

Analysis of 2020-2021 PharmD Industry Fellowships

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Introduction

Approximately 15,000 pharmacists completed their degrees in 2018-2019 compared to 7,000 in the year 2000.¹ Unfortunately, there has not been a corresponding increase in jobs for pharmacists, or an offset in pharmacists leaving the workforce. In fact, workplace supply and demand trends have recently shifted. According to the Bureau of Labor Statistics (BLS), in 2016, the estimated 10-year growth of 5.6% (312,000 to 330,100 pharmacists) will be below the national employment growth by 7.4%.^{2, 3} These statistics describe the surplus of pharmacists contributing to salary stagnation over the same period. It is not surprising therefore that there has been a simultaneous increase in pharmacists interested in non-traditional opportunities, including positions in the pharmaceutical industry. Today, one of the more common barriers to pharmacist employment in industry is that there aren't enough entry level positions available.

Industry provides an environment where pharmacists can utilize their clinical training and experience to provide a global impact as compared to traditional community or hospital settings. Additionally, for those pharmacists who are interested in learning more about the business of healthcare, industry provides opportunities to integrate clinical training with commercial experiences in a corporate environment.

While traditional pharmacy practice opportunities may be stagnating, the pharmaceutical industry has experienced a record high number of new product approvals, which has contributed to an increase in industry employment opportunities, including roles for pharmacists. The FDA Center for Drug Evaluation and Research (CDER) approved 48 new molecular entities (NMEs) and biologics in 2019 and the data for approvals in 2020 appear to be on pace to surpass 2019.⁴

Currently, 83 companies train PharmDs through Post-Doctoral Industry Fellowship Programs. The number of PharmDs participating in fellowships has grown significantly over the past decade and has reached a new high of 628 fellows this year. According to the 2019-2020 American Association of Colleges of Pharmacy Annual Demographics Report, an estimated 8.5% of 2019 PharmD graduates were African American, comprising 10% (63/628) of the current 2020-2021 fellow demographics.^{5,6} Of the total estimated 15,000+ pharmacists currently employed in the US pharmaceutical industry, more than 20% have completed a PharmD Industry Fellowship.⁵

The objectives of this annual report from the Industry Pharmacists Organization (IPhO) are to describe: i) characteristics of current 2020-2021 fellowship programs, and ii) emerging trends in PharmD Industry Fellowships based on 7-year longitudinal data. This valuable report is designed to increase awareness among all fellowship program stakeholders, including students and recent graduates interested in industry, current fellows, fellowship program administrators, and fellowship preceptors and leaders at sponsor companies.

Methods

IPhO maintains a comprehensive, proprietary database of all PharmD fellows currently participating in PharmD Industry Fellowship Programs. Data is obtained from a variety of publicly available sources and combined with information proprietary to IPhO. For the 2020-2021 Annual Analysis, database lockdown was November 15, 2020. The following data fields were utilized and evaluated:

1. [Fellowship Department/Functional Area](#)
2. [Fellowship Sponsor Company](#)
3. [Fellowship Program Affiliation](#)
4. [Fellowship Program Duration](#)
5. [Fellows' Alma Mater](#)

Data from the 2020-2021 analysis were also compared with results from similar analyses from 2014-2015 through 2019-2020 ^{7,8,9,10,11,12} to yield 7-year trends.

1. [7-year Trend in Fellowship Program Size](#)
2. [7-year Trend in Fellowship Positions by Department/Functional Area](#)
3. [7-year Trend in Sponsor Companies](#)

Results and Discussion

A total of 628 fellows were identified in the database, including 377 first year (or one year) fellows and 251 second year fellows. Results are reported in the following sections:

A) Characterization of PharmD Fellows in 2020-21 Industry Fellowship Programs

1. [Fellows by Department/Functional Area](#)
2. [Fellowship Sponsor Company](#)
3. [Fellowship Program Affiliation](#)
4. [Fellowship Program Duration](#)
5. [Fellows' Alma Mater](#)

B) Seven-Year Trends in Fellowship Positions

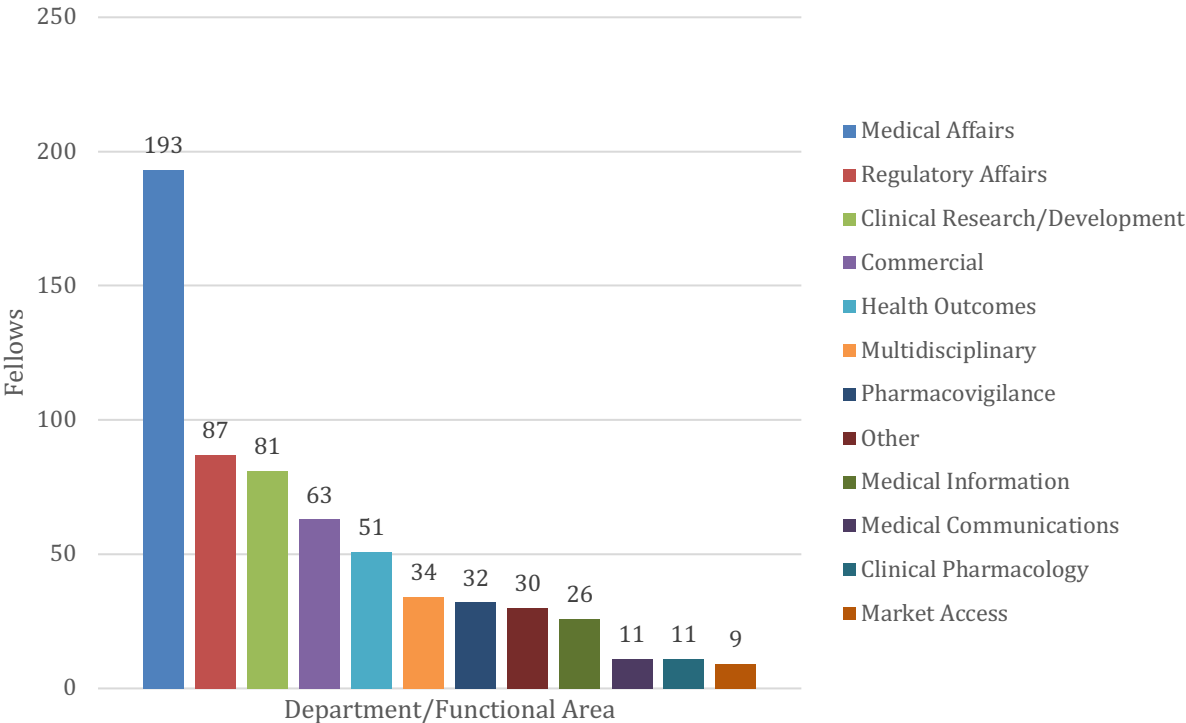
1. [7-Year Trend in Number of Fellowship Positions](#)
2. [7-Year Trend in Fellowship Department/Functional Area](#)
3. [7-Year Trend in Fellowship Sponsor Company](#)

Characterization of PharmD Fellows in 2020-2021 Industry Fellowship Programs

Fellowship Department/Functional Area

The top individual fellowship functional areas in 2020-2021 included Medical Affairs (n=193), Regulatory Affairs (n=87), Clinical Research/Development (n=81), Commercial (n=63), and Health Outcomes (n=51). Thirty-four fellowships were multidisciplinary in nature, which allow the fellow to rotate through multiple functional areas. Functional areas defined as “Other” included areas that did not fall into the predefined categories, such as medical writing, quality assurance, or knowledge management. PharmDs are very well equipped to fulfill fellowship roles in the pharmaceutical industry according to these data.

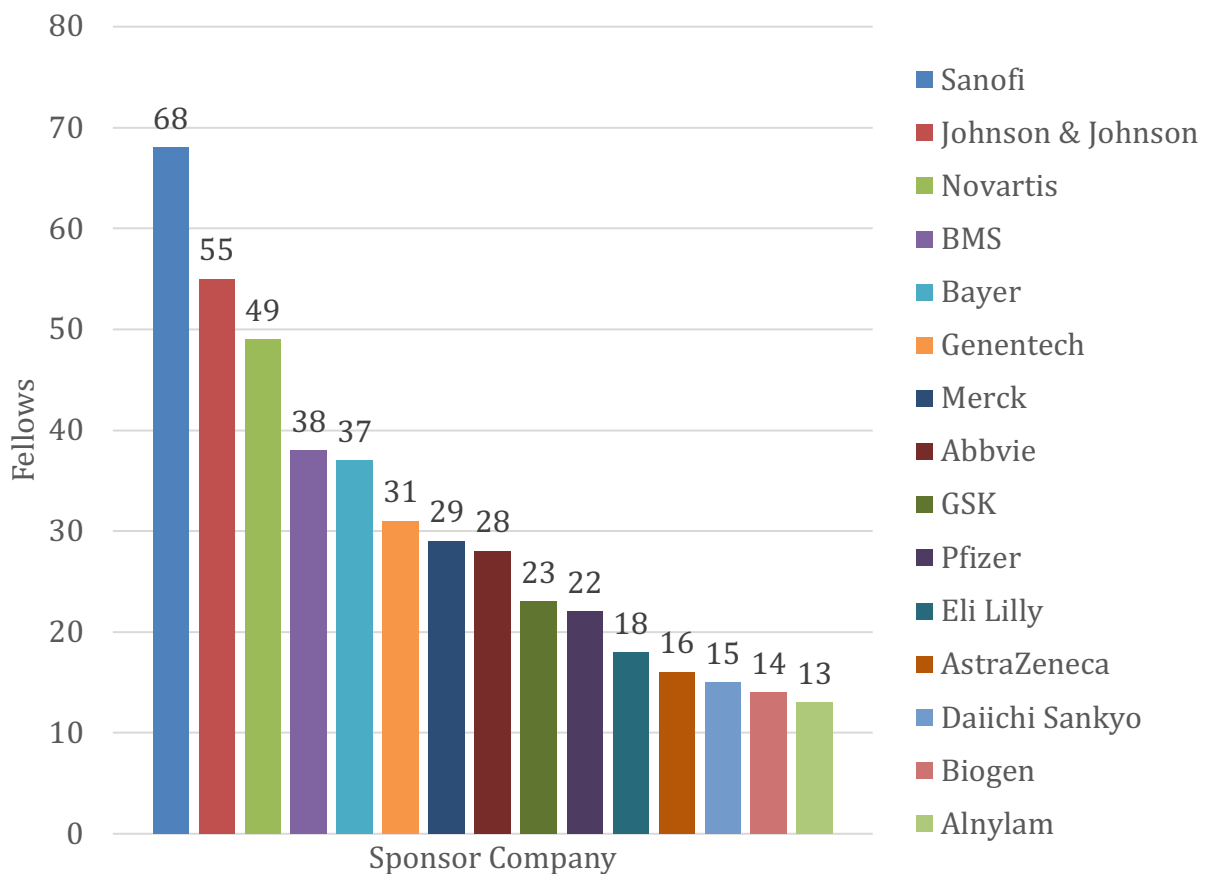
Figure 1: Fellowships by Department/Functional Areas (n=628 Fellows)



Fellowship Sponsor Company

Of the 83 companies sponsoring fellows in 2020-2021, the top five companies with regard to number of fellows were: Sanofi (n=68), Johnson & Johnson (n=55), Novartis (n=49), Bristol-Myers Squibb (n=38), and Bayer (n=37). The top 15 sponsoring companies are represented in the figure below. Several of these sponsors have maintained a position as a top employer of PharmD Fellows over several years, suggesting that PharmDs are highly valued within these companies (see [7-Year Trend in Fellowship Positions Offered Through Various Sponsor Companies](#)).

Figure 2: Fellows by Sponsor Companies* (n=456 Fellows in Top 15 Companies)

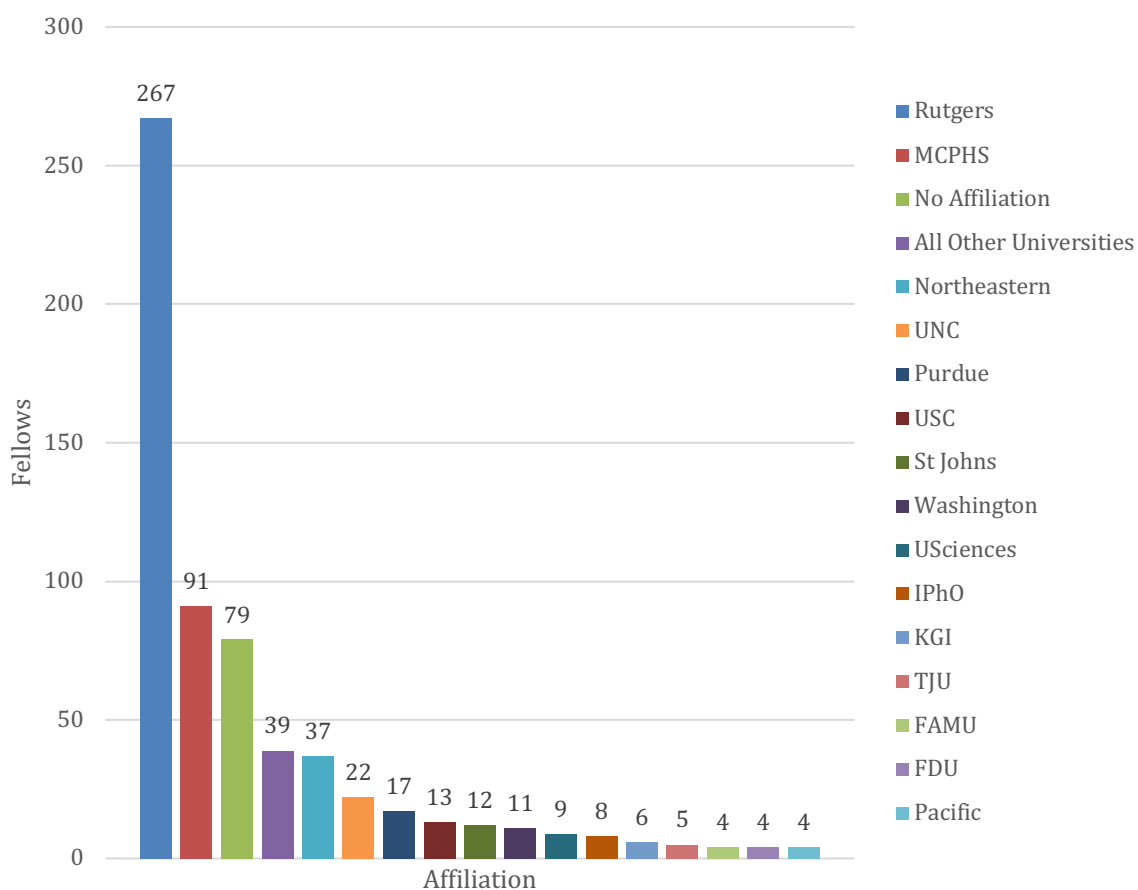


*Abbreviations: The following sponsor companies were combined under: “Abbvie” – Abbvie, Allergan, Pharmacyclics; “AstraZeneca” – Acerta Pharma, AstraZeneca; “BMS” – Bristol-Myers Squibb, Celgene. “GSK” – GlaxoSmithKline, TESARO; “Johnson & Johnson” – Johnson & Johnson Consumer Inc, McNeil, Janssen, Actelion; “Novartis” – Novartis, Sandoz, AveXis; “Genentech” – Roche, Genentech; “Sanofi” – Sanofi, Sanofi Genzyme, Sanofi Pasteur, Bioverativ

Fellowship Program Affiliation

Eighty-eight percent (n=549) of all fellowship positions were offered through collaboration, or “affiliation” between two or more entities. The vast majority of positions offered through academic partners were Rutgers University (n=267) and MCPHS University (n=91). Together, the two programs employ over 50% of all current fellows. Currently, 79 fellowship positions (12%) are offered through employers who do not have an affiliation with an academic institution. Possible reasons for this may include monetary cost of affiliation, distance from affiliating University, significant time spent at academic institution away from the sponsor company, or a lack of sponsor interest in an academic affiliate.

Figure 3: Fellowship Programs with an Academic or Non-Academic Affiliation (n=628 Fellows)

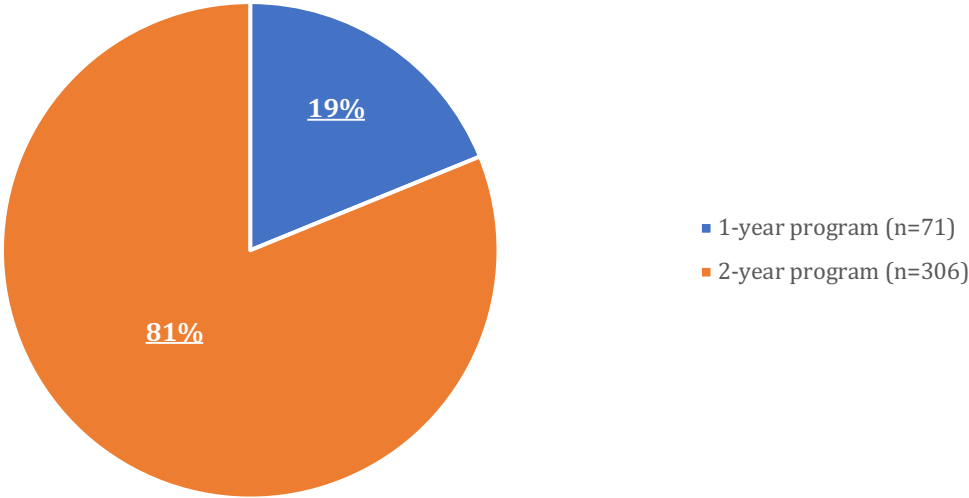


*Abbreviations: FAMU – Florida A&M University; FDU – Farleigh-Dickinson University School of Pharmacy and Health Sciences; IPhO – Industry Pharmacists Organization; KGI – Keck Graduate Institute; MCPHS – Massachusetts College of Pharmacy and Health Sciences; UNC – University of North Carolina; USC – University of Southern California; USciences – University of the Sciences in Philadelphia; TJU – Thomas Jefferson University

Fellowship Program Duration

Of the 377 first-year fellows included in this study, 306 (81%) were in two-year programs versus 71 (19%) in one-year programs. Among all 628 fellows (including 2nd year fellows), 11% were in a one-year program.

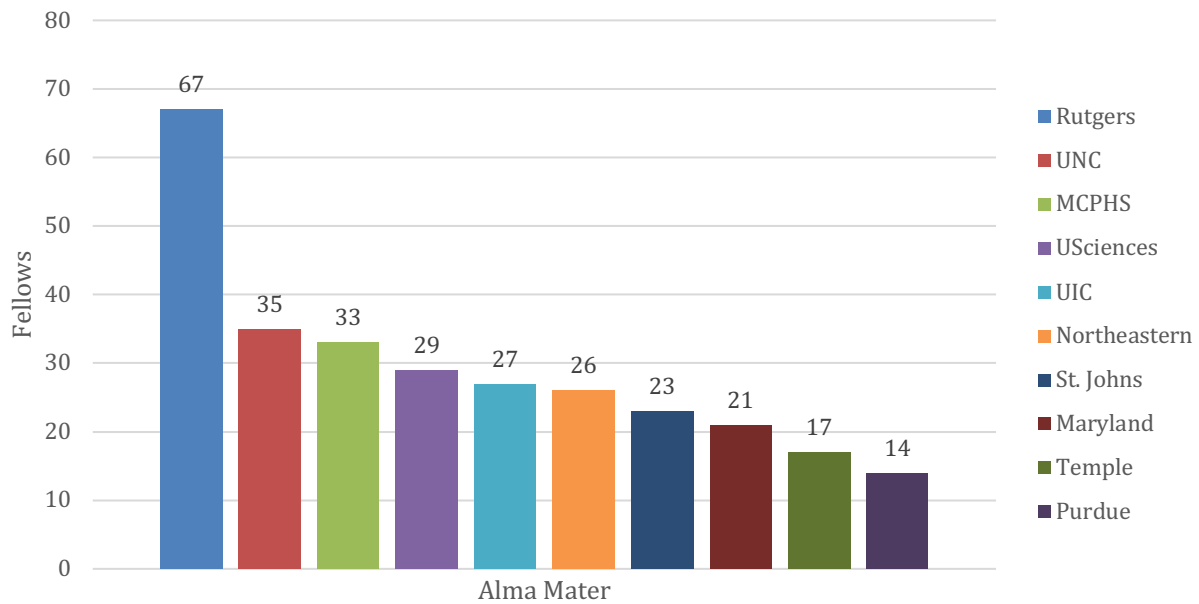
Figure 4: Fellowships by Program Duration (n=377 First-year Fellows)



Fellows' Alma Mater

In 2020-2021, over 110 unique pharmacy school alma maters were represented among the cohort of 628 fellows. The most common alma mater was Rutgers University (n=67) followed by UNC (n=35), MCPHS University (n=33), University of the Sciences in Philadelphia (n=29), UIC (n=27), and MCPHS University (n=26). The top 10 most common alma maters are represented in the figure below.

Figure 5: Fellow's Alma Mater (n=292 Fellows in Top 10 Alma Maters)



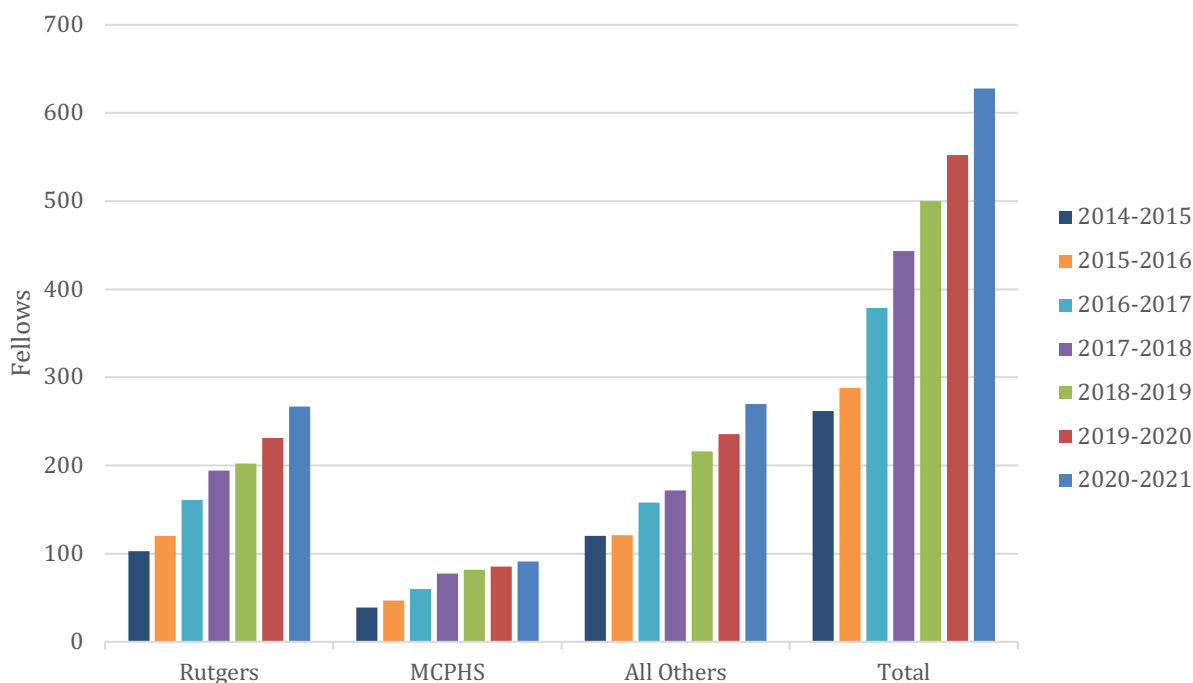
*Abbreviations: MCPHS- Massachusetts College of Pharmacy and Health Sciences, USciences- University of the Sciences, UNC- University of North Carolina, UIC- University of Illinois at Chicago

Seven-Year Trends in Fellowship Positions

7-year Trend in Fellowship Program Size

Overall, there has been an 140% increase in fellowship programs over the last 7 years, increasing from 262 fellows in 2014-15 to 628 fellows in 2020-2021. The total number of fellowship positions have more than doubled since 2014-2015. Rutgers University fellowship positions have grown from 103 to 267 (+159%) positions during that time, while MCPHS fellowship positions have increased from 39 to 91 (+133%). There has also been a steady increase in all other programs, with an overall increase of 125%.

Figure 6: 7-Year Trend in Fellowship Program Size

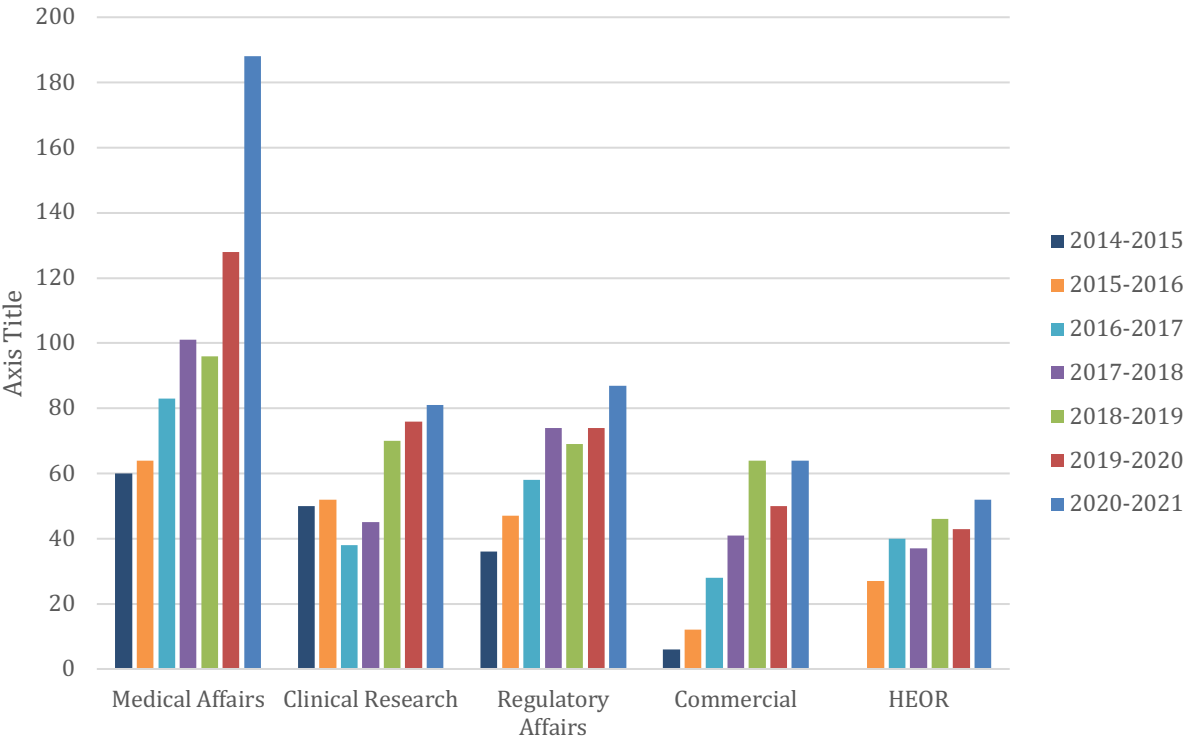


*Abbreviations: MCPHS - Massachusetts College of Pharmacy and Health Sciences

7-Year Trend in Fellowship Positions by Department/Functional Area

While all five of the most common functional area subsets have experienced growth over the last seven years, Medical Affairs positions have more than tripled during that time. In 2020-2021, there were 60 more Medical Affairs fellowship positions than the previous year, representing a 47% increase.

Figure 7: 7-year Trend in Fellowship Positions by Department/Functional Area

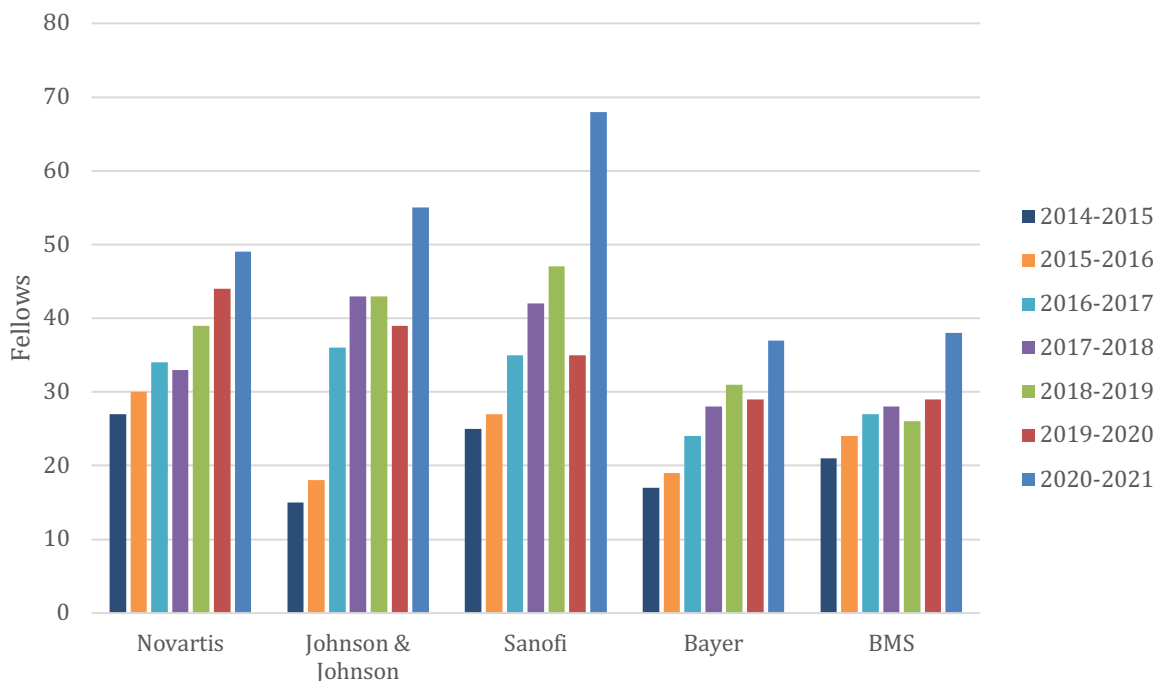


*Abbreviations: HEOR – Health Economics and Outcomes Research
 NOTE: No data was collected for HEOR fellowships in 2014-2015.

7-year Trend in Fellowship Positions Offered Through Various Sponsor Companies

Among the top 5 companies that sponsor fellowship programs (Johnson & Johnson, Sanofi/Genzyme, Novartis, Bayer, and Bristol-Myers Squibb), there has been an overall increase in the number of positions since 2014-15. Of note, these 5 companies comprise over one-third of all available fellowship positions (39%, n=247). These results suggest that multiple large pharmaceutical companies continue to support and invest in the training of PharmD graduates for careers in the pharmaceutical industry. Of note, there has been an increase in the number of fellows for 2020-2021 in all top sponsor companies. Fellowships continue to rise in number, and it will be interesting to observe the trends within individual sponsoring companies throughout the years as career opportunities for pharmacists in industry continue to expand.

Figure 8: 7-year Trend in Fellowship Positions Offered Through Various Sponsor Companies



Limitations

Functional areas were categorized at the discretion of the authors. Due to variability in titles and nomenclature across companies, it was necessary to stratify functional areas into defined categories. This methodology may have had an effect on how data was summarized. Additionally, the dataset is limited to information collected since 2014-2015, and thusly, is not historically comprehensive of all fellowship programs, particularly fellowships offered prior to 2014-15. Nonetheless, IPhO will endeavor to maintain the most complete and accurate database of fellowship programs in the future.

Conclusions

The employment opportunities for pharmacists within industry over the past decade continue to grow in part due to a greater number of FDA drug approvals and supply/demand challenges for pharmacists in traditional work settings. This has resulted in an increase in both the supply of pharmacy graduates interested in industry and the demand for highly valued talent by pharmaceutical industry employers. Industry fellowships provide employers with an excellent method of cultivating talent to meet this growing need.

Each year, industry fellowships are spreading into new pharmaceutical, biotechnology, agency, and service provider companies, and these sponsors are continuing to recognize the value of pharmacists in industry. Pharmacy students and recent graduates now have more opportunities to pursue careers in non-traditional fields, and it is important to continue to characterize the ever-changing career landscape.

The number of Fellowships in Medical Affairs has been growing at a faster rate than any other functional area. PharmDs are playing critical roles in many functional areas, but the industry's increasing focus on building robust, highly talented and influential Medical Affairs teams has helped create numerous opportunities for PharmDs.

The results presented are of interest not only to prospective fellowship candidates, but to fellowship program stakeholders as well. This annual analysis continues to support IPhO's position that pharmaceutical industry employers recognize the significant value and contribution of PharmDs within industry.

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