

The growth of pharmaceutical industry fellowship programs: Why all the excitement?

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The number of student pharmacists seeking careers in industry has increased in recent years, as demonstrated by the growing number of applicants for industry-based postgraduate training programs. With this growth of interest, PharmD students have more unanswered questions than ever about the pharmaceutical industry. A common question is “What’s all the excitement about?”

Graduating PharmDs who have been fortunate enough to get pharmaceutical industry experience while in pharmacy school frequently decide to pursue a career in industry. They then meet with a significant obstacle in that most pharmaceutical companies are not actively looking to hire PharmDs straight out of school. Even if they are, the positions frequently are not at the level or in the discipline graduates are seeking.

Fortunately, there is help available to bridge the experience gap and train graduates for sought-after industry positions. The number of pharmaceutical industry-based postgraduate training programs for pharmacists has grown substantially over the past 20 years, and a record 120 graduates participated in these programs in 2004. The Rutgers University Ernest Mario School of Pharmacy operates the largest of the industry-based postgraduate training programs, having as many as 70 participants annually.

Employment opportunities

Pharmacists are employed in many different areas within the pharmaceutical industry. Some of the more common assignments are clinical research, regulatory affairs, medical affairs, and marketing. Brief descriptions of these areas follow.

Clinical research. The clinical research department focuses on developing new drug entities as novel treatments for a variety of diseases. Many of the studies conducted or coordinated by a drug company’s clinical research staff are done to produce data supporting worldwide registration of a new drug product. In addition to registration-directed studies, the clinical research department also conducts clinical studies that support marketing activities. The main priority of clinical development is evaluating products’ safety and efficacy in human clinical trials. Clinical research fellows in the industry-based postgraduate training programs manage protocol development and initiation, conduct closeout, and prepare reports.

Pharmacists bring a unique perspective to this aspect of the drug development process. Strong analytical, organizational, leadership, writing, and presentation skills are necessary to succeed in this arena. The educational background and training that pharma-

cists receive prepares them to lead a clinical development team to success. In addition, participating in an industry-based postgraduate training program in clinical research can accelerate career development for pharmacists in the pharmaceutical industry.

Regulatory affairs. All aspects within the drug development process are subject to state and federal regulations. The regulatory affairs (RA) department is responsible for ensuring that a company’s drugs, devices, and other products are safe, effective, and ready to meet the rigors of the approval process. The RA group manages communications with and submissions to regulatory authorities, including FDA. The RA professional is the primary company contact for health authorities in the United States and other countries around the world.

The RA professional also plays a key role in reviewing and submitting Investigational New Drug Applications and New Drug Applications (NDAs). For example, RA supports the clinical research department in designing the Phase I–III trials needed for drug approval. After completing the clinical program, RA professionals work with others throughout to accurately and appropriately characterize safety and efficacy data for submission in an NDA. The RA also works closely with marketing and medical affairs to review promotional materials and advertisements before they are distributed to ensure that they are within product labeling and FDA guidelines. The department is also responsible for all product labeling and supervision of the formulation and editing of label texts, package inserts, product profiles, and other product information regarding indications, adverse effects, and interactions with other drugs that is provided to health care professionals.

Medical affairs. Many PharmDs in industry gravitate to medical affairs, where they have frequent opportunities to use their clinical expertise. The medical affairs department is responsible for providing accurate, fair, and balanced product knowledge to its internal and external customers. Medical affairs associates are regularly responsible for creating and maintaining product databases, which serve as primary resources when processing and responding to medical inquiries from consumers and health care professionals.

The department may also receive internal requests to provide product training to sales representatives, compile product-specific information, evaluate the scientific content of promotional and training materials, provide scientific support at exhibits during national meetings, and monitor journals and other literature to gain competitive intelligence. Postgraduate programs in the medical affairs area are among the most common and range from company-sponsored drug information residencies to fellowships with industry–academia partnerships.

Marketing. The PharmD is also valued in pharmaceutical marketing. Pharmacists can add value within a company's marketing department by applying their clinical knowledge and analytical skills. Some PharmDs augment their scientific training with an MBA or seek out practical business experience to improve their chances of finding a rewarding and successful career in product management.

The marketing department is responsible for establishing and implementing market strategies and tactics for products at various stages of development. It is also responsible for developing brand awareness and integrated communications strategies, which may encompass the functions of advertising and promotion, public and professional relations, continuing medical education, and patient education. Only Rutgers, through a number of U.S. marketing, international marketing, and marketing research fellowships, offers industry-based postgraduate training in pharmaceutical marketing.

Industry opportunities for pharmacists also exist in pharmacoeconomics, medical strategy, drug safety, integrated health care markets, and strategic intelligence.

Filling the training gap

PharmD graduates usually need additional training to gain the experience that pharmaceutical companies are looking for as they recruit top talent to their organizations. Fortunately, the growth of industry-based postgraduate training programs has created more opportunities to obtain this training, which helps bridge the gap between a PharmD and an entry-level or higher position at a drug company. The world's top pharmaceutical companies have now recognized the contributions clinically trained pharmacists can make and have established postgraduate training programs. For example, Rutgers has partnered with 6 of the top 10 global pharmaceutical companies to offer fellowship programs.

A clear track record of success has emerged for industry-based postgraduate training programs. Over the past 20 years, more than 700 PharmD graduates have completed this type of training, and since the inception of the Rutgers program, more than 300 program alumni have obtained prominent positions at 40 different companies. Now in its 20th year, the Rutgers program is a nationally recognized, trusted, and proven pathway to industry.

For further information on postgraduate training opportunities available through the Institute for Pharmaceutical Industry Fellowships, visit <http://pharmafellows.rutgers.edu>.

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Rutgers fellowship graduates describe their 'pathway to industry'

Kelly S. Park, PharmD, medical information, Ortho-McNeil Pharmaceutical, Inc.



I decided to pursue the Rutgers Pharmaceutical Industry Fellowship because it offers the opportunity for an educational, challenging, and rewarding experience. As a medical information specialist, I respond to medical information requests; update the company's standard responses to patients, health care professionals, and sales representatives; provide sales training; attend national professional meetings; provide quarterly Lunch and Learn presentations; participate in three 1-month rotations within Johnson & Johnson; and precept student pharmacists. I would highly recommend this fellowship to anyone with an interest in the pharmaceutical industry, academia, business, and medical information. I am confident it will help prepare me to pursue my future career endeavors.

Lotus Yung, PharmD, clinical research, Novartis Oncology



The Rutgers Pharmaceutical Industry Fellowship Program has provided me with a wide range of industry experience. As a fellow in oncology clinical research, I am conducting multicenter trials that involve hundreds of cancer patients. I have learned first hand how to implement and maintain a Phase I clinical trial in accordance with FDA regulations and ICH guidelines. The experience I have gained is invaluable and has provided me with the skills necessary to pursue a career in the pharmaceutical industry.

Kavita Johal, PharmD, pharma development regulatory, Hoffmann-La Roche Inc.



I decided to pursue a Rutgers fellowship because it was the best way for me to gain the knowledge and experience needed for a career in the pharmaceutical industry. The program is known as the pathway to industry, allowing fellows to develop the skills necessary to build a foundation for an accelerated career path in the industry.