

HEALTH WORKFORCE STUDIES PROGRAM

# DATA REPORT

## 2012 INDIANA PHARMACIST WORKFORCE

**Produced by:**

Health Workforce Studies Program

Department of Family Medicine Indiana University School of Medicine

**In Collaboration with:**

Indiana Area Health Education Centers Program

Zachary T. Sheff, MPH

Callie Nowak, BS

Hannah Maxey, PhD, MPH, RDH

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## EXECUTIVE SUMMARY

The role of pharmacists in healthcare has evolved from distributing medications in an isolated setting to providing direct patient care as a member of a multidisciplinary care team. Pharmacists now may provide care for patients through medication management and reconciliation, delivery of preventive care services (including immunization), and patient education.<sup>1</sup> Accompanying the expansion of pharmacists' responsibilities in healthcare delivery have been changes in pharmacist education. In 1997, the Accreditation Council for Pharmacy Education (ACPE) adopted the Doctor of Pharmacy (PharmD) as the sole entry degree for the pharmacy profession, replacing the Bachelor of Pharmacy Degree.<sup>2</sup> These changes to the pharmacy profession are reflected in the data presented in this report.

Supply data on Indiana's pharmacist workforce was collected during pharmacists' biennial license renewal period through a voluntary survey. This survey was not administered during the 2014 license renewal period; therefore, data from the 2012 renewal period is instead presented as it is the most recent available data on the pharmacist workforce in Indiana. In 2012, there were 10,553 total pharmacist license renewals. Of these license renewals, 4,790 pharmacists were found to be actively working at an Indiana practice location. Criteria for inclusion in this analysis are discussed in the Methodology section of this report.

Practice characteristics and geographic distribution of individuals who met all inclusion criteria were analyzed to determine capacity at the county level. Statewide, there were approximately 1,451 Indiana residents for each pharmacist full-time equivalent (FTE). Boone County had the fewest residents per FTE (637.23 population per FTE), while Brown County had the highest population to pharmacist FTE ratio (15,083 population per FTE).

Reflecting nationwide trends in pharmacist education following the ACPE decision to make the PharmD the sole entry degree for pharmacists, the type of degree held by pharmacists in Indiana has changed over the past several years. In 2004, 77.4 percent of respondents earned a bachelor's degree and only 20 percent earned a PharmD. In 2012, 55 percent of respondents held a bachelor's degree, while 42.8 percent of respondents held a PharmD. Alongside changes in pharmacist education have come changes in the services offered by pharmacists. In 2008, 10.1 percent of pharmacists were trained to deliver immunizations. By 2012, nearly half (49.4%) of pharmacists had been trained.

A full set of data tables describing the demographic, professional, and educational characteristics of the pharmacy workforce can be found in the Data Tables section of the report.

## INTRODUCTION

### Preface

The 2012 Pharmacist Data Report is developed by the Health Workforce Studies Program at Indiana University Department of Family Medicine. The report presents key information and data collected from the biennial Pharmacist Licensure Survey administered by the Indiana Professional Licensing Agency (IPLA). The report identifies major trends and includes key data on the pharmacist workforce that may be used to promote meaningful policy discussion and inform evidence-based policy development.

Understanding the status of Indiana's healthcare 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 healthcare professionals in Indiana.

The Data Report is broken into two major components. The first component provides an overview of the pharmacists in Indiana containing inclusion criteria, workforce distribution, and trends. The second component of the report includes key data tables, which are listed in the table of contents.

### Methods

The Indiana Professional Licensing Agency (IPLA) administers a survey to pharmacists as part of their biennial license renewal process. All pharmacists who renewed their license electronically were invited to complete a voluntary survey instrument. The data used for this report were extracted from the pharmacist survey data files provided by the Indiana Professional Licensing Agency (IPLA) through the Indiana State Department of Health (ISDH). All individuals who renewed their license online and responded to the voluntary survey were initially filtered to include only those with an active or probationary license status. The dataset was further refined by excluding individuals who indicated that they were not actively practicing in pharmacy or reported practicing outside of Indiana. Data was collected from the 2012 pharmacist licensure; however, it was not analyzed until 2014. A complete methodology and the survey instruments used to collect data can be found online at:

<http://ahec.iupui.edu/indiana-center-for-health-workforce-studies-reports/>.

The workforce distribution data maps were created to compare the capacity of the pharmacist workforce among Indiana counties. Capacity was measured using pharmacist full-time equivalents (FTEs) rather than a simple headcount to take into account any differences in the number of hours worked per week by respondents. Pharmacist FTEs were calculated from information on respondents' average

number of weekly hours, which was collected from survey dissemination (see Table 1.1). The US Census 2012 population estimate for each county was used to estimate the population per pharmacist FTE.

There are several limitations to the data presented in this report. Firstly, the survey offered to pharmacists during their license renewal period is voluntary, and, therefore, does not capture the entire workforce in Indiana. Additionally, individuals who did not renew their license online or did not answer questions used for inclusion criteria in this report are not included in the data set. Finally, the survey responses are all self-reported information that may be incorrectly reported.

**Table 1.1 FTE Calculation**

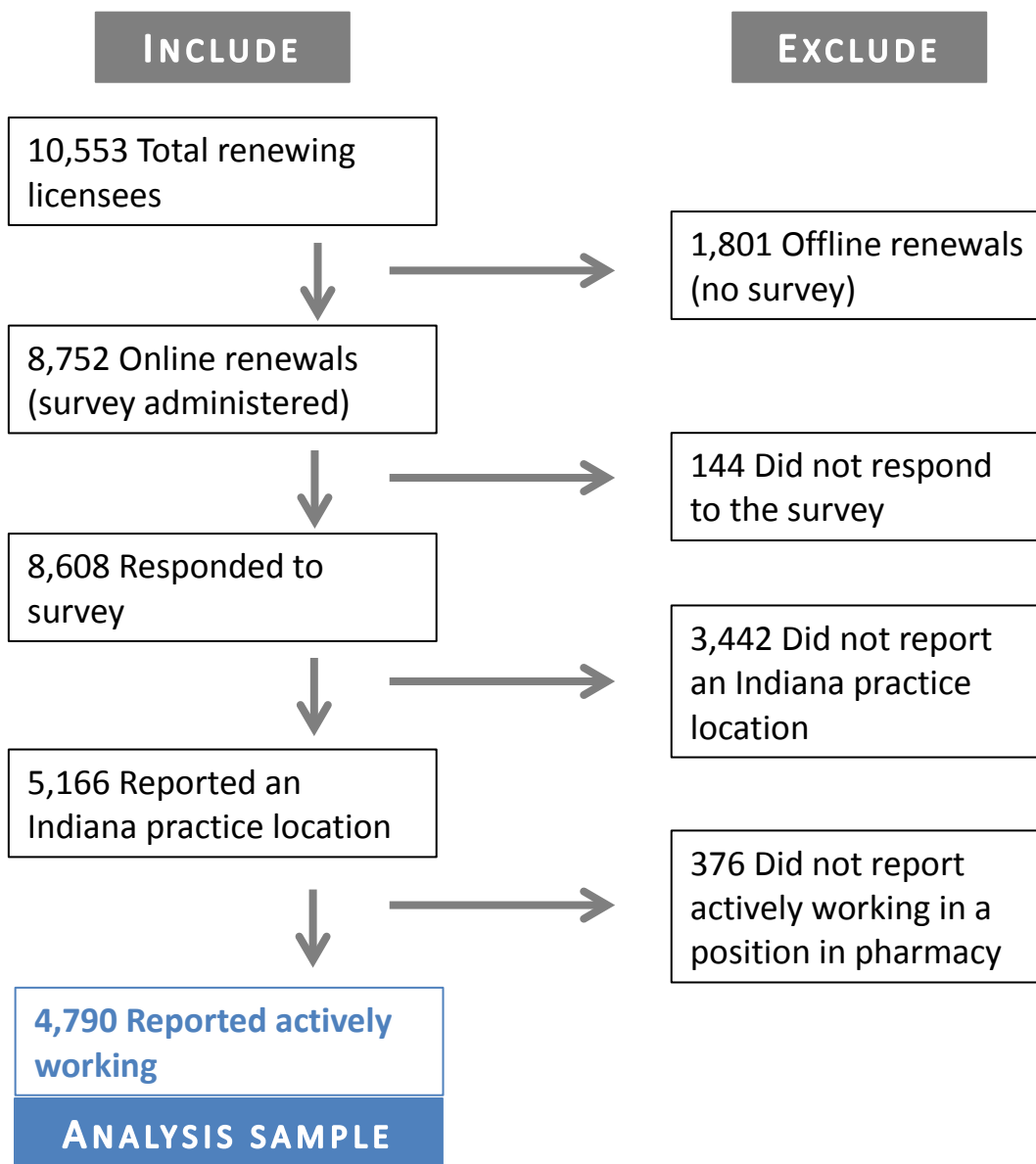
<b>Hours per Week Spent in All Activities</b>	<b>FTE</b>
1-9	0.25
10-19	0.50
20-29	0.75
30-39	1.00
40-49	1.00
50-59	1.00
60 or more	1.00

## THE PHARMACIST WORKFORCE

### Inclusion Criteria

There were 10,553 pharmacists who renewed their license in 2012. Of these, 4,790 were included in this analysis who held active licenses and indicated on the survey that they were practicing at an Indiana address (see Figure 2.1). The survey had a 98.4 percent response rate.

Figure 2.1 Inclusion and Exclusion Criteria for Indiana Pharmacist Workforce





## Workforce Distribution

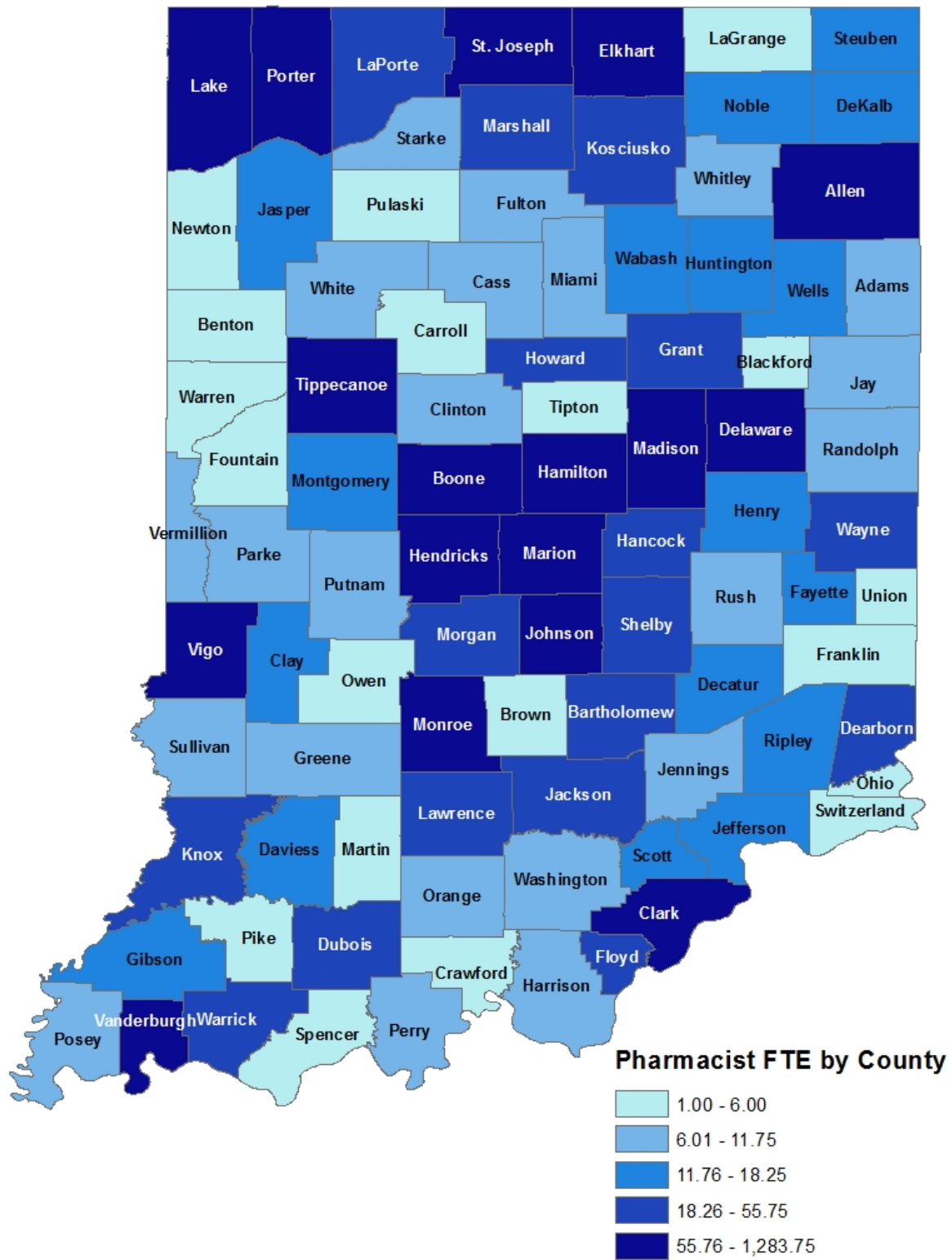
The distribution of the pharmacist workforce in Indiana is estimated in Maps 2.1 and 2.2. As discussed in the Methodology section, pharmacist capacity is estimated using FTEs rather than a simple headcount to account for individuals who do not work full-time. The maps show general trends in workforce distribution by county; however, a table containing information on each county is also included in the Data Tables section of the report for more precise comparisons.

Map 2.1 displays the number of pharmacist FTEs in each county. The color gradient categorizes counties by quintile. Counties in the lightest color have the fewest FTEs while counties in the darkest color have the most.

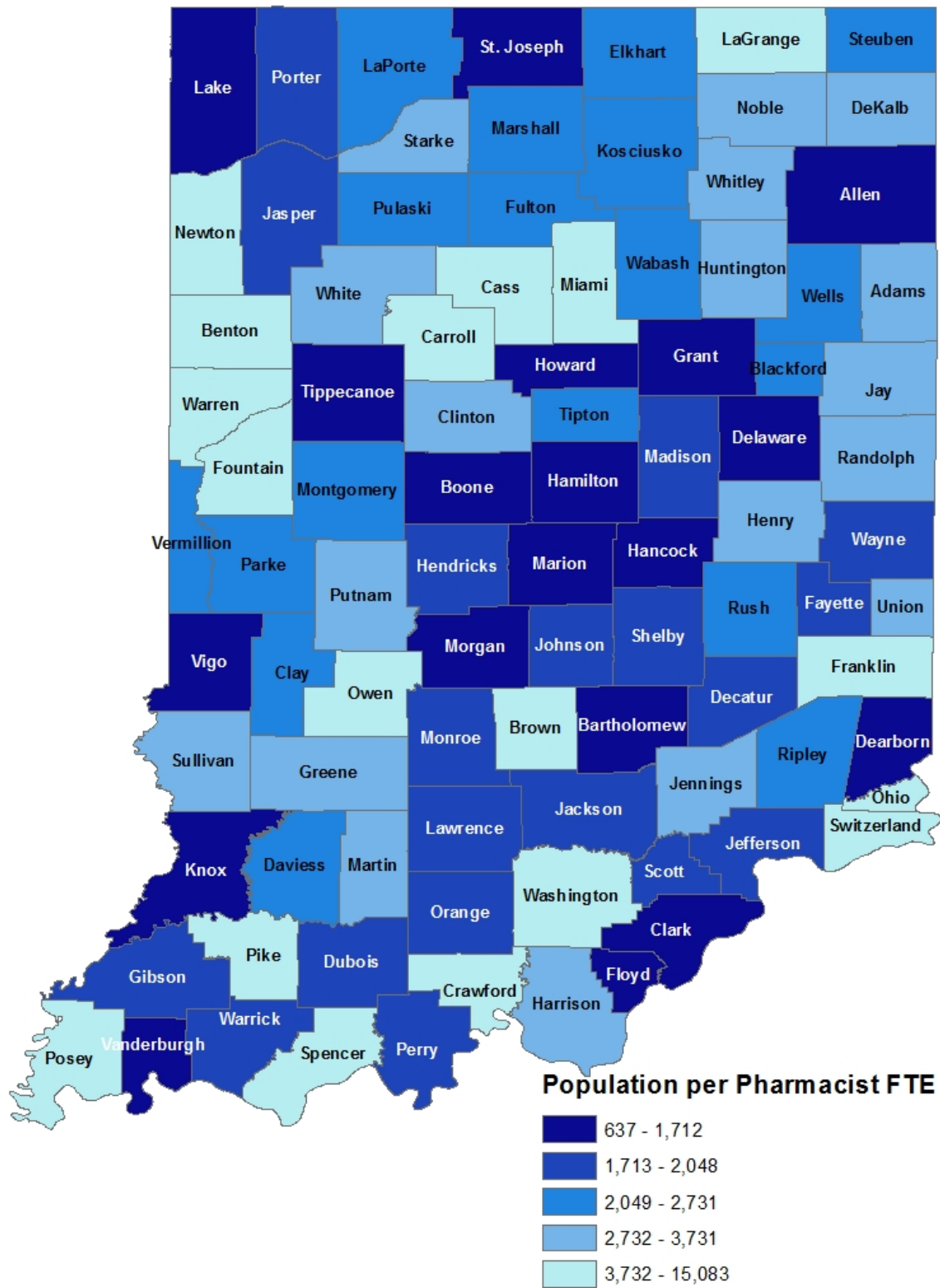
Map 2.2 shows the ratio of population to pharmacist FTEs by county. This ratio allows a more reliable comparison from county-to-county by controlling for differences in population. The color gradient categorizes counties by quintile. Counties in the lightest color have the highest ratio of population to pharmacist FTE (least capacity) while counties in the darkest color have the lowest ratio of population to pharmacist FTE (greatest capacity).

In 2012, Indiana had approximately 1,451 Indiana residents for each pharmacist FTE. Boone County had the fewest residents per FTE (637.23 population per FTE). Conversely, Brown County had the largest population to pharmacist FTE ratio (15,083 population per FTE). Pharmacist FTEs were generally concentrated in urban counties with large populations. Marion County had the highest number of pharmacist FTEs (1,283.75). Ohio, Benton, Crawford, and Brown Counties had only one pharmacist FTE per county. There were 35 counties that had below 10 pharmacist FTEs.

Map 2.1 Pharmacist FTEs in Indiana Counties, 2012

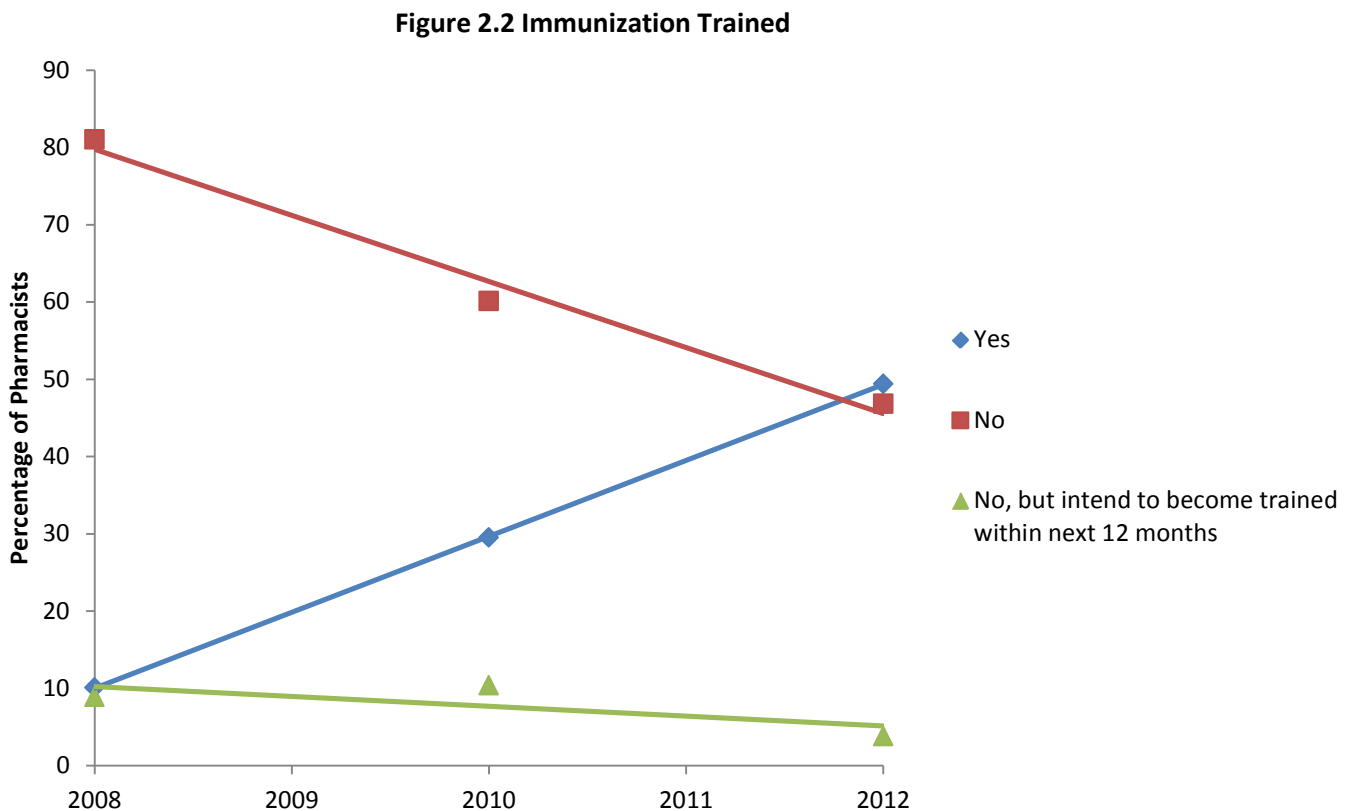


Map 2.2 Population per Pharmacist FTE by County, 2012



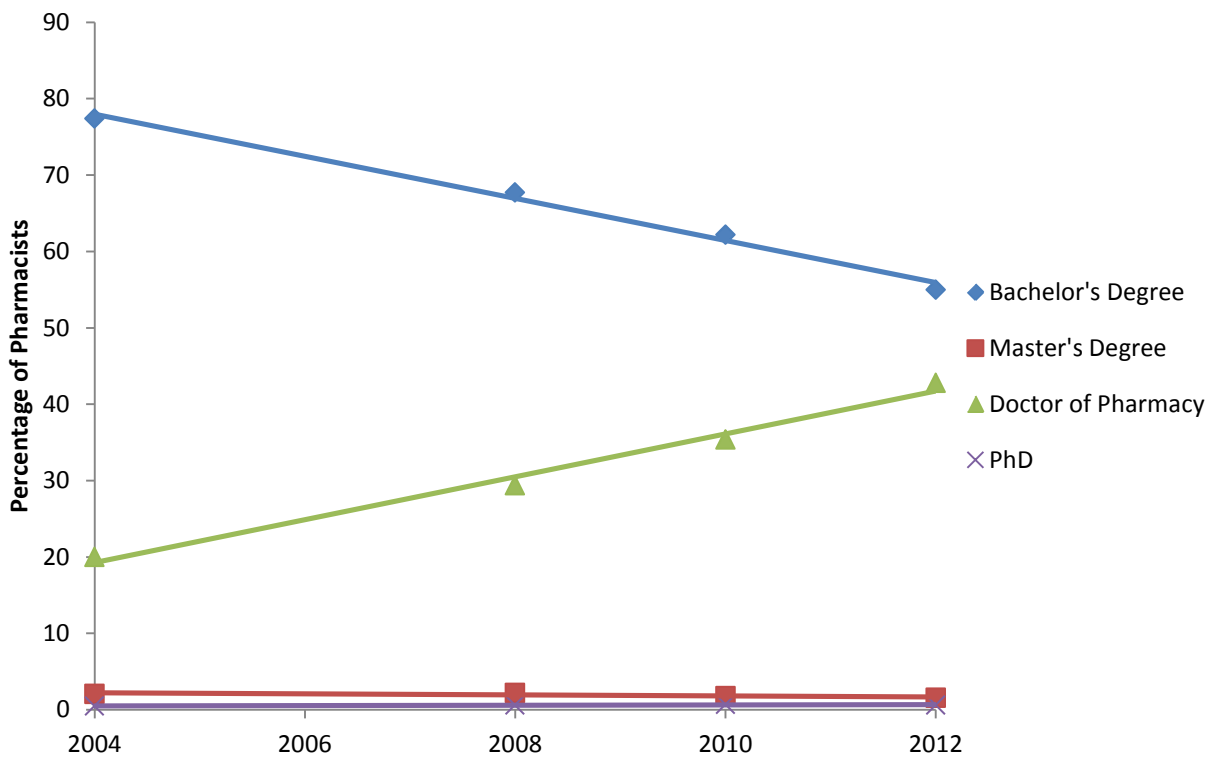
## Workforce Trends: 2004 to 2012

The expanding role of pharmacists in the health system over the past decade is reflected in the proportion of the pharmacist workforce that is trained to deliver immunizations. Data on the proportion of pharmacists who had received immunization training was first gathered during the 2008 license renewal period. Figure 2.2 shows the proportion of pharmacists that received immunization training in 2008, 2010, and 2012. The percentage of respondents that had not received immunization training has decreased from 2008 (81%) to 2012 (46.8%), while the percentage of respondents that had received immunization training increased from 2008 (10.1%) to 2012 (49.4%).



The 1997 decision by the ACPE to replace the Bachelor of Pharmacy degree with the PharmD as the industry-standard has resulted in a shift in the educational background of the pharmacist workforce. Figure 2.3 shows the highest degree in pharmacy obtained by respondents between 2004 and 2012. The proportion of individuals receiving a Doctorate of Pharmacy (PharmD) has risen from 2004 (20.0%) to 2012 (42.8%). The percentage of respondents that hold a Bachelor of Pharmacy has declined over the same time period.

Figure 2.3 Highest Degree Type



## Summary

A full set of tables describing the pharmacists included in this analysis can be found in the data tables section of the report.

The demographics of the pharmacist workforce have changed slightly from 2004 to 2012. In 2012, the majority of respondents were female (58%), white (89.9), and non-Hispanic (98.4). The 2012 workforce has an increased proportion of females than in 2004 and is slightly more racially diverse. The mean age for all included pharmacists in 2012 was 43.4 years old. Female respondents (mean age 40.9 years old) were, on average, younger than males (mean age 46.9 years old).

The educational background of pharmacists has undergone notable change from 2004 to 2012. While the proportion of pharmacists holding a PharmD as their highest credential in pharmacy has risen from 20 percent in 2004 to 42.8 percent in 2012, the Bachelor of Pharmacy is still the most commonly held degree among respondents (55.0%). There has also been a diversification in the institution from which pharmacists received their education. In 2004, 53.5 percent of the pharmacist workforce received their training at Purdue University while 26.4 percent attended Butler University and 20.1 percent attended other universities. In 2012, 46.2 percent of respondents attended Purdue University, 29.7 percent attended Butler University, and 24.1 percent attended other universities. These changes reflect an increase in universities offering pharmacist training in Indiana.

Practice characteristics of pharmacists have remained constant in some areas, but have changed in others. There has been a small shift in work setting since 2004. In 2012, the most common work setting reported by respondents was pharmacy chains (33.1%) followed by hospital-based pharmacies (29.6%) and pharmacy within retail settings (13.7%). Fewer respondents are working in pharmacy chains now than in 2004 and a more respondents are working in hospital-based pharmacies than in 2004. There has been significant growth since 2008 in the proportion of pharmacists trained to deliver immunizations. In 2008, only 10.1 percent of respondents had received immunization training compared to 49.4 percent in 2012. In 2012, two-thirds (69.6%) of pharmacists reported that they worked 40 or more hours per week. This proportion has remained constant since 2004.

**DATA TABLES**

## County Supply of Pharmacist Professionals

**Table 3.1 Pharmacists by County and Profession**

County	2012 Population Estimate	Rurality	Pharmacist FTEs	Population per Pharmacist FTE
Indiana Total	6,537,334	n/a	4,506.75	1,451
Adams	34,365	Rural	11.25	3,055
Allen	360,412	Urban	270.25	1,334
Bartholomew	79,129	Urban	46.50	1,702
Benton	8,804	Urban	1.00	8,804
Blackford	12,502	Rural	5.00	2,500
Boone	58,944	Urban	92.50	637
Brown	15,083	Urban	1.00	15,083
Carroll	20,095	Urban	2.00	10,048
Cass	38,581	Rural	8.50	4,539
Clark	111,951	Urban	65.50	1,709
Clay	26,837	Urban	12.50	2,147
Clinton	33,022	Rural	11.75	2,810
Crawford	10,665	Rural	1.00	10,665
Daviess	32,064	Rural	15.50	2,069
Dearborn	49,831	Urban	34.50	1,444
Decatur	26,042	Rural	13.25	1,965
DeKalb	42,321	Rural	13.25	3,194
Delaware	117,364	Urban	83.00	1,414
Dubois	42,071	Rural	22.25	1,891
Elkhart	199,619	Urban	88.50	2,256
Fayette	24,029	Rural	12.50	1,922
Floyd	75,283	Urban	55.75	1,350
Fountain	17,119	Rural	3.50	4,891
Franklin	22,969	Rural	4.50	5,104
Fulton	20,737	Rural	8.50	2,440
Gibson	33,458	Rural	16.50	2,028
Grant	69,330	Rural	46.00	1,507
Greene	32,940	Rural	9.50	3,467
Hamilton	289,495	Urban	258.00	1,122
Hancock	70,933	Urban	44.75	1,585
Harrison	39,134	Urban	11.75	3,331
Hendricks	150,434	Urban	86.75	1,734
Henry	49,345	Rural	15.00	3,290
Howard	82,849	Urban	52.25	1,586
Huntington	36,987	Rural	13.00	2,845
Jackson	43,083	Rural	22.50	1,915



**Table 3.1 Pharmacists by County and Profession (Cont'd.)**

<b>County</b>	<b>2012 Population Estimate</b>	<b>Rurality</b>	<b>Pharmacist FTEs</b>	<b>Population per Pharmacist FTE</b>
Indiana Total	6,537,334	n/a	4,506.75	1,451
Jasper	33,456	Urban	18.00	1,859
Jay	21,366	Rural	7.00	3,052
Jefferson	32,554	Rural	16.25	2,003
Jennings	28,161	Rural	9.00	3,129
Johnson	143,191	Urban	82.75	1,730
Knox	38,122	Rural	31.00	1,230
Kosciusko	77,609	Rural	30.25	2,566
LaGrange	37,521	Rural	5.75	6,525
Lake	493,618	Urban	328.50	1,503
LaPorte	111,246	Urban	51.00	2,181
Lawrence	46,078	Rural	23.25	1,982
Madison	130,348	Urban	64.75	2,013
Marion	918,977	Urban	1,283.75	716
Marshall	47,024	Rural	20.00	2,351
Martin	10,260	Rural	3.25	3,157
Miami	36,486	Rural	7.00	5,212
Monroe	141,019	Urban	70.50	2,000
Montgomery	38,254	Rural	18.25	2,096
Morgan	69,356	Urban	40.50	1,712
Newton	14,044	Urban	3.00	4,681
Noble	47,582	Rural	12.75	3,732
Ohio	6,079	Urban	1.00	6,079
Orange	19,690	Rural	10.50	1,875
Owen	21,380	Urban	4.00	5,345
Parke	17,069	Rural	6.25	2,731
Perry	19,462	Rural	9.50	2,049
Pike	12,766	Rural	2.00	6,383
Porter	165,682	Urban	91.50	1,811
Posey	25,599	Urban	6.75	3,792
Pulaski	13,124	Rural	6.00	2,187
Putnam	37,750	Urban	11.75	3,213
Randolph	25,815	Rural	7.75	3,331
Ripley	28,583	Rural	12.75	2,242
Rush	17,095	Rural	7.00	2,442
St. Joseph	266,344	Urban	179.50	1,484
Scott	23,791	Urban	12.50	1,903
Shelby	44,471	Urban	24.25	1,834
Spencer	20,837	Rural	5.00	4,167

**Table 3.1 Pharmacists by County and Profession (Cont'd.)**

County	2012 Population Estimate	Rurality	Pharmacist FTEs	Population per Pharmacist FTE
Indiana Total	6,537,334	n/a	4,506.75	1,451
Starke	23,213	Rural	6.75	3,439
Steuben	34,124	Rural	13.00	2,625
Sullivan	21,188	Urban	7.00	3,027
Switzerland	10,424	Rural	2.00	5,212
Tippecanoe	177,513	Urban	129.00	1,376
Tipton	15,695	Rural	6.00	2,616
Union	7,362	Urban	2.00	3,681
Vanderburgh	180,858	Urban	149.75	1,208
Vermillion	16,040	Urban	7.75	2,070
Vigo	108,428	Urban	75.00	1,446
Wabash	32,361	Rural	12.00	2,697
Warren	8,342	Rural	1.25	6,674
Warrick	60,463	Urban	33.25	1,818
Washington	27,921	Urban	7.00	3,989
Wayne	68,346	Rural	39.00	1,752
Wells	27,652	Urban	12.00	2,304
White	24,426	Rural	8.00	3,053
Whitley	33,342	Urban	11.75	2,838

## 2012 Indiana Pharmacist Licensure Survey

**Table 3.2 2012 Indiana Pharmacist Licensure Survey Response Rate**

Survey Response Rate	Number	Percent
Renewed electronically and responded to the survey	8,608	98.4
Total electronic license renewals in 2012	8,752	

**Table 3.3 Sex**

Sex	2004		2008		2010		2012	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Female	2,290	52.4	2,728	55.0	3,068	56.5	2,777	58.0
Male	2,079	47.6	2,233	45.0	2,363	43.5	2,013	42.0
Total	4,369	100.0	4,961	100.0	5,431	100.0	4,790	100.0
No Response Given	34		50		22		0	

**Table 3.4 Race**

Race	2004		2008		2010		2012	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White	4,034	92.4	4,564	91.9	4,922	90.8	4,307	89.9
Asian/Pacific Islander	137	3.1	169	3.4	227	4.2	219	4.6
Black/African American	116	2.7	134	2.7	172	3.2	171	3.6
Other	58	1.3	72	1.4	70	1.3	61	1.3
Multi-racial	20	0.5	26	0.5	26	0.5	31	0.6
American Indian/Native Alaskan	2	0.0	2	0.0	1	0.0	1	0.0
Total	4,367	100.0	4,967	100.0	5,418	100.0	4,790	100.0
Missing	36		44		35		0	

**Table 3.5 Ethnicity**

Ethnicity	2004		2008		2010		2012	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Non-Hispanic	4,320	98.9	4,883	98.5	5,350	98.7	4,711	98.4
Hispanic	47	1.1	72	1.5	68	1.3	79	1.6
Total	4,367	100.0	4,955	100.0	5,418	100.0	4,790	100.0
Missing	36		56		35		0	

**Table 3.6 Mean Age by Sex**

Sex	Mean Age
Female	40.9
Male	46.9
Overall Mean Age	43.4

**Table 3.7 Highest Degree Earned**

Degree	2004		2008		2010		2012	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Bachelor's Degree	3,383	77.4	3,382	67.7	3,379	62.2	2,636	55.0
Master's Degree	90	2.1	112	2.2	97	1.8	75	1.6
Doctor of Pharmacy (PharmD)	874	20.0	1,470	29.4	1,924	35.4	2,050	42.8
PhD	24	0.5	29	0.6	36	0.7	29	0.6
Total	4,371	100.0	4,993	100.0	5,436	100.0	4,790	100.0
Missing	32		18		17		0	

**Table 3.8 Academic Institution Attended for Highest Degree in Pharmacy**

Academic Institution	2004		2008		2010		2012	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Purdue University	2,348	53.5	2,623	52.6	2,763	50.8	2,215	46.2
Butler University	1,157	26.4	1,358	27.2	1,506	27.7	1,423	29.7
Other university	883	20.1	1,003	20.1	1,173	21.6	1,152	24.1
Total	4,388	100.0	4,984	100.0	5,442	100.0	4,790	100.0
Missing	15		27		11		0	

**Table 3.9 Work Setting**

Work Setting	2004		2008		2010		2012	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Pharmacy chain	1,586	36.4	1,753	35.1	1,890	34.7	1,587	33.1
Hospital-based pharmacy	1,069	24.5	1,283	25.7	1,517	27.8	1,418	29.6
Pharmacy within retail setting (e.g. grocery store)	510	11.7	726	14.5	778	14.3	656	13.7
Independent community pharmacy	386	8.9	369	7.4	384	7.0	269	5.6
Other setting	158	3.6	226	4.5	269	4.9	229	4.8
Long term care extended care facility pharmacy	201	4.6	177	3.5	199	3.6	179	3.7
Industry	252	5.8	198	4.0	184	3.4	164	3.4
University or community college	56	1.3	62	1.2	63	1.2	70	1.5
Federal government	42	1.0	48	1.0	n/a	n/a	67	1.4
Managed care pharmacy	42	1.0	51	1.0	63	1.2	54	1.1
Community Health Center	45	1.0	33	0.7	40	0.7	44	0.9
Long term care acute care facility pharmacy	n/a	n/a	38	0.8	43	0.8	25	0.5
Hospital-based education dept.	n/a	n/a	8	0.2	12	0.2	14	0.3
State government	6	0.1	10	0.2	n/a	n/a	9	0.2
Internet pharmacy	n/a	n/a	4	0.1	9	0.2	3	0.1
Assisted living facility pharmacy	n/a	n/a	3	0.1	2	0.0	1	0.0
Local government	3	0.1	1	0.0	n/a	n/a	1	0.0
Total	4,356	100.0	4,990	100.0	5,453	100.0	4,790	100.0
No Response Given	47		21		0		0	

**Table 3.10 Average Hours Worked per Week**

Hours	2004		2008		2010		2012	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1 - 9	153	3.5	158	3.2	174	3.2	133	2.8
10 - 19	187	4.3	215	4.3	239	4.4	177	3.7
20 - 29	353	8.0	425	8.5	450	8.3	380	7.9
30 - 39	600	13.7	740	14.8	892	16.4	766	16.0
40 or more	3,097	70.5	3,456	69.2	3,686	67.7	3,334	69.6
Total	4,390	100.0	4,994	100.0	5,441	100.0	4,790	100.0
Missing	13		17		12		0	

**Table 3.11 Immunization Training**

Immunization Training	2004		2008		2010		2012	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
No	n/a	n/a	4,024	81.0	3,268	60.1	2,242	46.8
Yes	n/a	n/a	501	10.1	1,606	29.5	2,364	49.4
No, but I intend to become trained within the next 12 months	n/a	n/a	442	8.9	566	10.4	184	3.8
Total	n/a	n/a	4,967	100.0	5,440	100.0	4,790	100.0
Missing			44		13		0	

## References

1. Avalere Health. *Exploring Pharmacists' Role in a Changing Healthcare Environment*. 2014.
2. Accreditation Council for Pharmacy Education. *Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree*. Chicago, Illinois 2006.