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## Background

Doctor of pharmacy (Pharm.D.) candidates have a multitude of post-graduate training options available, with one option being a pharmaceutical industry fellowship. A post-doctoral pharmaceutical industry fellowship is a one or two year training program designed to prepare a fellow for a career in the biopharmaceutical and/or pharmaceutical industry.<sup>1</sup> Throughout these programs, Pharm.D.s may gain experience in a wide variety of areas including medical affairs, regulatory affairs, marketing, research and development, and other areas of a company. Many of these fellowship programs are facilitated by academic institutions, typically a university school of pharmacy.<sup>1</sup> There are also programs that are considered independent fellowships, which are directly offered by the sponsor pharmaceutical/biopharmaceutical companies.

In 2009, a survey discovered there were 78 Pharm.D. industry fellowship positions available for 2010.<sup>2</sup> As the research on this poster will show, the number of available fellowships for 2015 has more than doubled since then. Because of the increasing number of Pharm.D. fellowships, candidates may face more difficult decisions when deciding upon what specific Pharm.D. fellowship to pursue. The goal of this research is to analyze the post-doctoral industry fellowship landscape to gain understanding and knowledge of the current available programs and how these might differ from one another.

## Objectives

- To characterize and assess the landscape of pharmaceutical industry-focused post-doctoral Pharm.D. fellowships
- To describe the differentiating variables of current fellowship programs in hopes of aiding potential fellowship candidates and those interested in starting a fellowship program at their company or university

## Methods

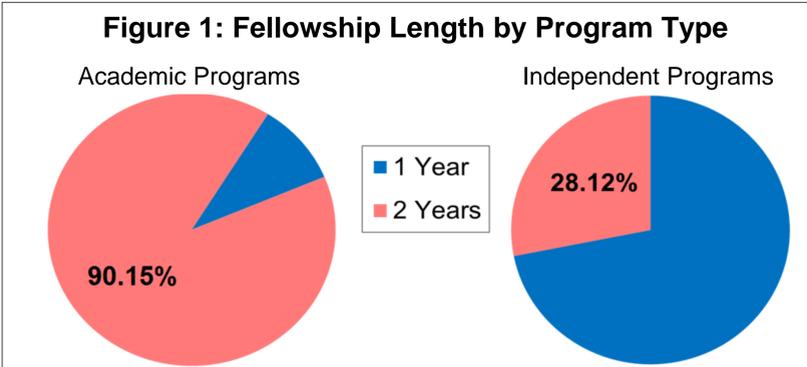
- A retrospective analysis of publicly-available fellowship information, including websites, brochures, and newsletters, was conducted
  - Additional information was obtained from publicly-listed fellowship stakeholders via email questionnaires and phone interviews\*
  - Printed fellowship informational materials were posted primarily in 2014, recruiting for fellows to begin their fellowships in 2015
- For inclusion, only fellowships at pharmaceutical companies, contract research organizations (CROs), or consulting companies that are offered towards Pharm.D.s were analyzed
- Fellowships affiliated with a university were designated "Academic," while unaffiliated programs were designated "Independent"
- Classifying the functional areas of fellowships:
  - Broad functional areas were pre-determined (see Figures 2 and 3)
  - The medical affairs classification was partitioned into four components: medical affairs/medical strategy, medical information, medical science liaison (MSL), and health economics and outcomes research (HEOR)
  - Some fellowships (n=11) had set rotations in different functional areas (i.e. 1-year medical affairs, 1-year commercial). These fellowships were allocated partially to each area (e.g. 0.5 medical affairs, 0.5 commercial)

\*Express consent was obtained from fellowship stakeholders when seeking information from these sources

## Results

### Demographics

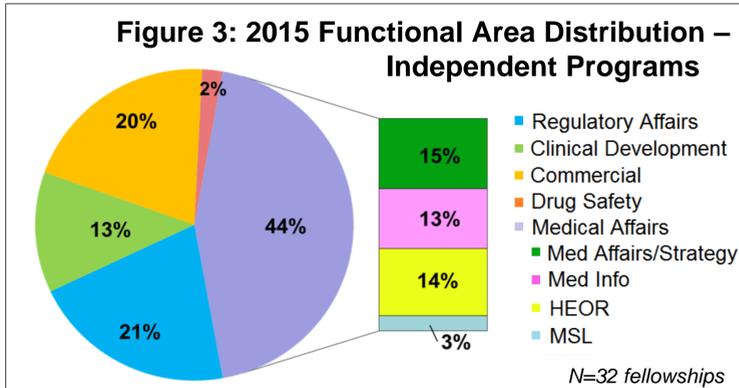
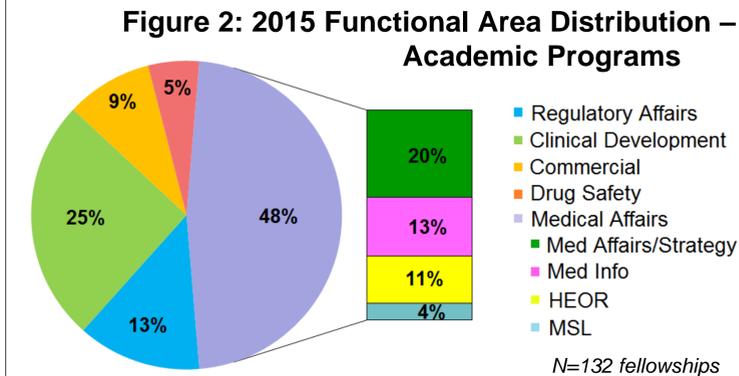
- Information was gathered on 26 fellowship programs, which collectively partner with 49 companies
  - 16 programs (61.5%) affiliate with a university (Academic Programs)
- The 26 programs recruited for 164 fellowship positions for the 2015 fellowship year
  - One-year fellowships: 36 (22%)
  - Two-year fellowships: 128 (78%)
- In 2014, there were 233 Pharm.D. fellows in the 26 programs
  - Academic Programs: median size = 4 fellows (interval: 1-101)
  - Independent Programs: median size = 1.5 fellows (interval: 1-13)
- For Academic Programs, the median distance from partner company to university is 32 miles (n=65)
- The average salary for a fellow in his or her first year was \$44,958 (n=12). This amount excludes benefits such as health insurance
- Rotations: 41% of fellowships allow fellows to rotate outside of their assigned department, while 14% have structured (i.e. predetermined) rotations of longer durations (e.g. 1-year Med Info/1-year MSL)



**Table 1: Distances of Partner Companies to Their Associated Universities**

Distance (Miles)	Number of Companies within Range (n=65)**	Percentage of Companies within Max Distance
0 – 10	12	18.5%
11 – 20	9	32.3%
21 – 30	9	46.2%
31 – 40	12	64.6%
41 – 50	4	70.8%
51 – 60	4	76.9%
61 – 80	3	81.5%
81 – 100	0	81.5%
101 – 1000	8	93.8%
1001 – 3000	4	100%

\*\*If company has fellows stationed at multiple campuses, each campus was counted individually



### Development Opportunities

- Teaching Opportunities
  - The majority of Academic Programs (88%) offer teaching opportunities to their fellows in the form of didactic lecturing, course coordination, precepting students, or a teaching certificate program
  - A smaller number of Independent Programs (30%) offer formal teaching opportunities
- Research Opportunities
  - The majority of all programs encourage or require fellows to complete a research project
- Professional Development
  - Various programs offer or require fellows to take classes towards a degree and provide financial support
  - Multiple Academic Programs offer structured developmental days with the goal of developing leadership skills and gaining industry knowledge
  - Multiple programs sponsor their fellows' attendance at professional conferences and/or subsidize membership dues

## Discussion

- Academic fellowships are generally larger (i.e. more fellows, positions), offer more opportunities for teaching and research, and offer more two-year fellowships than Independent Programs. Thus, Academic Programs may be better suited to candidates looking for a multitude of diverse developmental experiences over a longer period of time.
- In addition, Academic Programs offered a greater number of clinical development-focused fellowships, while Independent programs offered more opportunities in regulatory and commercial functions. Both types of programs offered a substantial percentage of medical affairs-related fellowships, which could potentially indicate a high demand for training in this area, or that the skills and clinical knowledge possessed by Pharm.D.s make them a natural fit for employment in medical affairs functions.
- 29.2% of academic fellowships are located at a partner company >50 miles from the university. Although quality of those fellowship is not assessed here, this shows that geographic proximity has not been a requirement for creating a new academic-affiliated fellowship.
- There were at least 164 fellowships offered for 2015, more than twice the amount offered in 2010.<sup>2</sup> The recent growth of Pharm.D. industry fellowships may be attributed to a growing recognition of the value of a Pharm.D. in the industry and the value of formal fellowship training. It is also possible that with more Pharm.D.s completing fellowships and entering the industry each year, these fellowship alumni are successfully advocating for Pharm.D. fellowships to their company stakeholders.

## Limitations

- The information was collected primarily from the public domain
- Fellowships were classified into pre-determined functional areas, which may not accurately describe select unique fellowships (e.g. epidemiology, public policy, patient advocacy)
- Specific aspects of professional development, teaching, and research opportunities were difficult to obtain and often only described in a general manner

## Conclusions

- The number of pharmaceutical industry Pharm.D. fellowship programs has grown substantially over the past 5 years
- University-affiliated fellowships are more likely to offer opportunities for teaching, networking, and professional development than programs with no academic affiliation
- Functional areas are not represented equally across available fellowships. It would be valuable to perform further research to calculate the demand for each functional area (i.e. number of applicants per functional area) so that additional fellowships could be created for the functional areas with highest ratio of candidates to fellowships

## References

- Melillo S, Gangadharan A, Johnson H, et al. Postdoctoral pharmacy industry fellowships: A descriptive analysis of programs and postgraduate positions. Am J Health-Syst Pharm. 2012; 69:63-8.
- Larochelle PA, Giang DK, Silva MA, et al. Post-PharmD Industry Fellowship Opportunities and Proposed Guidelines for Uniformity. Am J Pharm Educ. 2009; 73:20.