

Acknowledgements

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Department of Family Medicine
Indiana University School of Medicine
1110 W. Michigan Street, LO200
Indianapolis, IN 46202

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Correspondence:

Please address any correspondence regarding this document to the Bowen Center for Health Workforce Research and Policy via email at bowenctr@iu.edu or by phone at 317.278.4818.

Bowen Center for Health Workforce Research and Policy

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 Indiana's health care workforce status 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.



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Executive Summary

Identifying supply and distribution of the pharmacist workforce is foundational to understanding Indiana's capacity to strengthen overall population health. Data presented in this report provide a snapshot of key demographic and practice characteristics for Indiana's pharmacist workforce.

The 2016 Indiana Pharmacist Licensure Survey Data Report presents data collected from the pharmacist re-licensure survey administered by the Indiana Professional Licensing Agency (IPLA) during the biennial license renewal period. In 2016, there were 10,906 total pharmacist license renewals. Of these license renewals, 4,920 pharmacists were found to be actively working at an Indiana practice location. Criteria for inclusion are presented in the Methodology section of this report.

Urban counties were found to have the largest quantity of reported pharmacist full-time equivalent (FTE). However, FTE was not distributed evenly as Marion County had over four times (1097) the quantity of reported pharmacist FTE as Lake County, the county with the second highest quantity of reported pharmacist FTE (273). This uneven geographic distribution of the pharmacist workforce is also reflected by the fact that 20 of the 21 counties demonstrating the fewest pharmacists FTE (more than 3,259 residents per 1 pharmacist FTE) were designated as rural.¹

Although this report does not describe trends, a 1997 standards change permitting only doctoral-level pharmacists to obtain licensing² is reflected in the educational data presented within the current report: nearly half (49.4%) of pharmacists reported having earned a doctoral degree as the qualifying credential.

This report provides pharmacist workforce demographic and practice characteristics as well as supply and distribution information. The 2016 Indiana Pharmacist Data Report provides stakeholders with salient information useful in policymaking, workforce development, and resource allocation efforts to improve the quality of and accessibility to pharmaceutical services for Indiana residents.

¹As defined by the Office of Management and Budget: one city with a population of 50,000 or more; or an urbanized area (as defined by the Bureau of the Census) with a population of at least 50,000 and a total Metropolitan Statistical Area population of at least 100,000 www.census.gov/population/metro

²Accreditation Council for Pharmacy Education. Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree. Chicago, Illinois 2006.



Introduction

The 2016 Indiana Pharmacist Licensure Survey Data Report presents data collected from pharmacist re-licensure surveys administered by the IPLA during the biennial license renewal period. The report includes key data on the pharmacist workforce that may be used to promote meaningful policy discussion and to inform evidence-based policy development.

Methods

Survey Administration

Indiana pharmacists who renewed their license during the biennial licensure renewal period using IPLA's online system (n=10,906) were invited to complete a voluntary survey which collected data on demographics, education, professional practice characteristics as well as supply and geographic distribution.

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 10 licensed health professions to facilitate the establishment of national databases with consistent core data elements covering demographic, educational, credentialing, and practice characteristics of health professionals.

Dataset Construction

The data used for this report were extracted from the pharmacist base license file and the pharmacist survey data file 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 base license file was merged with the survey file by unique license numbers.

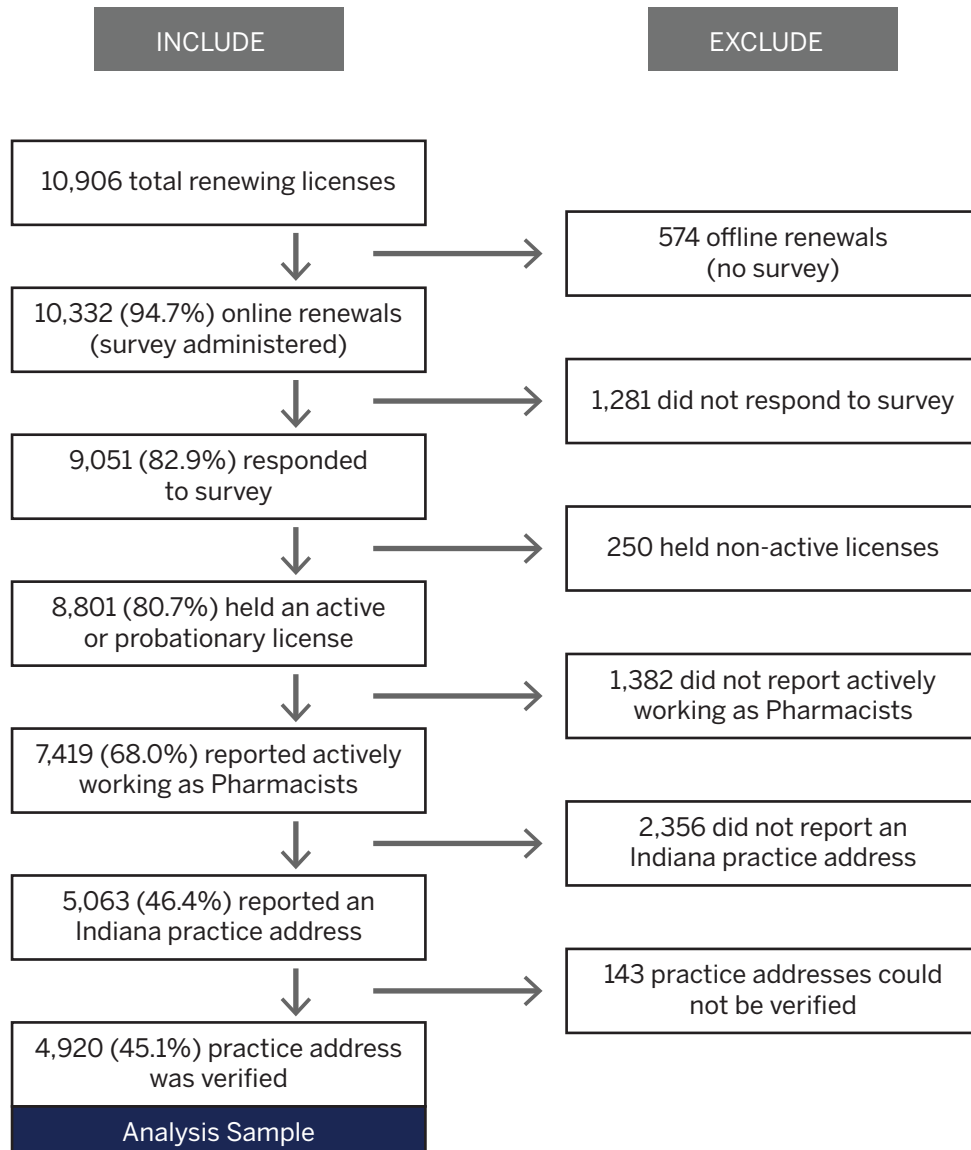
Inclusion and exclusion criteria were applied to the pharmacist dataset to determine the sample of pharmacists actively practicing in Indiana:

1. Pharmacist renewed license online in 2016;
2. Pharmacist responded to the 2016 re-licensure survey;
3. Pharmacist held a valid, active or probationary license to practice in Indiana;
4. Pharmacist reported actively working as a pharmacist;
5. Pharmacist reported an Indiana practice address; and
6. Pharmacist whose practice address could be confirmed.



The final sample includes 4,920 pharmacists who held an active, valid license to practice or a probationary license; reported actively working as a pharmacist; and provided an Indiana practice location. The inclusion and exclusion criteria applied to the merged IPLA pharmacist datasets are presented below.

Figure 1.1 Pharmacist Workforce Inclusion and Exclusion Criteria



Practice Address Cleaning

Self-reported practice addresses were cleaned by correcting spelling of street names and removing suite, building, apartment, and room numbers. Addresses were then geocoded to confirm the reported address was a valid location. Respondents whose practice address could not be located through geocoding were not included in the sample for this report.

FTE Assignment

To accurately map the distribution of the pharmacist workforce throughout Indiana, a full-time equivalent (FTE) designation was assigned to each individual based upon survey response indicating average number of hours per week spent in direct patient care. Survey respondents who indicated that they have no hours in direct patient care remained in the final survey sample as they represent pharmacists actively practicing in pharmacy related fields in Indiana. 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 category of number of hours per week in patient care.

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

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	1.0
41 or more	1.0

Rurality

Rural/urban county designation was based upon the Office of Management and Budget (OMB) definition of metropolitan statistical area (MSA):

- one city with a population of 50,000 or more; or
- an urbanized area (as defined by the Bureau of the Census) with a population of at least 50,000 and a total MSA population of at least 100,000.³

³See www.census.gov/population/metro for more information



Each MSA must include the county in which the central city is located and additional contiguous counties, if these are economically and socially integrated with the central county. Any county not included within an MSA is considered non-metro or “rural.”

Limitations

The data presented in this report have several significant limitations that should be taken into account when interpreting and utilizing 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. For this report, it is possible that responses to a question do not reflect the absolute practice characteristics of all providers. Although self-reported data may not be considered absolute, they provide an approximation of pharmacist practice characteristics.

The data presented in this report represent only a sample of the entire pharmacist workforce. Due to missing data and the voluntary nature of the survey, not all pharmacists who renewed their licenses are represented in the final sample included in this report. Additionally, not every survey respondent answered every question; thus, the tables in this report include the number of non-respondents where applicable. This report represents 4,920 (45.1%) license renewing pharmacists who met the inclusion criteria. As a considerable sample it may be valuable for informing health workforce policies.

Lastly, to meet State of Indiana needs and due to changes in the methodology for administration of the pharmacist re-licensure survey, several updated versions have resulted over the years. Therefore, a conservative approach was taken and data trend analyses are not presented in this report. Based upon these limitations, this report should only be used to inform policy discussion.

Supplemental Data Tables

The primary purpose of the 2016 Indiana Pharmacist Licensure Survey Data Report is to provide an overview of key information pertaining to the pharmacist workforce in Indiana. This report presents only highlights of the re-licensure survey data.

Additional data tables can be requested online through the Bowen Center website: family.medicine.iu.edu/hws/workforce-form

Pharmacist Workforce

Highlights

- The mean age of the pharmacist workforce is 43.8 years
- Nearly all (89.6%) of pharmacists self-identified as White
- The largest proportion of pharmacists (41.7%) reported working in an outpatient setting; 22.2% reported work in an inpatient hospital settings
- Most (68.4%) pharmacists reported working at least 37 hours per week and 89.3% plan to increase hours in the pharmacy field
- 50.8% of pharmacists reported spending 20% or less of their time working in direct patient care
- Nearly half (49.8%) of pharmacists qualified for their license earning a baccalaureate degree; 49.4% qualified by earning a doctoral degree
- Counties with the fewest reported pharmacists FTE (population-to-provider ratios over 3,259:1) are predominantly rural; no pharmacists were reported for Benton County
- 43.5% of pharmacists reported that they did not complete a residency
- Over one-third (36%) of pharmacists reported having no BPS certification

Demographic Characteristics

Table 2.1: Pharmacist Demographic Characteristics by Gender

	Gender							
	Female		Male		Non-Respondent		Total	
Mean Age	42.1		46.4		44.7		43.8	
	N	%	N	%	N	%	N	%
Age Group								
Under 35	957	32.7	554	28.0	5	45.5	1,516	30.8
35-44	861	29.4	433	21.9	1	9.1	1,295	26.3
55-64	392	13.4	423	21.4	3	27.3	818	16.6
45-54	674	23.0	387	19.6	2	18.2	1,063	21.6
65 and Older	45	1.5	183	9.2	0	0.0	228	4.6
Total	2,929	100.0	1,980	100.0	11	100.0	4,920	100.0
Race								
White	2,617	89.4	1,781	90.0	8	72.7	4,406	89.6
Asian	159	5.4	95	4.8	0	0.0	254	5.2
Black or African American	114	3.9	65	3.3	1	9.1	180	3.7
Multiracial	18	0.6	13	0.7	0	0.0	31	0.6
American Indian or Alaska Native	4	0.1	2	0.1	0	0.0	6	0.1
Non-Respondents	17	0.6	24	1.2	2	18.2	43	0.9
Total	2,929	100.0	1,980	100.0	11	100.0	4,920	100.0
Ethnicity								
Not Hispanic or Latino	2,737	93.4	1,813	91.6	8	72.7	4,558	92.6
Hispanic or Latino	44	1.5	29	1.5	0	0.0	73	1.5
Non-Respondents	148	5.1	138	7.0	3	27.3	289	5.9
Total	2,929	100.0	1,980	100.0	11	100.0	4,920	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2016

Notes: Gender was not answered by every survey respondent. Age was calculated by measuring the difference between the survey completion date and the respondent's date of birth provided by IPLA.



Practice Characteristics

Table 2.2: Pharmacist Practice Setting/Hours in Direct Patient Care

	Number of Practice Locations					
	One Practice Location		Two Practice Locations		Total	
	N	%	N	%	N	%
Practice Setting						
Pharmacy (Outpatient)	1,891	42.4	159	34.6	2,050	41.7
Hospital (Inpatient)	971	21.8	120	26.1	1,091	22.2
Other	695	15.6	74	16.1	769	15.6
Retail Medicine Clinic (CVS, Walgreens, Wal-Mart)	238	5.3	16	3.5	254	5.2
Pharmacy (Inpatient)	204	4.6	29	6.3	233	4.7
Outpatient Clinic (Private Practice or Academic)	137	3.1	25	5.5	162	3.3
Community Health Center/Public Health Clinic	122	2.7	12	2.6	134	2.7
Long Term Acute Care Hospital	58	1.3	9	2.0	67	1.4
Emergency Room	14	0.3	2	0.4	16	0.3
Rehabilitation Hospital	8	0.2	1	0.2	9	0.2
Urgent Care Facility	3	0.1	0	0.0	3	0.1
Outpatient Surgery Center	3	0.1	0	0.0	3	0.1
Substance Abuse Treatment Facility (Inpatient)	2	0.0	0	0.0	2	0.0
Pain Management Clinic	1	0.0	0	0.0	1	0.0
Diagnostic Testing Facility	1	0.0	2	0.4	3	0.1
Non-Respondents	113	2.5	10	2.2	123	2.5
Total	4,461	100.0	459	100.0	4,920	100.0
Hours per Week at Primary Practice Location	N	%	N	%	N	%
0 hours per week	26	0.6	3	0.7	29	0.6
1 – 4 hours per week	65	1.5	11	2.4	76	1.5
5 – 8 hours per week	83	1.9	19	4.1	102	2.1
9 – 12 hours per week	83	1.9	24	5.2	107	2.2
13 – 16 hours per week	65	1.5	25	5.5	90	1.8
17 – 20 hours per week	138	3.1	39	8.5	177	3.6
21 – 24 hours per week	160	3.6	42	9.2	202	4.1
25 – 28 hours per week	99	2.2	29	6.3	128	2.6
29 – 32 hours per week	235	5.3	32	7.0	267	5.4
33 – 36 hours per week	292	6.6	32	7.0	324	6.6
37 – 40 hours per week	1,862	41.7	113	24.6	1,975	40.1
41 or more hours per week	1,308	29.3	86	18.7	1,394	28.3
Non-Respondents	45	1.0	4	0.9	49	1.0
Total	4,461	100.0	459	100.0	4,920	100.0
Percent of Time in Direct Patient Care	N	%	N	%	N	%
0%	589	13.2	72	15.7	661	13.4
10%	1,007	22.6	69	15.0	1,076	21.9
20%	670	15.0	68	14.8	738	15.0
30%	515	11.5	34	7.4	549	11.2
40%	183	4.1	27	5.9	210	4.3
50%	375	8.4	53	11.6	428	8.7
60%	122	2.7	20	4.4	142	2.9
70%	172	3.9	25	5.5	197	4.0
80%	219	4.9	27	5.9	246	5.0
90%	171	3.8	26	5.7	197	4.0
100%	335	7.5	33	7.2	368	7.5
Non-Respondents	103	2.3	5	1.1	108	2.2
Total	4,461	100.0	459	100.0	4,920	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2016

Notes: One and two practice locations are defined as having one or two valid practice addresses in Indiana.



Supply and Geographic Distribution Characteristics**Table 2.3: Pharmacist Geographic Distribution (Residents per FTE)**

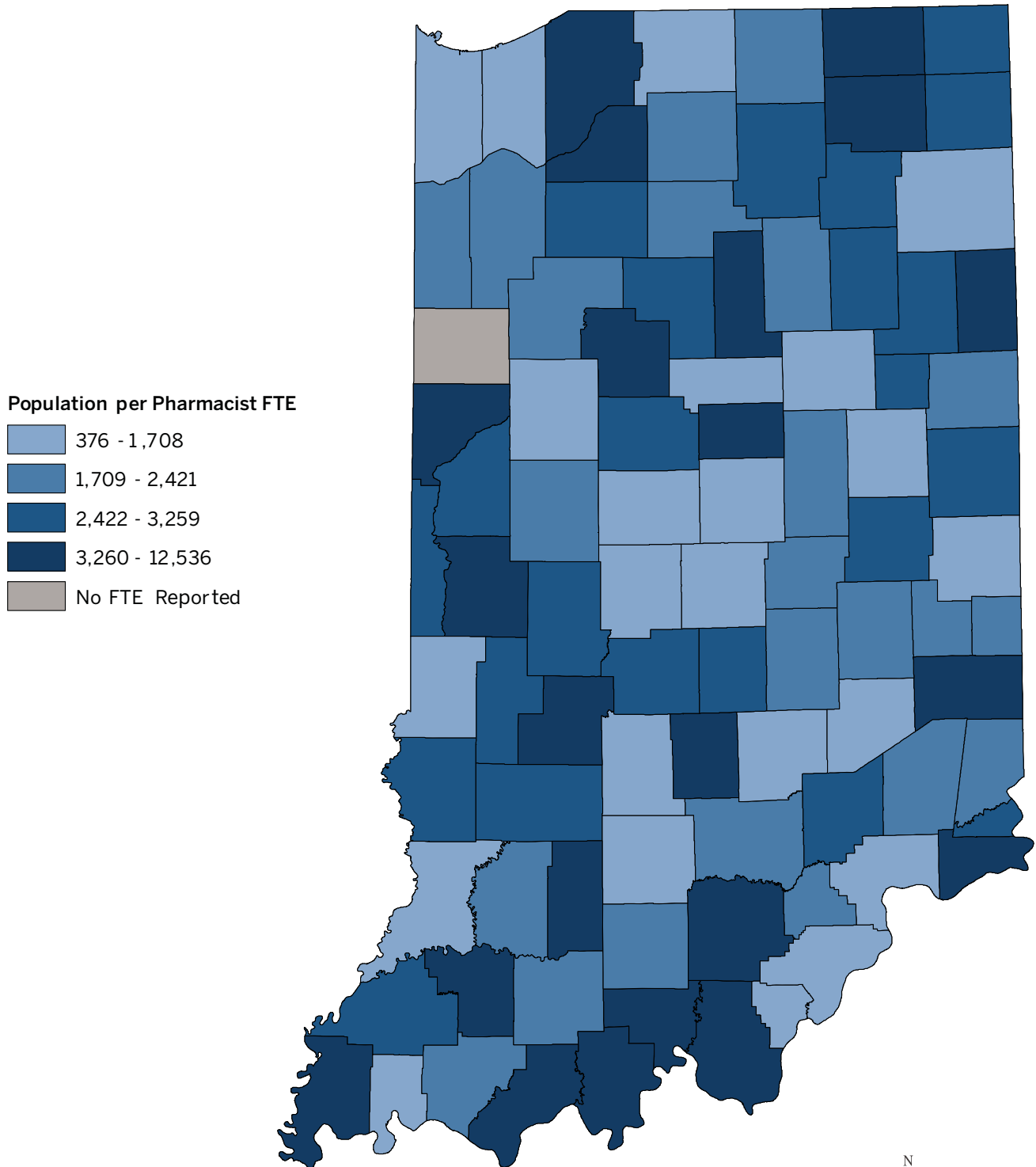
County Name	Rurality	Total FTE	Residents per FTE	County Name	Rurality	Total FTE	Residents per FTE
Adams	Rural	9.6	3,529	Lawrence	Rural	27.0	1,677
Allen	Urban	257.6	1,366	Madison	Urban	71.2	1,742
Bartholomew	Urban	48.5	1,577	Marion	Urban	1097.0	814
Benton	Rural	-	-	Marshall	Rural	22.0	2,104
Blackford	Rural	4.7	2,622	Martin	Rural	2.2	4,614
Boone	Urban	111.7	514	Miami	Rural	8.1	4,263
Brown	Urban	1.3	11,505	Monroe	Urban	82.5	1,516
Carroll	Urban	2.2	9,011	Montgomery	Rural	15.5	2,371
Cass	Rural	14.5	2,609	Morgan	Urban	27.3	2,506
Clark	Urban	80.9	1,354	Newton	Urban	6.9	2,023
Clay	Urban	9.7	2,716	Noble	Rural	10.8	4,302
Clinton	Rural	9.9	3,259	Ohio	Urban	2.0	2,973
Crawford	Rural	3.0	3,506	Orange	Rural	8.0	2,421
Daviess	Rural	13.8	2,267	Owen	Rural	4.0	5,251
DeKalb	Rural	13.1	3,190	Parke	Rural	4.0	3,907
Dearborn	Urban	23.0	2,138	Perry	Rural	5.2	3,402
Decatur	Rural	15.1	1,690	Pike	Rural	1.0	12,536
Delaware	Urban	74.4	1,469	Porter	Urban	94.4	1,708
Dubois	Rural	22.2	1,855	Posey	Urban	5.2	4,890
Elkhart	Urban	96.1	2,028	Pulaski	Rural	5.3	2,441
Fayette	Rural	10.1	2,336	Putnam	Urban	12.6	2,551
Floyd	Urban	70.5	1,049	Randolph	Rural	8.9	2,869
Fountain	Rural	6.3	2,664	Ripley	Rural	14.3	1,968
Franklin	Urban	6.0	3,818	Rush	Rural	7.9	2,149
Fulton	Urban	10.7	1,913	Scott	Rural	11.3	2,087
Gibson	Urban	10.8	3,019	Shelby	Urban	23.5	1,855
Grant	Rural	48.8	1,315	Spencer	Rural	5.7	3,617
Greene	Urban	11.7	2,787	St. Joseph	Urban	153.3	1,659
Hamilton	Urban	271.7	1,034	Starke	Rural	6.2	3,725
Hancock	Urban	37.7	1,844	Steuben	Rural	12.4	2,643
Harrison	Urban	10.4	3,710	Sullivan	Urban	7.8	2,441
Hendricks	Urban	93.7	1,549	Switzerland	Rural	1.6	6,498
Henry	Rural	14.7	3,127	Tippecanoe	Urban	110.2	1,467
Howard	Urban	52.7	1,542	Tipton	Urban	4.0	3,906
Huntington	Rural	11.6	3,071	Union	Rural	3.1	2,363
Jackson	Rural	21.9	1,903	Vanderburgh	Urban	172.0	1,007
Jasper	Urban	17.1	1,891	Vermillion	Urban	6.0	2,620
Jay	Rural	9.4	2,228	Vigo	Urban	70.9	1,389
Jefferson	Rural	20.7	1,461	Wabash	Rural	12.7	2,418
Jennings	Rural	10.3	2,705	Warren	Rural	2.1	3,972
Johnson	Urban	56.7	2,440	Warrick	Urban	33.3	1,771
Knox	Rural	31.5	1,123	Washington	Urban	6.6	4,176
Kosciusko	Rural	26.0	2,924	Wayne	Rural	42.6	1,545
LaGrange	Rural	9.5	3,898	Wells	Urban	10.4	2,597
La Porte	Urban	53.2	9,177	White	Rural	11.9	2,027
Lake	Urban	273.0	376	Whitley	Urban	10.7	3,061

Source: Indiana Physician Assistant Re-Licensure Survey, 2016

Notes: Population per pharmacist FTE cannot be calculated for counties with no reported FTE



Map 2.1 Population per Pharmacist FTE



Source: Indiana Pharmacist Re-Licensure Survey, 2016



Specialty Practice Characteristics**Table 2.4: Pharmacist Specialty Characteristics**

Residency Specialty	N	%
No Residency Completed	2,140	43.5
Pharmacotherapy	116	2.4
Ambulatory Care	91	1.9
Internal Medicine	91	1.9
Critical Care	37	0.8
Health System Pharmacy Administration	25	0.5
Pediatric	22	0.5
Oncology	21	0.4
Drug Information	14	0.3
Geriatric	8	0.2
Psychiatric	7	0.1
Managed Care Pharmacy Systems	5	0.1
Emergency Medicine	5	0.1
Nuclear	4	0.1
Informatics	4	0.1
Nutrition Support	3	0.1
Solid Organ Transplant	3	0.1
Cardiology	1	0.0
Non-Respondents	2,323	47.2
Total	4,920	100.0
BPS Certification Specialty	N	%
No BPS Certification	1,769	36.0
Pharmacotherapy	255	5.2
Ambulatory Care Pharmacy	47	1.0
Critical Care Pharmacy	13	0.3
Pediatric Pharmacy	13	0.3
Psychiatric Pharmacy	12	0.2
Oncology Pharmacy	28	0.6
Nutrition Support Pharmacy	6	0.1
Nuclear Pharmacy	8	0.2
Non-Respondents	2,769	56.3
Total	4,920	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2016

Educational and Employment Characteristics

Table 2.5: Pharmacist Education Characteristics

Qualifying Degree	Indiana		Contiguous States		Other US State		Other Country		Non-Respondents		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Certificate	0	0.0	0	0.0	0	0.0	2	2.1	0	0.0	2	0.0
Bachelors	1,897	51.5	210	37.4	220	42.6	74	78.7	49	79.0	2,450	49.8
Masters	14	0.4	1	0.2	2	0.4	9	9.6	1	1.6	27	0.6
Doctor of Pharmacy	1,771	48.1	349	62.1	292	56.5	9	9.6	11	17.7	2,432	49.4
Non-Respondents	3	0.1	2	0.4	3	0.6	0	0.0	1	1.6	9	0.2
Total	3,685	100.0	562	100.0	517	100.0	94	100.0	62	100.0	4,920	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2016

Notes: Contiguous states include Illinois, Kentucky, Michigan, and Ohio.

Table 2.6: Pharmacist Employment Plans

Employment Plans	N	%
Increase hours in the pharmacy field	4,395	89.3
Decrease hours in the pharmacy field	241	4.9
Leave employment in the field of pharmacy	143	2.9
No planned change	25	0.5
Non-Respondents	116	2.4
Total	4,920	100.0
Primary Field	N	%
Medication Dispensing	3,369	68.5
Patient Care Services	994	20.2
Business/Organization Management	302	6.1
Education	45	0.9
Other	166	3.4
Research	22	0.5
Non-Respondents	22	0.5
Total	4,920	100.0

Source: Indiana Pharmacist Re-Licensure Survey, 2016

Closing Summary

The data presented in this report provide information on demographics, practice characteristics, supply and distribution of Indiana's pharmacist workforce. Of the total pharmacist workforce that renewed licenses, 45.1% reported a verified Indiana practice address and were included in the survey sample for this report.

The sample included in this report indicates that 57.1% of pharmacists are younger than 44 years of age. Indiana's pharmacist workforce also lacks in diversity as 89.4% identified as White.

Regarding practice characteristics, 41.7% of pharmacists report working in an outpatient setting, with 68.4% reporting working at least 37 hours per week. Half (50.8%) of respondents report spending less than 20% of their time in direct patient care. Rural counties demonstrate the greatest need for pharmacists while urban counties have the greatest number of reported pharmacist FTE.

Implications and recommendations from the data presented in this report are provided in the 2016 Indiana Pharmacist Policy Report.