

# High Demand: An Analysis of the Most Desired Functional Areas for PharmD Industry Fellowships and the Experiences that Lead to Obtaining a Fellowship

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## Background

- Multiple studies have identified an increase in the total number of pharmaceutical industry PharmD fellowships,<sup>1,2</sup> with 164 positions recruiting nationwide in 2015<sup>1</sup> compared to approximately 78 in 2010.<sup>3</sup>
- Pharmaceutical industry fellowships are offered in a wide variety of functional areas within the industry, including medical affairs, clinical development, regulatory affairs, marketing, and many others. Little has been done to quantify candidate demand for fellowships within specific functional areas of the industry though, which this research set out to do.
- With an increase in US pharmacy schools over the last decade,<sup>4</sup> the number of candidates applying to post-graduate fellowships will be higher than ever moving forward. While previous analyses of candidate experiences have been performed, the candidate pool has more than doubled since 2013 when the last published analysis was performed.<sup>5</sup>

## Objective

- To determine which functional areas of the pharmaceutical industry are in highest demand for PharmD fellowship candidates, allowing program directors to align their fellowship offerings appropriately with applicant demand
- To identify which professional experiences make a candidate most likely to secure an industry fellowship, providing future candidates with guidance

## Methods

### Fellowship Demand

- Candidates were able to request interviews with various fellowships being offered by a large, university-affiliated fellowship program using the Candidate Interest Form (CIF), which listed all positions recruiting for 2016.
- Each fellowship position on the CIF was categorized into a predetermined functional area (FA) (Figure 1).
- Interview requests per position were aggregated into interview requests per functional area using predetermined FAs, then divided by the average number of interview requests per candidate for that FA (to account for candidates applying to multiple positions). This resulted in the Competitive Index which represents adjusted candidates per functional area. This method was chosen because several candidates apply to more than one functional area.

### Professional Experiences

- An analysis of eligible candidates' curriculum vitae (CVs) (n=539) was completed with the goal of identifying experiences that made a candidate more likely to gain acceptance into a fellowship position.
- Each CV was screened using a standard survey which captured:
  - Degrees/credentials
  - Work experience
  - Rotation experience
  - Scholarly activities and research
  - Professional organization affiliations
  - Leadership positions
- Non-eligible candidates were excluded, such as persons who would not graduate with a PharmD from an ACCP-accredited university by July 2016.
- Candidates who received an offer for a fellowship from the program were compared against those who were not offered a position using odds ratios (OR).

## Results

### Fellowship Demand

- Initial interviews were requested by 539 candidates for 99 total positions (18.4%) across various functional areas (Figure 1).
- There was individual interest in 3104 fellowship positions from the 539 candidates (Figure 2) for an average of 5.76 interview requests per candidate (Figure 3).

Figure 1. Available Fellowships by Functional Area

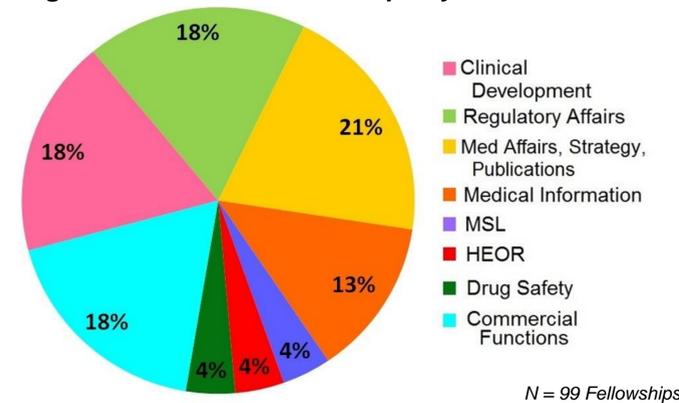
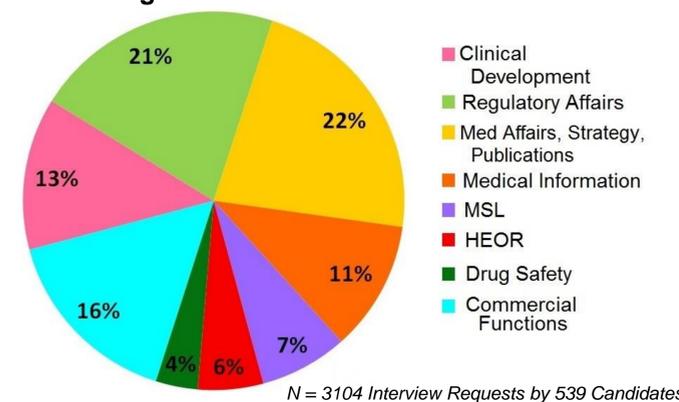


Figure 2. Overall Candidate Interest



MSL: Medical Science Liaison; HEOR: Health Economics and Outcomes Research; Commercial Functions include marketing, business development, market access, and other related positions

Figure 3. Interview Requests per Candidate

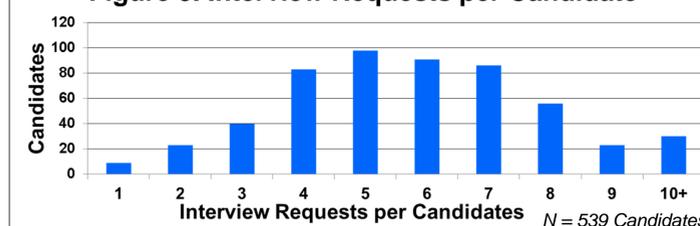


Table 1. Candidates per Position

Functional Area	Interview Requests	Recruiting Positions	Interview Requests per Position	Competitive Index*
MSL	232	4	58	9.28
HEOR	172	4	43	7.18
Regulatory Affairs	656	18	36.44	6.98
Medical Affairs, Strategy, Publications	690	20	34.5	6.21
Commercial Functions	494	18	27.44	5.43
Drug Safety	111	4	27.75	4.99
Medical Information	345	13	26.54	4.11
Clinical Development	404	18	22.44	4.11
<b>Total</b>	<b>3104</b>	<b>99</b>	<b>31.35</b>	<b>5.44</b>

\*Competitive Index represents the adjusted number of candidates per recruiting position. This figure is calculated by interview requests per position divided by interview requests per candidate, resulting in adjusted candidates per position by FA. Individual candidates applied to multiple FAs making this number inexact but still appropriate for relative comparisons between FAs.

### Professional Experiences

- Curriculum vitae (CVs) were collected from 539 candidates, then separated into two groups: those receiving a fellowship offer from the program (n=111) and those not receiving an offer (n=428).
- Odds Ratios (OR) were calculated to quantify the odds of receiving an offer if exposed to a particular professional experience, compared to the odds of receiving an offer if not being exposed to that experience (Table 2).

Table 2. Influencing Factors on Program Acceptance†

Professional Experience	Odds Ratio	P-value	Confidence Interval (95%)
Unique Work Experience*	3.877	< 0.001	2.509 – 5.991
Pharmaceutical Industry Related Work Experience	2.046	0.0013	1.324 – 3.162
Pharmaceutical Industry Related APPE Rotation Experience^	2.104	0.0108	1.189 – 3.728
Pharmacy-Related Leadership†	1.355	0.2002	0.851 – 2.156
Scholarly Activity Involvement (research experience, poster presentations and/or publications)	1.244	0.3796	0.764 – 2.027
Additional Advanced Degree other than PharmD (Masters, PhD, JD)	1.053	0.8645	0.580 – 1.913

† Accepted candidates included those who were offered a position but declined the offer

\* Unique work experiences consists of jobs/internships in Pharmaceutical Industry, Managed Care, Government Agency, Outsource Industry (advertising agency, consulting firm, contract research organization (CRO)), Association Management, Specialty Pharmacy, and Other Industry Related Experiences (e.g. Investigational Drug Service)

^ Related Industry rotations include Pharmaceutical Industry, Outsource Industry, Drug Information, and Other Industry Related Experiences (e.g. Investigational Drug Service)

† Included President, Vice President, Executive Board, Committee Chair and National Pharmacy Society Leadership Positions

## Discussion

- The number of fellowship positions available at this program (n=99) is a representative sample of the all pharmaceutical industry PharmD fellowship offerings, representing close to 50% of total fellowships nationwide.<sup>1</sup>
- Demand for pharmaceutical industry fellowships is very strong, with 539 applicants to this program for 2016 compared to 225 applicants for the 2011 fellowship year.<sup>6</sup>
- The highest relative demand was seen for medical science liaison (MSL) and health economics & outcomes research (HEOR) positions, and the lowest demand observed relative to the number of available positions was for clinical development and medical information fellowships.
- The highest total demand (irrespective of available positions) was for medical affairs and regulatory affairs while the lowest was for drug safety and HEOR.
- Candidates with work or rotation experience within the pharmaceutical or outsource industries (advertising, consulting, CROs) were more likely to receive a fellowship offer than candidates without these experiences.
- Candidates with leadership experience and scholarly activity involvement appeared more likely to receive an offer, but this was not statistically significant.

## Limitations

- All fellowships were classified into one functional area that best captures that fellowship, but does not account for temporary rotations in certain fellowships.
- Data for both the fellowship interest and the CVs is based on candidates and fellowships for one university fellowship program, though it is the largest of its kind.
- CVs were self-reported by candidates and may have been incomplete or inaccurate.

## Conclusions

- Demand for fellowships in the MSL and HEOR fields is high. Fellowship programs and pharmaceutical companies could consider adding positions in these areas.
- There is demand for clinical development and medical information fellows from the companies but their stakeholders should be aware that these two functional areas will have less candidates per position compared to other functional areas.
- Pharmacy students interested in obtaining a fellowship should pursue internships, co-ops, and rotations in the pharmaceutical and outsourced industries. Additionally, these students can benefit from obtaining other unique work or rotation experiences including managed care, association management (e.g. APhA, ASHP), and drug information, and may benefit from research and leadership experience.

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**Disclosure**  
All authors are affiliated with Rutgers, The State University of New Jersey including 4 employees and 2 students