Pharmaceutical Industry:  
Medical Science Liaison

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 (addressed in a separate 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 [MSL; addressed in this profile], medical information), and quality control.

Many pharmacists go on to obtain postgraduate degrees to meet the technical demands and scientific duties required in the pharmaceutical industry. Pharmacists with an interest in clinical work can combine this interest with their scientific background in pharmacy by serving as liaisons. MSLs call on a variety of health care professionals to educate them on the uses, merits, and scientific data related to the products their firms produce. Experienced and successful MSLs with administrative and management abilities often rise to supervisory or executive posts in the pharmaceutical industry.

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. However, most MSL positions are not at the corporate office and in fact are tied more closely to the constituents with whom they work: physicians, pharmacists, and nurses. Many companies have a different perspective of the roles for the MSL and they are often located in different divisions when looking from company to company. Some are within research and development, some in sales and marketing, and some in the corporate division.

MSLs in the pharmaceutical industry spend 30% of their time consulting and advising health care professionals. This is followed by 12% of their time spent on department management activities, 10% on teaching, 10% on research, and 10% on project management. Notably, they also listed that 12% of their time is spent in other activities not listed in the survey.

Characteristics

Twenty-four pharmacists responded to the 2007 APhA Career Pathway Evaluation Program survey. Slightly over three fourths (79%) of the respondents held an entry-level pharmacy degree, with 67% having a PharmD degree. Thirty-eight percent indicated an advanced degree (MA, MS, MBA, or PhD). Sixty-three percent had completed a residency program, 21% a fellowship, 25% had received certificate training, and 25% reported completing some form of other training.
Respondents’ average age was 42 years old. More than half (52%) of the respondents were female. Income data show that none of the respondents earn less than $100,000. Of this group, 21% indicated that they earn more than $170,000 per year. The average time worked per week was 42 hours. Respondents represented 19 states.

The majority of respondents indicated that they were satisfied with their work, with 67% indicating “extremely satisfied” and 21% indicating “somewhat satisfied.” Respondents related that their work was challenging, with 42% indicating “extremely challenging” and 42% indicating “somewhat challenging.”

**Insider’s Perspective**

**What aspects of the job are most appealing?**
Forty-two percent of the respondents indicated that the most appealing aspect of their work was the flexible scheduling. One respondent from Kentucky liked the “flexible time management.” Another from Tennessee enjoyed the “autonomy and flexibility in work schedule.”

Thirty-three percent of the MSLs felt that the most important aspect was interaction with thought leaders. A North Carolina pharmacist indicated liking the “interactions with leaders in clinical medicine.” Another respondent from Massachusetts enjoyed “interacting with physicians and discussing cutting-edge science.” Similarly, an MSL from Michigan enjoyed the “opportunity to discuss cutting-edge science with expert physicians and scientists.”

**What aspects of the job are least appealing?**
In contrast to the most appealing aspects, 38% of pharmacists indicated that the travel portion was the least appealing aspect of their work. An MSL from Illinois highlighted the “occasional heavy travel” as a least appealing aspect of the position.

Another 13% of respondents discussed how peers view their working for the pharmaceutical industry. An MSL from Kentucky expressed concern about some “peers’ views of pharmaceutical industry.” This was supported by comments from a pharmacist in Washington who stated that “some folks consider working for the industry ‘selling out,’ which is NOT true.”

**What advice should students and practitioners consider when selecting the option of working in the pharmaceutical industry as a medical science liaison?**
The most important factor cited by respondents was to understand that most MSL positions rely on previous work experience. A respondent from Florida put it this way, “First get clinical education and experience with presentation skills, then look to the MSL position.” This was supported by a colleague from Michigan who stated, “One needs clinical experience before entering into industry to be most effective with international experts.”
Critical Factor Ratings

Interaction With Patients
Respondents have very limited patient interaction. This depends somewhat on the role that the MSL has and whether it involves working with national patient groups as well as physicians and health care professionals.

\[
\begin{align*}
&= 3.3 \\
&\sigma = 2.5
\end{align*}
\]

Conducting Physical Assessments
A resounding 100% of the respondents indicated that they spend no time conducting physical assessments.

\[
\begin{align*}
&= 1.0 \\
&\sigma = 0.0
\end{align*}
\]

Interpreting Laboratory Values
MSL pharmacists spend little to no time interpreting laboratory values. Some pharmacists may engage in this activity as part of their responsibilities when working with practitioners to help them understand what laboratory measures should be taken when treating patients with particular products.

\[
\begin{align*}
&= 1.8 \\
&\sigma = 1.2
\end{align*}
\]

Continuity of Relationships
MSLs in the pharmaceutical industry will get to know other health care professionals on an ongoing basis. This holds especially true for the MSL who calls upon a set group of health professionals. Relationship building plays an important role in successfully carrying out these jobs, as well as in developing good public relations.

\[
\begin{align*}
&= 5.4 \\
&\sigma = 3.8
\end{align*}
\]
Helping People
Although respondents have little to no patient contact, they do impact patient care. Indeed, the results of the discussions with thought leaders may have an even greater impact on patient care than working one-on-one with individual patients. Therefore, MSLs are involved with activities that more indirectly help people, including patient/product outcomes studies, educating other health professionals on pharmacoeconomic data, and working with consumer advocacy groups to ensure access to pharmaceutical products.

Collaboration With Other Professionals
Collaboration with other professionals ranks on the upper end of the scale among MSL pharmacists as noted by the high range 8.4 rating for this factor, which is the highest rating across all profiles.

Educating Other Professionals
As with the above factor, MSL respondents rated educating other professionals the highest across the entire survey and all profiles with an 8.3 rating. One of the main roles of the MSL is to present information from a science perspective that provides greater insight into the use of medications for a therapeutic area. Respondents spend time sharing new information and research with physicians, nurses, pharmacists, and others.

Variety of Daily Activities
MSL pharmacists are involved in a variety of daily activities such as meetings, writing, professional reading, travel, presentations, and various other functions.
Multiple Task Handling
MSL pharmacists are used to handling multiple tasks. The variety of work activities they are engaged in require them to multitask most of the time. These pharmacists must juggle many responsibilities.

\[ \frac{= 8.0}{\sigma = 2.1} \]

1 2 3 4 5 6 7 8 9 10
Always one activity at a time Always several tasks at a time

Problem Solving
Problem solving is an important element in the role of an MSL. Resolving problems can enhance long-term relationships with both internal and external clients. These positions provide pharmacists the opportunity to try untested solutions when the tried and true may not work.

\[ \frac{= 6.7}{\sigma = 1.6} \]

1 2 3 4 5 6 7 8 9 10
Always tried and true Always untested alternatives

Focus of Expertise
Most pharmacists in industry say their pharmacy training and background is crucial to effective performance in their careers. MSL pharmacists tend to be specialized across therapeutic areas, however they also specialize in other areas of interest to the industry such as pharmacoeconomics.

\[ \frac{= 8.0}{\sigma = 2.4} \]

1 2 3 4 5 6 7 8 9 10
Generally defined area Sharply defined area

Innovative Thinking
Innovative thinking or new ideas are important components of working with thought leaders and other health care professionals. Creating new and better ways to communicate information to consumers, other health professionals, and media about product advances requires creativity. MSL pharmacists engage in this type of thinking most of the time reflected by the high range 7.9 rating.

\[ \frac{= 7.9}{\sigma = 1.7} \]

1 2 3 4 5 6 7 8 9 10
Never involves innovative thinking Always involves innovative thinking
Applying Scientific Knowledge
Tied for the highest rating across all profiles, respondents rated the application of scientific knowledge at 8.9. Considering that one of the roles for the MSL is to present the scientific data for a specific area, it makes sense that they rated this factor high. It is important for the MSL to be able to interpret clinical study data, pharmacoeconomic data, and other information as necessary to be able to educate physicians and other prescribers on the appropriate use of a product.

\[ = 8.9 \]
\[ \sigma = 1.1 \]

Applying Medical Knowledge
Applying medical knowledge is another factor that is rated the highest across all profiles. MSLs apply medical knowledge on a daily basis, especially when working with other health care professionals.

\[ = 8.9 \]
\[ \sigma = 1.1 \]

Creating New Knowledge by Conducting Research
Respondents may be involved in research and development of new products, clinical trials, pharmaceutical outcomes studies, and other forms of research that create new knowledge.

\[ = 5.1 \]
\[ \sigma = 2.9 \]

Management/Supervision of Others
Supervising and managing others was rated in the lower mid-range at 3.7. MSLs tend to work independently. Pharmacist MSLs who advance into regional or district management positions will manage a team of pharmacist and non-pharmacist personnel.

\[ = 3.7 \]
\[ \sigma = 3.0 \]
Management/Supervision of a Business
Supervising and managing a business was ranked lower than the above factor because MSLs tend not to spend a great deal of time managing the business.

\[
\begin{align*}
\text{Pressure/Stress} & \\
\text{Often, pharmacists are pressured to handle many projects and responsibilities at one time and those in the industry are no exception. MSLs have to balance the needs of the health care professionals they work with and complete the variety of tasks related to their workload.}
\end{align*}
\]

\[
\begin{align*}
\text{Work Schedule} & \\
\text{MSLs indicated that they tend to have more irregular and unpredictable hours. At times they have to change their plans in response to the needs of others who request their services.}
\end{align*}
\]

\[
\begin{align*}
\text{Part-Time Opportunities} & \\
\text{Because of the long-term relationships they try to establish and the need to develop ongoing relationships in most MSL positions, part-time opportunities are very limited.}
\end{align*}
\]

\[
\begin{align*}
\text{Job-Sharing Opportunities} & \\
\text{Similar to the above factor, job-sharing is very limited for MSLs.}
\end{align*}
\]
Exit/Re-entry Opportunities
Exit/re-entry opportunities are mid-range in this practice environment. MSL pharmacists rated this factor at the 5.8 level. The sticking point is whether the same territory and position will still be available when seeking re-entry.

\[
\begin{align*}
&= 5.8 \\
&\sigma = 3.2
\end{align*}
\]

Parental Leave Opportunities
MSL respondents rated this factor at 8.1. Considering many are employed by larger organizations, parental leave is a benefit that is typically offered.

\[
\begin{align*}
&= 8.1 \\
&\sigma = 2.7
\end{align*}
\]

Leisure/Family Time
Respondents rated this factor at 7.5, indicating that they have opportunities for free time.

\[
\begin{align*}
&= 7.5 \\
&\sigma = 2.3
\end{align*}
\]

Job Security
With so many mergers and consolidations in the industry, consideration must be given to the security of the MSL positions. The MSL pharmacists responding to the survey rated job security a mid-range 6.5.

\[
\begin{align*}
&= 6.5 \\
&\sigma = 1.6
\end{align*}
\]
Opportunities for Advancement
Pharmacists agree that the industry offers a great opportunity to advance one’s career. MSL pharmacists can move into regional or district positions or move in-house to the corporate office. Advancement opportunities vary from company to company, depending on their size and needs.

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\text{No opportunities for advancement} & & & & & & & & \text{Always opportunities for advancement} \\
\end{array}
\]

= 7.0  
\( \sigma = 2.1 \)

Opportunities for Leadership Development
Leadership development opportunities are very available within the industry as reflected by the very high rating of 8.0. Developing highly refined communications and presentation skills are critical for many pharmaceutical industry positions, including the MSL.

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\text{No opportunities for leadership development} & & & & & & & & \text{Always opportunities for leadership development} \\
\end{array}
\]

= 8.0  
\( \sigma = 1.6 \)

Community Prestige
The MSL pharmacist tends toward the lower end of the rating scale for community prestige of all profiles at 4.9. Perhaps some of this is because many work from their homes and cannot build upon the company's local community prestige.

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\text{Much less prestige than anyone else in the community} & & & & & & & & \text{Much more prestige than others in the community} \\
\end{array}
\]

= 4.9  
\( \sigma = 2.6 \)

Professional Involvement
In contrast to the above factor, MSL pharmacists rated professional involvement as tied for the second-highest rating in the profile. Often pharmacists in industry are called upon to share their knowledge of product studies and outcomes research with other pharmacists. These pharmacists have the opportunity to get involved at many levels in the profession.

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\text{No opportunity for professional involvement} & & & & & & & & \text{Always an opportunity for professional involvement} \\
\end{array}
\]

= 9.0  
\( \sigma = 1.2 \)
Income
Tied for the second-highest rating in the profile, income was rated at 9.0 by the MSL respondents.

\[
\begin{align*}
\text{Not properly compensated} & \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9 \quad 10 \\
\text{Properly compensated} & 
\end{align*}
\]

\[
\begin{align*}
= 9.0 \\
\sigma = 1.7
\end{align*}
\]

Benefits (vacation, health, retirement)
Rated the highest across all profiles and highest in this profile, MSL pharmacists rated their benefits in the high range at 9.5. Benefits often go hand in hand with income and pharmacists in industry have very good benefit packages. A key difference in benefit packages within the industry may be the availability of stock options and other bonuses.

\[
\begin{align*}
\text{No benefit package} & \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9 \quad 10 \\
\text{Excellent benefit package} & 
\end{align*}
\]

\[
\begin{align*}
= 9.5 \\
\sigma = 0.8
\end{align*}
\]

Geographic Location
Another highest ranking across all profiles and tied for the second highest in this profile, MSL pharmacists rated their ability to work just about anywhere with a 9.0.

\[
\begin{align*}
\text{Limited to one location} & \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9 \quad 10 \\
\text{Can practice anywhere} & 
\end{align*}
\]

\[
\begin{align*}
= 9.0 \\
\sigma = 1.6
\end{align*}
\]

Autonomy
Pharmacists who hold MSL positions tend to work independently, scheduling their appointments and carrying out most of their responsibilities with little to no direct supervision. Overall, pharmacists in industry feel they have great autonomy in their work.

\[
\begin{align*}
\text{No autonomy} & \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9 \quad 10 \\
\text{Total autonomy} & 
\end{align*}
\]

\[
\begin{align*}
= 8.0 \\
\sigma = 1.3
\end{align*}
\]
Self-Worth
Pharmacists in the industry have a wealth of knowledge. They know their own company’s products as well as their competitors’ products. They interface with other pharmacists, health professionals, and consumers and believe that their positions provide them with a great opportunity to develop personal value and positive outcomes.

\[ \mu = 8.4 \]
\[ \sigma = 1.4 \]

Future Focus
MSL respondents tend to look toward a future focus with a rating of 7.8.

\[ \mu = 7.8 \]
\[ \sigma = 1.7 \]

Professional Prestige
MSL pharmacists report a moderate opportunity to develop professional prestige among other pharmacists in the profession. Such opportunities may include educating practitioners about products at their individual practice sites or conducting continuing education programs at national meetings.

\[ \mu = 6.0 \]
\[ \sigma = 2.4 \]

Unique Practice Environment
Reflected by a 7.5 rating, respondents feel their positions are somewhat unique. They have the opportunity to work in a number of different areas, with people in positions ranging from administrative to highly specialized sciences and with many different products and therapeutic areas.

\[ \mu = 7.5 \]
\[ \sigma = 2.3 \]
**Advanced Degree**
More often than not, an advance degree helps to be successful in the pharmaceutical industry. MSL pharmacists indicated that an advanced degree is required, although this may be company specific as some companies require advanced degrees while others do not.

\[
\begin{align*}
\text{Mean} & = 8.4 \\
\text{Standard Deviation} & = 2.5
\end{align*}
\]

**Entrepreneurial Opportunity**
Ranked mid-range at 5.9, respondents feel they have some entrepreneurial opportunity. Opportunities vary by position and company as well as where the MSL group is located within the company.

\[
\begin{align*}
\text{Mean} & = 5.9 \\
\text{Standard Deviation} & = 2.8
\end{align*}
\]

**Additional Training**
Tied for the second-highest rated factor for this profile, MSL pharmacists scored additional training at 9.0. New scientific knowledge from many areas is important to keep up with these positions.

\[
\begin{align*}
\text{Mean} & = 9.0 \\
\text{Standard Deviation} & = 2.3
\end{align*}
\]

**Interacting With Colleagues**
Considering the type of work that is required by the MSL, it is not uncommon for these pharmacists to interact with many different colleagues in a given day.

\[
\begin{align*}
\text{Mean} & = 7.1 \\
\text{Standard Deviation} & = 2.2
\end{align*}
\]
Travel
Ranked the highest across all profiles in the survey at 7.4, MSL pharmacists indicate that they have the most travel requirements of any other group. While some listed this as a least appealing aspect, others enjoy the opportunity. What is important to realize is that the travel requirements depend on the territory and therapeutic area in which the MSL specializes.

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\text{None of my time} & \text{All of my time}
\end{array}
\]

Writing
Respondents indicate that they have a need for writing in their work. Progress reports are just one of many reports that are necessary when working with thought leaders and coordinating activities with others in a company. Additionally, departments tend to request activity reports to help look at financial considerations for the budgets that they distribute within the MSL group.

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\text{None of my time} & \text{All of my time}
\end{array}
\]

Working With Teams
Respondents indicated that they work in teams most of the time. This is not surprising when one takes into account some of the factors mentioned earlier regarding interaction with colleagues.

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\text{None of my time} & \text{All of my time}
\end{array}
\]

“On Call”
Respondents indicated that they have little, if any, “on call” responsibilities.

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\text{Never “on call”} & \text{Always “on call”}
\end{array}
\]
**Work on Holidays**
MSL pharmacists rarely, if ever, work on holidays.

\[ \mu = 1.2 \]
\[ \sigma = 0.4 \]

1 2 3 4 5 6 7 8 9 10
Never work on holidays Always work on holidays

**Work on Weekends**
Respondents indicated that they occasionally work on weekends. For many, this is the time when they attend national meetings.

\[ \mu = 3.2 \]
\[ \sigma = 1.4 \]

1 2 3 4 5 6 7 8 9 10
Never work on weekends Always work on weekends

**Presentations**
Respondents indicated that they spend time giving presentations. These can include internal presentations for their own department, presentations for physicians and thought leaders, and presentations at national meetings. Significantly, this is one of the most critical aspects of an MSL position.

\[ \mu = 7.1 \]
\[ \sigma = 1.9 \]

1 2 3 4 5 6 7 8 9 10
None of my time All of my time
### Mean Scores for Critical Factors

<table>
<thead>
<tr>
<th>Critical Factor</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>1. Interaction With Patients</td>
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<tr>
<td>2. Conducting Physical Assessments</td>
<td>1.0</td>
</tr>
<tr>
<td>3. Interpreting Laboratory Values</td>
<td>1.8</td>
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<td>4. Continuity of Relationships</td>
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<td>5. Helping People</td>
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<td>6. Collaboration With Other Professionals</td>
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<td>7. Educating Other Professionals</td>
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<td>8. Variety of Daily Activities</td>
<td>8.0</td>
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<td>9. Multiple Task Handling</td>
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<tr>
<td>10. Problem Solving</td>
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<tr>
<td>11. Focus of Expertise</td>
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<td>12. Innovative Thinking</td>
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<td>13. Applying Scientific Knowledge</td>
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<td>14. Applying Medical Knowledge</td>
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<td>15. Creating New Knowledge by Conducting Research</td>
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<td>16. Management/Supervision of Others</td>
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<td>19. Work Schedule</td>
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<td>20. Part-Time Opportunities</td>
<td>1.9</td>
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<td>21. Job-Sharing Opportunities</td>
<td>1.9</td>
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<td>22. Exit/Re-entry Opportunities</td>
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<td>25. Job Security</td>
<td>6.5</td>
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<tr>
<td>26. Opportunities for Advancement</td>
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<td>27. Opportunities for Leadership Development</td>
<td>8.0</td>
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<tr>
<td>28. Community Prestige</td>
<td>4.9</td>
</tr>
<tr>
<td>29. Professional Involvement</td>
<td>9.0</td>
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<tr>
<td>30. Income</td>
<td>9.0</td>
</tr>
<tr>
<td>31. Benefits (vacation, health, retirement)</td>
<td>9.5</td>
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<td>32. Geographic Location</td>
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<td>33. Autonomy</td>
<td>8.0</td>
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<td>34. Self-Worth</td>
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<td>35. Future Focus</td>
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<td>38. Advanced Degree</td>
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<td>39. Entrepreneurial Opportunity</td>
<td>5.9</td>
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<td>40. Additional Training</td>
<td>9.0</td>
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<tr>
<td>41. Interacting With Colleagues</td>
<td>7.1</td>
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<td>44. Working With Teams</td>
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<tr>
<td>45. “On Call”</td>
<td>1.5</td>
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<td>46. Work on Holidays</td>
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<td>47. Work on Weekends</td>
<td>3.2</td>
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<tr>
<td>48. Presentations</td>
<td>7.1</td>
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Reference


Professional Organizations

Accreditation Council for Pharmacy Education (ACPE)
20 North Clark Street, Suite 2500, Chicago, IL 60602
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
Tel: 703-243-2800  Fax: 703-243-9650
www.aaps.org

American Foundation for Pharmaceutical Education (AFPE)
One Church Street, Suite 202, Rockville, MD 20850
Tel: 301-738-2160  Fax: 301-738-2161
www.afpenet.org

American Pharmacists Association (APhA)
1100 15th Street NW, Suite 400, Washington, DC 20005
Tel: 800-237-APhA  Fax: 202-783-2351
www.pharmacist.com

National Pharmaceutical Association (NPhA)
107 Kilmayne Drive, Suite C, Cary, NC 27511
Tel: 800-944-NPhA  Fax: 919-469-5870
www.npha.net

Pharmaceutical Research and Manufacturers of America (PhRMA)
950 F Street NW, Washington, DC 20004
Tel: 202-835-3400  Fax: 202-835-3429
www.phrma.org

NOTE: For further pharmacy organization information, please visit the American Association of Colleges of Pharmacy Web site at www.aacp.org and click on the “Related Pharmacy Organizations” link.