

Pharmaceutical Industry: Research and Development

Background

Pharmacists in industry are employed in a variety of positions. Although practice titles, descriptions, and prerequisites differ by company, the educational requirements for these positions are often similar. Most pharmacists in industry work in the following areas: research and development (R&D; addressed in this profile), all phases of drug product development, sales and marketing, corporate administration, all phases of clinical trials research, drug information, manufacturing, regulatory affairs, health policy, scientific/professional affairs (e.g., professional relations, professional education, medical science liaison [addressed in a separate profile], medical information), and quality control.

Pharmaceutical industry corporate facilities are located throughout the United States, although there is heavier geographic concentration in the Northeast (including Delaware, New Jersey, New York, and Pennsylvania), the Midwest (including Illinois and Indiana), the Mid-Atlantic (North Carolina), and the West Coast (California), where many biotechnology start-up firms are headquartered. Regional plants and offices exist throughout the country.

R&D pharmacists in the pharmaceutical industry spend 23% of their time doing research. This is followed by 21% of their time spent on project management, 19% of their time for business/organization/department management activities, and 12% for data management. R&D activities may take on many forms ranging from the development of new chemical/drug entities to the evaluation of existing products for alternative indications.

Characteristics

Forty-nine research and development pharmacists responded to the 2012 *APhA Career Pathway Evaluation Program* survey. Half of the respondents had a PharmD degree. Fifty-nine percent indicated an advanced degree (MA, MS, MBA, PhD, or other). Twelve percent had completed a residency program, 22% a fellowship, 14% had received certificate training, and 12% reported that they had been through some form of other training.

Respondents' average age was 48 years old. More than half (51%) of respondents were female. Income data show only 3% earn less than \$100,000. Forty percent indicated that they earn more than \$150,000 per year. The average time worked per week was 40 hours.

The majority of respondents indicated that they were satisfied with their work, with 67% indicating "extremely satisfied" and 25% indicating "somewhat satisfied." The same percentages also were mentioned by respondents related to their work being challenging, with 71% indicating "extremely challenging" and 25% indicating "somewhat challenging."

Insider's Perspective

What aspects of the job are most appealing?

Two qualities cited by several pharmacists were variety and intellectual stimulation. Three additional items were mentioned by the respondents were new product development, schedule, and the environment itself.

A pharmacist wrote of enjoying the “environment, lots of variety, people, and job flexibility.” One respondent summed up the thoughts of many colleagues by stating enjoyment in the “intellectual stimulation, camaraderie with peer scientists, innovative atmosphere, location, corporate objectives, and compensation/ benefits.”

What aspects of the job are least appealing?

In contrast to the most appealing aspects, pharmacists indicated that pressure/stress was the least appealing aspect of their work. Also mentioned were politics and no direct patient contact. Others listed a lack of resources as a concern.

A respondent indicated one of the least appealing aspects was the “high pressure,” which was supported by a colleague who stated the least appealing aspect was the “high degree of pressure/stress.”

What advice should students and practitioners consider when selecting the option of working in the pharmaceutical industry doing research and development?

Most respondents indicated the need for pharmacists to look at lifestyle considerations and the opportunities available. Others wrote that it is important to look at additional training, both formal degree training and information training, because this is a requirement in many positions. One respondent indicated the importance of pharmacists’ “willingness to seek additional advanced education.”

Critical Factor Ratings

Interaction With Patients

R&D pharmacists in the pharmaceutical industry have very limited to no patient interaction. This depends on the individual's role in R&D and whether there is involvement in clinical trials or other areas that may afford some interaction with patients.

= 2.7



Conducting Physical Assessments

Respondents rated this factor the lowest score in the profile. R&D pharmacists in the pharmaceutical industry spend little time conducting physical assessments. Some pharmacists may engage in these activities as part of their responsibilities in clinical trials.

= 1.5



Interpreting Laboratory Values

As mentioned in the previous factors, there is little opportunity for patient interaction. However, there are times when a researcher may have access to laboratory values to determine the effectiveness of a product or to determine whether it is impacting other areas of the body.

= 2.9



Continuity of Relationships

Pharmacists in the pharmaceutical industry get to know other health care professionals on a project-by-project basis. This provides for some continuity of relationships with others.

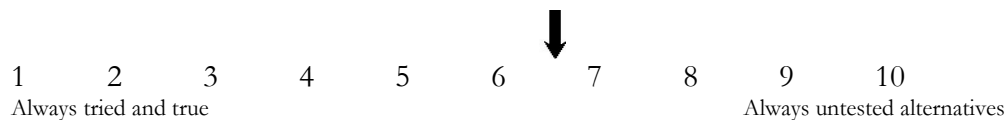
= 5.1



Helping People

Pharmacists within the industry are involved with activities that tend to indirectly help people, looking at the research that they perform. R&D pharmacists can indirectly impact millions of patients with the discoveries and modifications that they make to medications and the understanding of disease.

= 6.6



Focus of Expertise

Most pharmacists in industry say their pharmacy training and background is crucial to effective performance in their careers. Surprisingly, respondents indicated they tend toward a sharply defined area of expertise. This may be due to the fact that a majority of the work is related to general scientific application.

= 6.9



Innovative Thinking

Innovative thinking or new ideas are important components of bringing new products to market, the major goal of the pharmaceutical industry. Pharmacists who work in the industry engage in this type of thinking most of the time as reflected by the high range 8.0 rating.

= 8.0



Applying Scientific Knowledge

The scientific/medical knowledge that a pharmacist has is critical for success in a number of pharmaceutical industry positions. It is not surprising that those in R&D apply the scientific knowledge that they have on a regular basis.

= 8.2



Applying Medical Knowledge

In contrast to the application of scientific knowledge, respondents rated this factor lower at 6.4. Taking into consideration that many of the respondents are working at the very early stages of R&D of a medication or device, they have a lower need to apply medical knowledge.

= 6.4



Creating New Knowledge by Conducting Research

In this career path, pharmacists may be involved in R&D of new products and/or devices, the multiple phases of clinical trials, and other forms of research that create new knowledge. As noted earlier, respondents indicated they a fairly high percentage of their time engaged in research activities.

= 5.5



Management/Supervision of Others

Supervising and managing others was the work activity reported to consume the third most amount of time for a pharmacist working in R&D. Taking into account that 52% of the respondents are in some type of management position, this reinforces the time they spend on this activity.

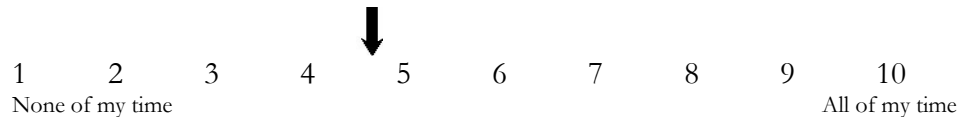
= 4.4



Management/Supervision of a Business

Not surprisingly, R&D pharmacists spend less time on management of a business compared with personnel management. This may, however, depend on the company one works for because in some companies R&D is established as a distinct work unit that runs as a separate business within the organization.

= 4.7



Pressure/Stress

Mentioned as one of the least appealing aspects of their work, respondents rated this factor an upper mid-range 7.0. Often, pharmacists are pressured to handle many projects and responsibilities at one time and those in the industry are no exception. Those in research face the challenges of moving as quickly as possible within the budgetary allowances for a given project. Pressure also varies with the project assigned to the pharmacist.

= 7.0



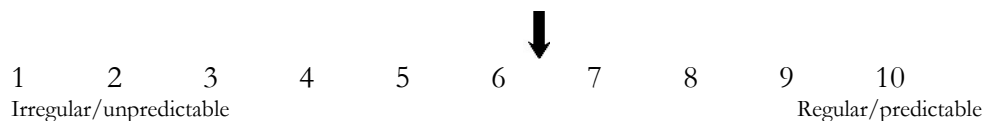
Work Schedule

Work schedule in R&D somewhat depends on the project the pharmacist is working on and the deadlines that need to be met. When the team is working on deadlines for FDA submissions, the schedule can become unpredictable.

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= 6.4



Part-Time Opportunities

Part-time opportunities are very limited in R&D. Much of this is based on the need for those in R&D to understand what has happened previously with the work. In addition, because of the number of meetings required in some of the projects, it would be difficult for a part-time researcher to keep up-to-date with all the information.

= 3.8



Job-Sharing Opportunities

Job-sharing received a low range response from respondents at 3.4.

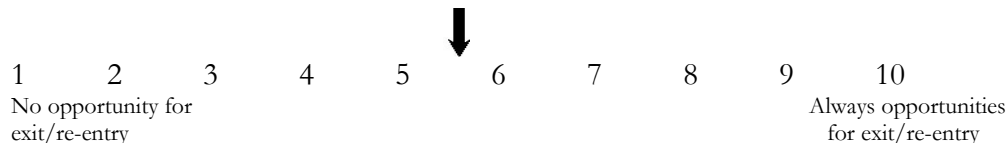
= 3.4



Exit/Re-entry Opportunities

Exit/re-entry opportunities are mid-range in this practice environment. R&D pharmacists rated this factor at the 5.6 level.

= 5.6



Parental Leave Opportunities

R&D respondents rated this factor at 7.9. Considering many are employed by larger organizations, parental leave opportunities are a benefit offered to many.

= 7.9



Leisure/Family Time

Those in R&D indicated that they have opportunities for free time.

Professional Involvement

Pharmacists working in the industry are very involved at pharmacy meetings and professional activities. Oftentimes, pharmacists in industry are called upon to share their knowledge of current research activities. Typically, this involvement depends on the individual pharmacist's desire to be involved with the profession.

= 7.1



Income

Respondents feel that they are properly compensated for their work, as noted by the 8.2 rating for this critical factor.

= 8.2



Benefits (vacation, health, retirement)

Benefits often go hand in hand with income and pharmacists in industry have very good benefit packages, reflected by the high range 8.3 rating—the highest rating in this profile. A key difference in benefit packages within the industry may be the availability of stock options and other bonuses based on goals.

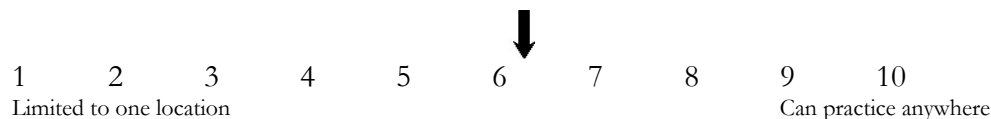
= 8.3



Geographic Location

As mentioned earlier, there are many locations where R&D pharmacists can work within the industry. However, certain regions have a larger number of company corporate offices, which can limit some movement. Taking into account that the R&D sites for industry are not as numerous as other sites for the company (e.g., regional sales offices) the rating of 6.2 provides an understanding that there are some limitations to choices of location but generally there are options.

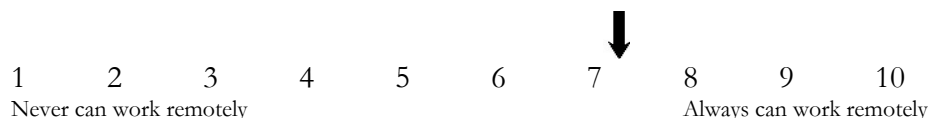
= 6.2



Working Remotely

Respondents indicated that they are able to do a significant amount of their work remotely.

= 7.2

**Autonomy**

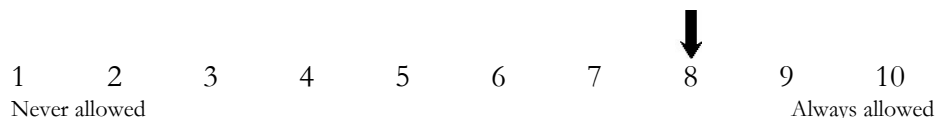
R&D pharmacists indicate that they have autonomy in much of their work. While they do work in teams and collaborate with others, they are responsible for many aspects of the project work.

= 6.9

**Self-Worth**

A pharmacist in the industry has a wealth of knowledge. As mentioned earlier, much of the work that these pharmacists perform has an indirect impact on patients' lives thereby providing a sense of self-worth.

= 8.0

**Future Focus**

Companies rely on pharmacists not only to meet short-term objectives, but to lay the groundwork for future goal achievement by positively positioning the company with important stakeholders. Those in R&D look to the future for new product development and the opportunity to fulfill an unmet medical need.

= 7.2

**Professional Prestige**

Pharmacists working in the industry report a moderate opportunity to develop professional prestige among other pharmacists in the profession. Such opportunities may include educating practitioners about newer research or by attending national and international meetings to exchange information.

= 6.9

**Unique Practice Environment**

Reflected by a 7.4 rating, pharmacists in R&D feel their positions are somewhat unique.

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Mean Scores for Critical Factors

1. Interaction with people	2.7
2. Performing physical assessments	1.5
3. Interpreting laboratory values	2.9
4. Continuity of relationships	5.1
5. Extent to which effect is direct	2.5
6. Collaboration with other professionals	7.4
7. Educating other professionals	4.6
8. Variety of daily activities	7.5
9. Multiple task handling	7.9
10. Problem solving	6.6
11. Focus of expertise	6.9
12. Innovative thinking	8.0
13. Applying scientific knowledge	8.2
14. Applying medical knowledge	6.4
15. Creating new knowledge by conducting research	5.5
16. Managing others	4.4
17. Managing business operations	4.7
18. Pressure/Stress	7.0
19. Work schedule	6.4
20. Part time opportunities	3.8
21. Job sharing	3.4
22. Exit and re-entry	5.6
23. Parental leave	7.9
24. Free time for leisure/family activities	6.7
25. Job security	5.4
26. Opportunities for advancement	7.0
27. Opportunities for leadership development	7.9
28. Community prestige	5.8
29. Professional involvement	7.1
30. Income	8.2
31. Benefits (vacation, health, retirement)	8.3
32. Geographic location	6.2
33. Working Remotely	7.2
34. Autonomy	6.9
35. Self-Worth	8.0
36. Future focus	7.2
37. Professional prestige	6.8
38. Unique practice environment	7.4
39. Advanced degree	7.7
40. Entrepreneurial opportunity	4.7
41. Additional training	6.8
42. Interacting with co-workers	8.2
43. Travel	3.4
44. Writing	6.5
45. Working with teams	8.2

Reference

Schommer JC, APhA Career Pathway Evaluation Program for Pharmacy Professionals 2012 Pharmacist Profile Survey. February 2013

Professional Organizations

Accreditation Council for Pharmacy Education (ACPE)
135 S. LaSalle Street, Suite 400 Chicago, IL 60603
Tel: 312-664-3575 Fax: 312-664-4652
www.acpe-accredit.org

American Association of Pharmaceutical Scientists (AAPS)
2107 Wilson Blvd., Suite 700, Arlington, VA 22201
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www.aaps.org

American Foundation for Pharmaceutical Education (AFPE)
2107 Wilson Boulevard, Suite 700
Arlington, VA 22201-3042
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American Pharmacists Association (APhA)
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National Pharmaceutical Association (NPhA)
107 Kilmayne Drive, Suite C, Cary, NC 27511
Tel: 800-944-NPhA Fax: 919-469-5870
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Pharmaceutical Research and Manufacturers of America (PhRMA)
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