to meet daily to discuss rotation projects, industry issues, and career opportunities. Depending on convenience and comfort of the student and preceptor, these meetings can take place in any agreed upon location (e.g., a local coffee house, medical library, college). Due to the nature of these arrangements, formal presentations such as journal clubs typically occur via teleconference, usually as a training opportunity for a larger group of medical liaisons.

Students in field-based clerkships will have a large amount of independent work that must be completed at a library or their homes. With the guidance of the preceptor, these clerkships can help students develop skills to function successfully in a nonstructured environment. Time management, flexibility, and self-motivation are critical to success in this clerkship, just as they are critical for their preceptor's career.

A second educational environment model is a hybrid of the traditional industry clerkship and a field-based clerkship. Students are precepted at company headquarters by a field-based employee. Precepting students in or near a corporate headquarters provides a unique experiential environment. Students are exposed to the internal workings of a pharmaceutical company while still having the flexibility and experience of working with a field-based employee. Students are provided an office set-up (computer, desk, phone, etc.) at company headquarters. The preceptor arranges meeting times with the student to cover important drug information skills, assignments, projects, and cover various industry topics. In this model, the preceptor typically meets with the student on a daily basis at the student's desk at company headquarters.

### ***Content***

Regardless of the educational environment model, the pharmacy student takes part in many activities during the clerkship. The student accompanies the preceptor to customer visits taking place in or near the home-base city. This gives students exposure to different career opportunities within the industry, interactions with other health care practitioners in a unique setting, and enables the student to continue to develop their communication skills. Arrangements are also made to have the student

spend time with other field-based professionals, such as other Medical Liaisons and sales representatives. This gives the Pharm.D. candidates experience with other therapeutic areas and different field-based roles.

Clerkship students also answer ad hoc requests from internal and external customers. This provides students with experience answering drug information requests as well as training and practice using various medical information resources. Students also participate in conference calls with the Medical Liaison team where they can review new information, articles, or slides.

There are several projects completed by Pharm.D. candidates during the clerkship. The students are required to do a formal journal club presentation. There is also a major project to be completed during the clerkship. The topic is chosen in collaboration to meet the student's interests and departmental needs. At completion of the clerkship, Pharm.D. candidates present their project with a formal PowerPoint presentation that is approximately 40 minutes in length plus a question and answer period. Projects can be a therapeutic presentation, medical education assignment, or sales/marketing project.

Being in a field-based environment, the journal club and project presentations are typically conducted via a conference call or webcast. In the hybrid-model, the presentations can take place at the corporate headquarters with participants attending both in person and via a conference call.

Time is also arranged for students to meet or speak with pharmacists within other areas of the company to gain a better understanding of the inner workings of the company, as well as other employment opportunities in the industry. These meetings can be with pharmacists from areas such as regulatory, manufacturing, labeling, pharmacovigilance, and medical. Many industry topics are covered during these meetings, such as drug development, company pipelines, industry-sponsored research, working with the Food and Drug Administration, and compliance to guidelines from the Office of the Inspector General (OIG) and Pharmaceutical Research and Manufacturing Association (PhRMA).

Additional activities can be completed if time and opportunities allow. These activities can include participation in the writing of manuscripts, participation in refereeing manuscripts for journals, writing of medical letters, creation of a slide set for Medical Liaison use (pertinent publication, presentation, or data), or accompanying the preceptor to company meetings (e.g., sales training, district meetings, Medical Liaison team meetings). Clerkship activities are almost limitless given some creativity and opportunity. These activities can be customized to the



student's interests and goals, as well as needs of the Medical Liaison department at the time of the clerkship.

### ***Assessment Methods***

Assessments occur at the mid-point and conclusion of the clerkship. Students are provided with all evaluation forms at the beginning of the clerkship, so that expectations and evaluation methods are clear. Standard evaluation forms from the Pharm.D. candidates' college of pharmacy are typically available and can be used. A standard company form can also be created if the college of pharmacy agrees to its use. If the preceptor takes students from multiple colleges of pharmacy, it can be advantageous to the preceptor to have one standard company form to ensure consistency of grading and ease of use.

The mid-point evaluation consists of identifying the students' strengths and areas of focus for the second half of the clerkship. In addition to continual feedback and coaching, the mid-point evaluation is a progress check to ensure that both the clerkship's objectives, as well as the pharmacy students' expectations are being met.

The final evaluation consists of assessing the student on the predefined clerkship objectives, presentations, and projects. Clerkship objectives pertaining to the students' ability to discuss industry topics and describe opportunities for pharmacists within the industry are assessed by the preceptor during discussions with the student. Objectives relating to drug information and communication skills are assessed through evaluation of project work and presentations. For journal club and project presentation evaluation, those in attendance complete formal evaluations. For other clerkship projects, the preceptor is responsible for providing the students' evaluations.

The impact of the rotation on students' perception of the industry can be evaluated in different ways. A formal survey can be administered pre- and post-clerkship. Alternatively, perception can be measured while establishing baseline literature searching skills. A preceptor can have the student conduct a literature search on field-based medical liaisons at the beginning of the rotation. The student prepares a list of pros and cons of the industry and the field-based position, and discusses them with preceptor. At the conclusion of the clerkship, the preceptor should revisit those original thoughts with the student to assess learning and changing attitudes towards industry and the pharmacist's role.

Most colleges of pharmacy require that students also complete an evaluation of the clerkship, site, and preceptor. If the student is not required to

do this, it is suggested that the preceptor gather the feedback to ensure constant improvement of the clerkship.

### ***Preparing for a Student***

It is important for preceptors to plan in advance for the clerkship. Being field-based, there is a good deal of scheduling and coordinating that must be done to ensure a smooth clerkship. Besides scheduling appointments with customers and coordinating visits with other field-based personnel, it is important to arrange times and conference calls for the student's presentations. This will ensure that the invitees have plenty of notice and will hopefully increase attendance at presentations. It is also important to plan one's own calendar so that any major business trips, conferences, or time out of the home territory takes place either before or after the clerkship.

When scheduling visits, preceptors should inform customers that they will have a pharmacy student accompanying them in advance. Not only does this prepare the customer, but it also has the added benefit of providing additional credibility to the Medical Liaison as a practitioner. Being affiliated with a college of pharmacy and educating students can create a more collegial atmosphere with customers as they realize that Medical Liaisons participate in academic activities outside of their core job responsibilities.

It is also important to keep in mind that most students will choose a pharmaceutical industry elective clerkship because they want to learn more about the industry. Although it is important to give students exposure to the field-based role, it is also important to give them as much exposure to other areas of the company as possible.

Preceptors should be mindful of the procedures and policies of both their employer and the college of pharmacy. If the preceptor's company does not currently host students on clerkships, affiliation agreements between colleges of pharmacy and the company must be signed prior to beginning to precept students. Other policy matters to consider include having students sign a liability release for travel in company vehicles, and confidentiality agreements. Preceptors should also be aware of the terms and limits of the professional liability insurance policies carried by colleges for their students. Since students may be involved in writing medical letters or manuscripts, it is suggested that students read and sign a plagiarism policy. This is recommended so there is no confusion as to the definition or ramifications of plagiarism. Field-based preceptors should work with other preceptors within their companies as well as

with colleges of pharmacy clerkship coordinators to assist in scheduling, locating students, and providing necessary documents.

As with any pharmacy clerkship, it is important to set workplace expectations (e.g., hours, conduct, dress code) at the beginning of the clerkship. It is good to provide a calendar on the first day so that the pharmacy student knows when assignments are due, where they are supposed to be on what days, and when they'll be meeting with other company employees (see Table 2). Because calendars are subject to change based on unforeseeable events (e.g., client needs, cancelled/rescheduled appointments), it is important to prepare the student by discussing schedule flexibility at the beginning of the clerkship.

For the major presentation such as the journal club, it is advisable to arrange practice presentations where the student will present to the preceptor. This allows the preceptor to provide feedback and coaching on the content, slide formatting, and presentation style. Practice presentations have received positive feedback from students. Many students are intimidated by speaking in public. The length of the presentation is also a cause of stress to some students. Practice presentations help students

TABLE 2. Example Calendar for Pharmacy Field-Based Industry Clerkship Rotations\*

Monday	Tuesday	Wednesday	Thursday	Friday
4 ORIENTATION	5	6 Field Day w/ Preceptor	7 Field Day w/ Preceptor	8
11 11-noon ML Team Conf Call	12 Day in Field w/ Sales Representative	13 1-4 – Writing Workshop w/ ML Team	14 3pm - Journal Club	15 Field Day w/ Preceptor Mid-Point Eval
18	19 Day in Field w/ ML from different therapeutic area	20 Field Day w/ Preceptor	21	22 Field Day w/ Preceptor
25 Practice Presentation 2-3 pm 11-noon ML Team Conf Call	26 Day in Field w/ Area Sales Manager	27 Day in Field w/ Outcomes Liaison	28 Final Presentation 1-2 pm	29 Final Evaluation

\*Unscheduled days/times to be used for 1:1 coaching, drug information topic review, library time, research, project work, etc.

increase their comfort level with the topic and with presentations in general when implemented appropriately (e.g., several days prior to final presentation, educational atmosphere).

It is also important to get management and internal corporate support for the rotation. Precepting pharmacy students requires a large time commitment and can potentially distract the preceptors from their day-to-day activities. If management understands all the benefits to the preceptor, company, student, and pharmacy school, there is a greater chance that they will support the clerkship.

### **SUMMARY**

The number of clerkships in the pharmaceutical industry may be limited, but can provide a very unique experience for pharmacy students. Industry rotations provide benefits to the pharmaceutical companies, preceptors, students, and the collaborative universities. Not all colleges of pharmacy are located near pharmaceutical companies, and geography can be a major barrier to placing students in industry rotations. Nontraditional, field-based industry rotations offer additional industry rotation opportunities for pharmacy schools. Field-based employees with commitment to precepting and management support can help increase the availability of pharmaceutical industry rotations. Through creation and utilization of field-based clerkship sites, more pharmacy students will be able to complete an industry rotation and learn about a unique work environment.

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