



SCHOOL OF MEDICINE
BOWEN CENTER FOR HEALTH
WORKFORCE RESEARCH & POLICY

2018 Pharmacist Licensure Survey Data Report

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Executive Summary

Identifying supply and distribution of the pharmacist workforce is crucial in understanding the capacity to meet medical needs and improve overall population health of Hoosiers. The field of pharmacy has been a longstanding profession that has changed significantly throughout its history. Data presented in this report provide a snapshot of key demographic and practice characteristics for the pharmacist workforce in Indiana.

The 2018 Indiana Pharmacist Licensure Survey Data Report presents key information derived from data collected from the pharmacist re-licensure survey administered by the Indiana Professional Licensing Agency (IPLA) during the license renewal period. In 2018, 11,354 pharmacists renewed their professional licenses. Of those who renewed their license, 5,316 pharmacists reported actively practicing and had a valid Indiana license address and were included in this report.

Data from this reports demonstrates a lack of diversity among pharmacists as less than 10% of the workforce identified as a non-white minority. Additionally, a very small percentage of pharmacists reported completing a fellowship (2.2%) or residency (10.8%), and 43.4% reported having no BPS certification. Though the majority of pharmacists are working more than 32 hours per week (73%), only around one-fifth (20.2%) reported spending around 10% of their time in direct patient care. Limited access to pharmacists is demonstrated by the significantly lower pharmacist FTE in rural counties as compared to urban (489 FTE in rural counties; 4,035.4 FTE in urban counties).

This report details important demographic and practice characteristics for the pharmacist workforce and examines these data specifically for pharmacists. The 2018 Pharmacist Licensure Survey Data Report presents a snapshot of data on the pharmacist profession to provide stakeholders with information needed to improve the quality and accessibility of pharmacist care for Indiana residents through policymaking, workforce development, and resource allocation. Additional analyses and reports may be made available upon submission of a technical assistance request at medicine.iu.edu/research/centers-institutes/bowen-health-workforce.

Section I: Background Information

The Bowen Center for Health Workforce Research and Policy (Bowen Center) aims to improve population health by informing health workforce policy through data management, community engagement and original research. The Bowen Center has a rich history of collecting, analyzing, and disseminating health workforce data and research for the State of Indiana. Understanding the status of Indiana's health care workforce is critical to ensuring that Indiana residents have access to high quality care, to developing programs that will train practitioners to meet future needs and to recruiting and retaining health care professionals in Indiana.

The 2018 Indiana Pharmacist Licensure Survey Data Report presents key information and data collected from the 2018 pharmacist re-licensure surveys administered by the Indiana Professional Licensing Agency (IPLA) during the biennial license renewal period. The data presented describe pharmacist's demographic, educational and professional characteristics as well as essential supply and geographic distribution information.

The report includes data on a large sample of pharmacist that may be used to promote meaningful policy discussion and to inform evidence-based health workforce policy development

Methods

Survey Administration

Indiana's pharmacist re-licensure survey was adapted from the Pharmacist Minimum Data Set (MDS) created by the Health Resources and Services Administration (HRSA), National Center for Health Workforce Analysis. HRSA has established MDS tools for many licensed health professionals to facilitate the establishment of national databases with consistent core data elements covering demographics, educational, credentialing, and practice characteristics. Indiana's pharmacist re-licensure survey was administered by the IPLA during the biennial licensure renewal period. All pharmacists who renewed their license electronically (n=11,354) were invited to complete the voluntary survey.

Dataset Construction

The data used for this report were extracted from the pharmacist base license files and the pharmacist survey data files provided by the IPLA. The base license file contains administrative data such as license status, expiration date, license number, and date of birth. These data are important for calculating additional demographic variables such as age and applying the inclusion and exclusion criteria used for this report.

The survey file underwent cleaning and coding procedures developed by the Bowen Center. After these procedures were completed, the base license file was merged with the survey file by license number to create a Pharmacist Master File. This master files was then transferred to the department of Biostatistics to be imported into the Indiana Health Professions Database.

License address data were cleaned and geocoded by the Polis Center. This process involves standardizing addresses using 360Science software and geocoding using address locator software. These procedures returned the geographical coordinates of the license address as well as the county federal information processing standards (FIPS) code and census block ID. These values are then returned to the Indiana Health Professions Database to be used for data reporting.

2018 Indiana Pharmacist Licensure Survey

Sample selection criteria were applied to the master file to determine the samples of pharmacists actively practicing in Indiana. The following criteria were applied:

1. Pharmacist renewed license online in 2018;
2. Pharmacist responded to the 2018 re-licensure survey;
3. Pharmacist holds an active, probationary or valid to practice while reviewed license;
4. Pharmacist reported actively working as a pharmacist;
5. Pharmacist reported an Indiana license address; and
6. Pharmacist whose license address could be confirmed through geocoding.

Pharmacists who did not meet the inclusion criteria were excluded from the sample. The final sample includes 5,316 pharmacists who held an active, valid to practice while reviewed or probationary license; reported actively working as a pharmacist; and provided an Indiana practice location that could be geocoded. The inclusion and exclusion criteria applied to the merged datasets for pharmacists are presented below.

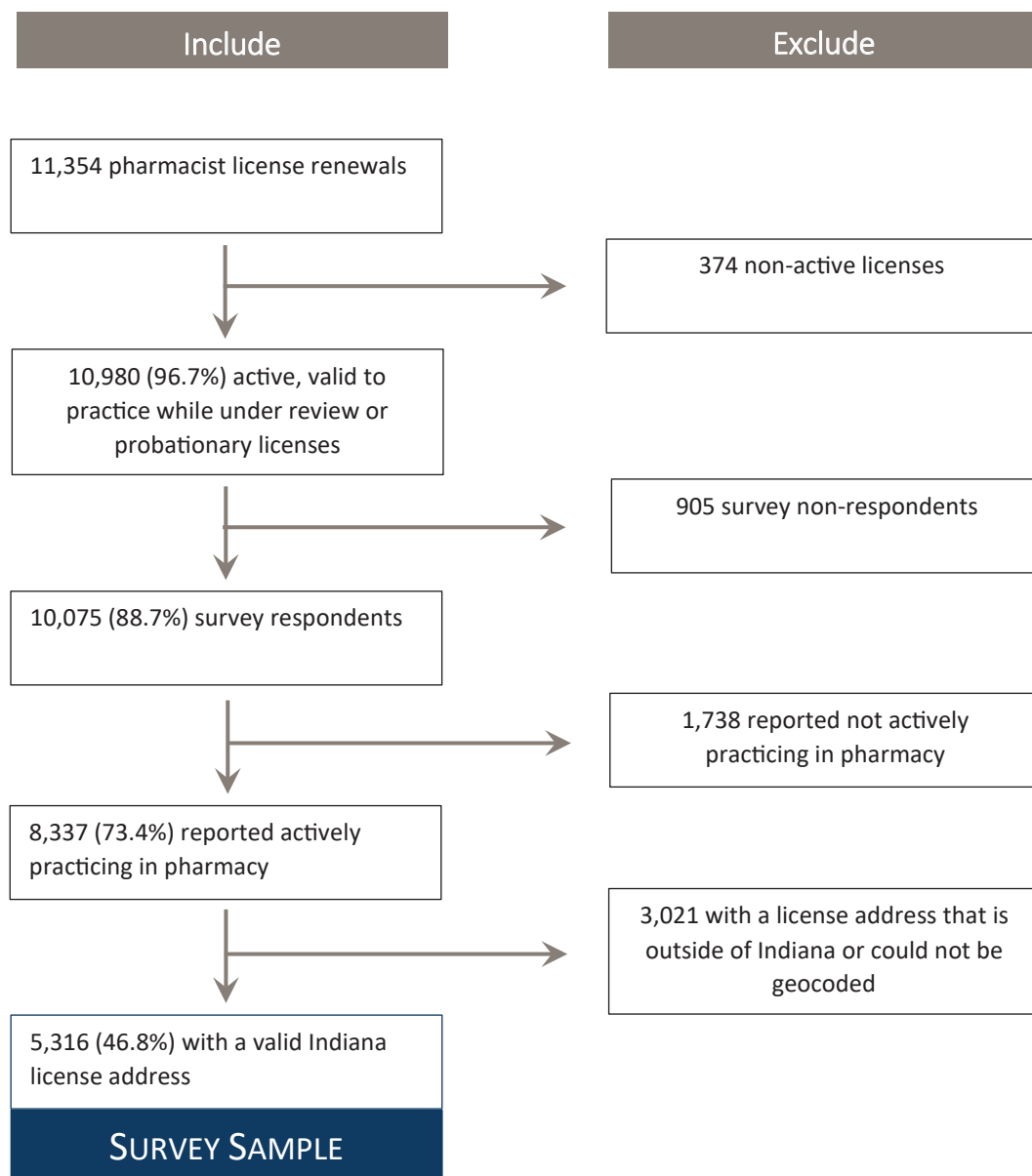


Figure 1.1: Sample Selection Criteria for Indiana Pharmacists

FTE Assignment

A full-time equivalent (FTE) was assigned to each individual based upon the survey response indicating average number of hours per week spent in direct patient care. To accurately map the distribution and capacity of the pharmacist workforce throughout Indiana, FTEs were assigned to each individual practitioner. Geographic information system (GIS) maps present the distribution of the pharmacist workforce by FTE throughout the report. Table 1.1 outlines the FTE assignment to each hourly category.

Table 1.1: FTE Calculation Based on Reported Hours per Week in Patient Care

Reported Hours per Week in Patient Care	Assigned FTE
0	0
1 – 4	0.1
5 – 8	0.2
9 – 12	0.3
13 – 16	0.4
17 – 20	0.5
21 – 24	0.6
25 – 28	0.7
29 – 32	0.8
33 – 36	0.9
37 – 40	1
41 or more	1

Rurality

County rurality was determined by population. If a county had a population of at least 50,000 it was designated as “urban”. If the county population was less than 50,000 the county was designated as “rural”.

Limitations

The analyses and data presented in this report have several key limitations that should be taken into account when utilizing and interpreting these data. The information in this report was collected in self-reported response format as part of a voluntary survey. As is the case with all survey research, it is likely there is some level of response bias. In this case, it is possible responses to a question do not reflect the absolute practice characteristics of a provider. Although these self-reported data may not be considered absolute, they provide a method of gauging practice characteristics. This report should only be used to inform policy discussion.

Additionally, the data presented in this report only represent a sample of the entire pharmacist workforce. Due to missing data and the voluntary nature of the survey it is likely many pharmacists are not represented in the final samples of this report. Also, many survey respondents did not answer every question, therefore the tables in this report include non-respondents to the questions represented. Although this report contains samples of the pharmacists who renewed their license, this fairly large sample (46.8%) may be valuable for informing health workforce policies.

Lastly, to meet State of Indiana needs and because of changes in the methodology for administration of the pharmacist re-licensure surveys, several updated versions have resulted over the years. Therefore, a conservative approach was taken and data trend analyses are not presented in this report.

Supplemental Data Tables

The primary purpose of the 2018 Pharmacist Licensure Survey Data Report is to provide a snapshot of key information pertaining to the pharmacist workforce in Indiana. This report only presents highlights of the re-licensure survey data. Additional data tables can be requested online through the Bowen Center website: medicine.iu.edu/research/centers-institutes/bowen-health-workforce.

Section II: Pharmacist Workforce

Demographic Characteristics

The average age of pharmacists is 43.5 years. Male pharmacists have an average age of 45.4 with 28.4% under the age of 35. Similarly, their female counterparts have an average age of 42.1 with 31.1% under the age of 35. The pharmacist workforce self-reported demographic data demonstrate little diversity. The majority identified as non-Hispanic (80.1%) and white (89.2%). Asian pharmacists make up the largest minority at 5.0%. Table 2.1 provides more details on the demographic characteristics of the pharmacist's workforce.

Table 2.1: Pharmacist Demographic Characteristics by Gender

	Female		Male		Non-Respondent		Total	
Mean Age	42.1		45.4		48.4		43.5	
Age Group	N	%	N	%	N	%	N	%
Under 35	1,004	31.1	569	28.4	17	20.0	1,590	29.9
35-44	993	30.8	490	24.5	16	18.8	1,499	28.2
45-54	744	23.0	384	19.2	24	28.2	1,152	21.7
55-64	421	13.0	378	18.9	21	24.7	820	15.4
65 and Older	53	1.6	170	8.5	6	7.1	229	4.3
Non-Respondents	14	0.4	11	0.5	1	1.2	26	0.5
Total	3,229	100.0	2,002	100.0	85	100.0	5,316	100.0
Race	N	%	N	%	N	%	N	%
White	2,880	89.2	1,802	90.0	62	72.9	4,744	89.2
Asian	174	5.4	85	4.2	5	5.9	264	5.0
Black or African American	111	3.4	68	3.4	7	8.2	186	3.5
Native Hawaiian or Pacific Islander	3	0.1	4	0.2	0	0.0	7	0.1
American Indian or Alaska Native	1	0.0	3	0.1	0	0.0	4	0.1
Multiracial	27	0.8	20	1.0	0	0.0	47	0.9
Non-Respondents	33	1.0	20	1.0	11	12.9	64	1.2
Total	3,229	100.0	2,002	100.0	85	100.0	5,316	100.0
Ethnicity	N	%	N	%	N	%	N	%
Not Hispanic or Latino	2,615	81.0	1,625	81.2	18	21.2	4,258	80.1
Hispanic or Latino	62	1.9	38	1.9	0	0.0	100	1.9
Non-Respondents	552	17.1	339	16.9	67	78.8	958	18.0
Total	3,229	100.0	2,002	100.0	85	100.0	5,316	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2018

Notes: Gender, race and ethnicity was derived from questions 1, 2 and 3. Age was calculated by measuring the difference between the survey completion date and the respondent's date of birth provided by IPLA. Other race was not a category in the 2018 survey.

Educational Characteristics

Tables 2.2 and 2.3 on the following page provides details on the education and training characteristics of the pharmacist workforce. Self-reported educational characteristics indicate that the majority of pharmacists obtained their professional training in Indiana (4,068; 76.5%). Over half (54.6%) of pharmacists reported qualifying for their pharmacy license with a doctor of pharmacy, followed by 44.8% who reported qualifying with a bachelor's degree. Most pharmacists (97.4%) reported not completing a fellowship, and over half (48.8%) reported not completing a residency.

Table 2.2: Pharmacist Educational Characteristics

	Indiana		Contiguous States		Other US State		Another Country (not US)		Non-Respondents		Total	
Qualifying Degree	N	%	N	%	N	%	N	%	N	%	N	%
Certificate	1	0.0	0	0.0	1	0.2	3	2.7	0	0.0	5	0.1
Bachelors	1,843	45.3	182	33.9	191	37.4	93	83.8	71	79.8	2,380	44.8
Masters	12	0.3	0	0.0	3	0.6	6	5.4	0	0.0	21	0.4
Doctor of Pharmacy	2,207	54.3	355	66.1	315	61.6	9	8.1	16	18.0	2,902	54.6
Non-Respondents	5	0.1	0	0.0	1	0.2	0	0.0	2	2.2	8	0.2
Total	4,068	100.0	537	100.0	511	100.0	111	100.0	89	100.0	5,316	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2018

Notes: Contiguous states include Illinois, Kentucky, Michigan, and Ohio. Qualifying education and location of degree completed were derived from questions 4 and 5 on the survey.

Table 2.3: Pharmacist Fellowship, Training and Certifications

Completed a Pharmacy Fellowship	N	%
Yes	119	2.2
No	5,176	97.4
Non-Respondent	21	0.4
Total	5,316	100.0
Residency	N	%
No Residency Completed	2,592	48.8
Ambulatory Care	117	2.2
Cardiology	1	0.0
Critical Care	47	0.9
Drug Information	14	0.3
Emergency Medicine	5	0.1
Geriatric	7	0.1
Infectious Diseases	21	0.4
Informatics	5	0.1
Internal Medicine	115	2.2
Managed Care Pharmacy Systems	6	0.1
Medication-Use Safety	2	0.0
Nuclear	2	0.0
Nutrition Support	3	0.1
Oncology	27	0.5
Pediatric	28	0.5
Pharmacotherapy	132	2.5
Health-System Pharmacy Administration	29	0.5
Psychiatric	9	0.2
Solid Organ Transplant	4	0.1
Non-Respondent	2,150	40.1
Total	5,316	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2018

Notes: Fellowship and residency were derived from questions 6 and 7 on the survey.

2018 Indiana Pharmacist Licensure Survey

Certifications

A summary of certifications received by pharmacists are provided in Table 2.4. The highest proportion of respondents (43.4%) reported having no BPS certification, followed by 5.7% reporting having a certificate in pharmacotherapy.

Table 2.4: Pharmacist BPS Certifications

BPS Certification	N	%
No BPS Certification	2,308	43.4
Ambulatory Care Pharmacy	83	1.6
Critical Care Pharmacy	33	0.6
Nuclear Pharmacy	10	0.2
Nutrition Support Pharmacy	4	0.1
Oncology Pharmacy	35	0.7
Pediatric Pharmacy	18	0.3
Pharmacotherapy	301	5.7
Psychiatric Pharmacy	11	0.2
Non-Respondent	2,513	47.3
Total	5,316	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2018

Notes: BPS certification was derived from question 8 on the survey.

Professional and Practice Characteristics

Details on employment characteristics of pharmacists can be found in Tables 2.5 and 2.6. The majority (86.5%) of pharmacists reported they have no plans to change their employment status for the next 12 months, while a small percentage reported plans to increase hours in patient care (5.5%). Most respondents reported their primary field as medication dispensing (66.2%), followed by patient care services (20.1%).

Regarding practice setting, the highest proportion of pharmacists reported their primary practice setting as pharmacy outpatient (40.4%), followed by hospital inpatient (21.8%) and another unlisted setting (16.5%).

Table 2.5: Pharmacist Employment Characteristics

Employment Plans	N	%
Increase hours in the pharmacy field	291	5.5
Decrease hours in the pharmacy field	165	3.1
Leave employment in the field of pharmacy	30	0.6
No planned change	4,598	86.5
Non-Respondents	232	4.4
Total	5,316	100.0
Primary Field	N	%
Medication Dispensing	3,517	66.2
Patient Care Services	1,067	20.1
Business/Organization Management	369	6.9
Education	49	0.9
Other	227	4.3
Research	27	0.5
Non-Respondents	60	1.1
Total	5,316	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2018

Notes: Employment plans and primary field were derived from questions 10 and 11 in the survey.

Table 2.6: Pharmacist Practice Setting

Practice Setting	N	%
Pharmacy (Outpatient)	2,149	40.4
Hospital (Inpatient)	1,158	21.8
Other	878	16.5
Pharmacy (Inpatient)	254	4.8
Retail Medicine Clinic (CVS Minute Clinic, Walgreens Healthcare Clinic, Clinic at Wal-Mart)	241	4.5
Outpatient Clinic (Private Practice or Academic)	195	3.7
Community Health Center/Public Health Clinic	153	2.9
Long Term Acute Care Hospital	62	1.2
Emergency Room	17	0.3
Rehabilitation Hospital	9	0.2
Diagnostic Testing Facility	2	0.0
Outpatient Surgery Center	1	0.0
Pain Management Clinic	1	0.0
Substance Abuse Treatment Facility (Inpatient)	1	0.0
Urgent Care Facility	1	0.0
Non-Respondents	194	3.6
Total	5,316	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2018

Notes: Practice setting was derived from question 17 on the survey.

Workforce Capacity and Distribution

Details on pharmacists' workforce capacity can be found in Table 2.7. The majority of pharmacists work more than 33 hours per week, with 39% of pharmacists working 37 – 40 hours per week and 27% working more than 41 hours per week. Furthermore, pharmacists spend little time in direct patient care, with more than half of pharmacists spending less than 40% of their time in direct patient care (60%).

Table 2.7: Pharmacist Workforce Capacity

Hours per Week at Primary Practice Location	N	%	Percent of Time in Direct Patient Care	N	%
0 hours per week	38	0.7			
1 – 4 hours per week	86	1.6	0%	776	14.6
5 – 8 hours per week	117	2.2	10%	1,074	20.2
9 – 12 hours per week	111	2.1	20%	771	14.5
13 – 16 hours per week	104	2.0	30%	569	10.7
17 – 20 hours per week	183	3.4	40%	228	4.3
21 – 24 hours per week	207	3.9	50%	452	8.5
25 – 28 hours per week	142	2.7	60%	159	3.0
29 – 32 hours per week	322	6.1	70%	208	3.9
33 – 36 hours per week	372	7.0	80%	286	5.4
37 – 40 hours per week	2,073	39.0	90%	206	3.9
41 or more hours per week	1,437	27.0	100%	394	7.4
Non-Respondents	124	2.3	Non-Respondents	193	3.6
Total	5,316	100.0	Total	5,316	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2018

Notes: Practice hours and time in direct patient care were derived from question 15 and 16 on the survey.

2018 Indiana Pharmacist Licensure Survey

Supply and Geographic Distribution Characteristics

Calculating the population-to-Provider FTE (PPR) ratios is useful for measuring workforce capacity, a key indicator of access to care. Table 2.8 provides details on Indiana's pharmacist workforce capacity. Urban counties were found to have around nine times more pharmacist FTE than rural counties (4,035.4 total FTE in urban counties vs. 489 total FTE in rural counties). As a result, rural counties were generally found to have higher PPRs than urban counties.

Table 2.8: Pharmacist Workforce Capacity and Distribution

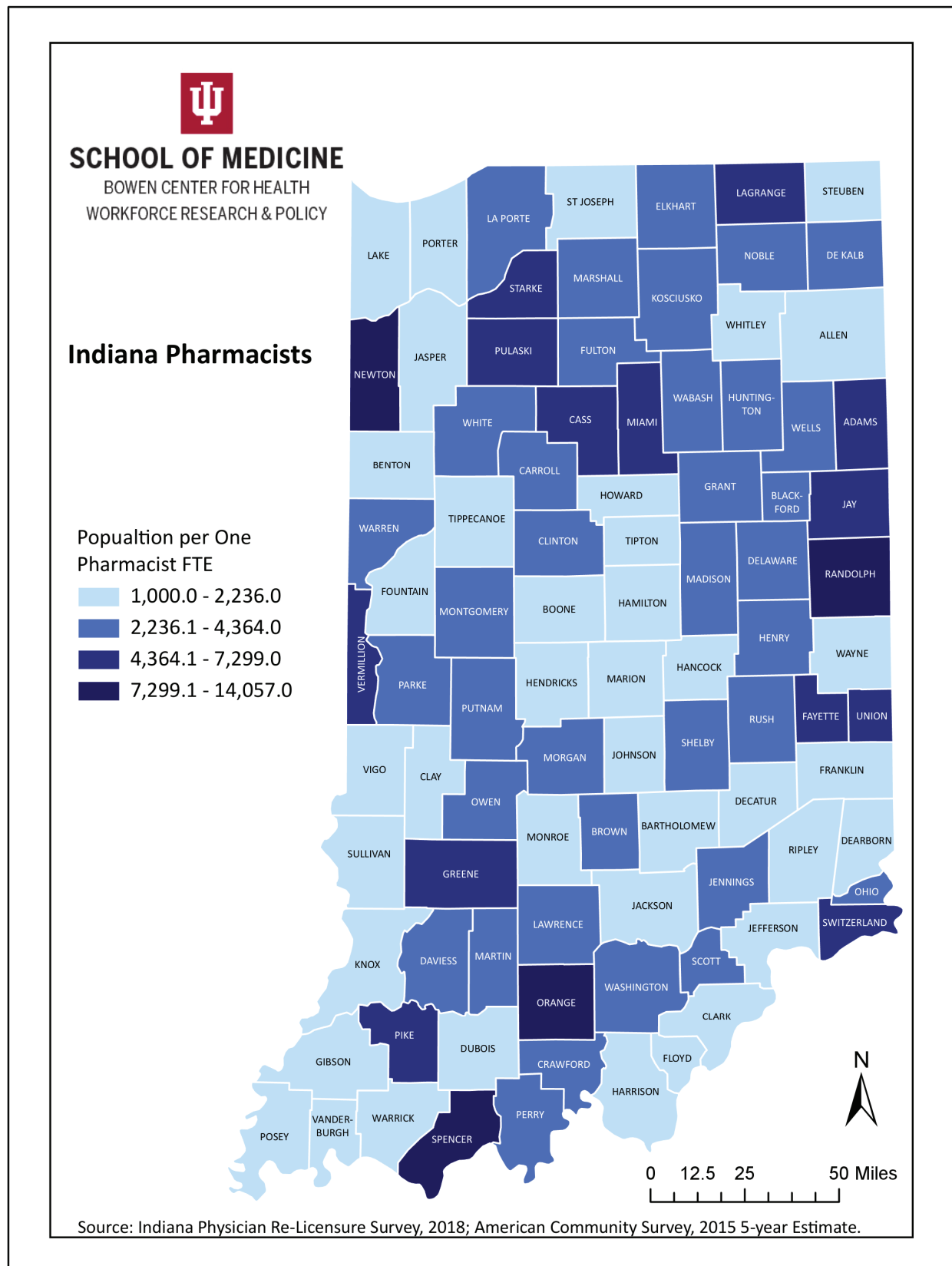
County Name	Rurality	Total FTE	Residents per FTE	County Name	Rurality	Total FTE	Residents per FTE
Adams	Rural	6.5	5,329	Lawrence	Rural	18.7	2,449
Allen	Urban	306.6	1,185	Madison	Urban	51.8	2,515
Bartholomew	Urban	51.9	1,531	Marion	Urban	632.1	1,465
Benton	Rural	4.0	2,188	Marshall	Rural	14.8	3,173
Blackford	Rural	3.0	4,158	Martin	Rural	4.2	2,443
Boone	Urban	137.2	441	Miami	Rural	5.4	6,705
Brown	Urban	5.6	2,680	Monroe	Urban	68.0	2,094
Carroll	Urban	7.2	2,779	Montgomery	Rural	9.8	3,895
Cass	Rural	7.5	5,130	Morgan	Urban	29.2	2,376
Clark	Urban	60.9	1,858	Newton	Urban	1.0	14,057
Clay	Urban	17.1	1,560	Noble	Rural	12.3	3,865
Clinton	Rural	8.5	3,862	Ohio	Urban	1.7	3,548
Crawford	Rural	2.6	4,073	Orange	Rural	2.2	8,965
Daviess	Rural	13.4	2,418	Owen	Rural	6.8	3,116
DeKalb	Rural	12.0	3,537	Parke	Rural	6.7	2,553
Dearborn	Urban	42.3	1,174	Perry	Rural	7.2	2,696
Decatur	Rural	16.1	1,629	Pike	Rural	2.5	5,074
Delaware	Urban	48.0	2,444	Porter	Urban	122.0	1,365
Dubois	Rural	26.0	1,626	Posey	Urban	15.9	1,607
Elkhart	Urban	72.4	2,771	Pulaski	Rural	2.4	5,436
Fayette	Rural	5.1	4,661	Putnam	Urban	12.1	3,111
Floyd	Urban	80.5	942	Randolph	Rural	3.0	8,532
Fountain	Rural	8.8	1,919	Ripley	Rural	15.9	1,799
Franklin	Urban	23.1	992	Rush	Rural	6.5	2,614
Fulton	Rural	8.0	2,565	Scott	Rural	7.1	3,349
Gibson	Urban	20.3	1,658	Shelby	Urban	16.9	2,629
Grant	Rural	22.0	3,131	Spencer	Rural	2.0	10,428
Greene	Urban	6.1	5,379	St. Joseph	Urban	189.8	1,408
Hamilton	Urban	732.0	405	Starke	Rural	3.8	6,083
Hancock	Urban	76.5	932	Steuben	Rural	19.4	1,766
Harrison	Urban	25.3	1,550	Sullivan	Urban	14.1	1,497
Hendricks	Urban	223.1	687	Switzerland	Rural	1.8	5,833
Henry	Rural	13.6	3,613	Tippecanoe	Urban	148.6	1,217
Howard	Urban	48.5	1,706	Tipton	Urban	7.0	2,224
Huntington	Rural	12.5	2,949	Union	Rural	1.0	7,299
Jackson	Rural	21.7	2,003	Vanderburgh	Urban	128.4	1,412
Jasper	Urban	16.4	2,039	Vermillion	Urban	2.4	6,608
Jay	Rural	3.3	6,440	Vigo	Urban	50.0	2,165
Jefferson	Rural	28.1	1,154	Wabash	Rural	9.5	3,406
Jennings	Rural	8.5	3,307	Warren	Rural	2.0	4,183
Johnson	Urban	127.2	1,145	Warrick	Urban	78.3	778
Knox	Rural	19.5	1,951	Washington	Urban	6.4	4,364
Kosciusko	Rural	29.4	2,652	Wayne	Rural	32.2	2,107
LaGrange	Rural	5.6	6,800	Wells	Urban	10.5	2,647
La Porte	Urban	35.5	3,134	White	Rural	6.1	3,998
Lake	Urban	270.6	1,816	Whitley	Urban	14.9	2,236

Source: Indiana Pharmacist Re-Licensure Survey, 2018; ACS 5-year population estimate, 2015.

Notes: Population-to-provider ratios were not calculated for counties with no reported pharmacist FTE. FTE was derived from question 16 on the survey.

Data Report

Map 2.1 displays the geographic distribution of pharmacist workforce supply in Indiana. High pharmacist workforce capacity can be seen in metropolitan areas, such as greater Indianapolis and Evansville. On the other hand, areas with high PPRs clearly stand out on the map (e.g. Newton, Randolph, Orange and Spencer Counties).



Map 2.1 Pharmacist Workforce Capacity, by County

Closing Summary

Pharmacists are a vital component in the health workforce. As presented in this report, Indiana's pharmacist workforce practice in a diverse array of settings, specialties and locations. The data presented here can be used to inform workforce related initiatives. For example, data has shown that very few pharmacists have completed additional post-graduate training (such as a fellowship, residency or certification). Moreover, demographic data has shown a lack of racial and ethnic diversity. As the primary pipeline for Indiana's pharmacists, Indiana's educators can leverage these data to inform, advance, and evaluate initiatives aimed at improving workforce diversity and capacity.

This report provides a snapshot of the pharmacist workforce. The Bowen Center is committed to continuous improvement in our reporting on Indiana's pharmacist workforce. The data presented in this report are also available through the BowenPortal.org. The Portal offers users the ability to generate interactive GIS maps, develop customized reports, and download data for customized analyses. We welcome feedback on this report and/or inquiries for customized reports through email at bowenctr@iu.edu.