

2010 Indiana Dental Hygienist Re-Licensure Survey Report

Produced by:

The Indiana Center for Health Workforce Studies

Bowen Research Center, Department of Family Medicine
Indiana University School of Medicine

In collaboration with the:

Indiana Area Health Education Centers Program

July 2011

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Bowen Research Center
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Table of Contents

Table of Contents	ii
Acknowledgements	iii
Executive Summary	iv
Chapter 1: Introduction	1
Chapter 2: Responses to the 2010 Dental Hygienist Re-licensure Survey	4
Chapter 3: Location of Dental Hygienists by Indiana County	9
Chapter 4: Conclusions	14
Appendices	
Appendix 1: 2010 Indiana Dental Hygienist Re-licensure Survey	15

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Executive Summary

Introduction

The 2010 Indiana Dental Hygienist Re-licensure Survey was administered by the Indiana Professional Licensing Agency under a contract with the Indiana State Department of Health. This report summarizes the responses to that survey.

Methods

The survey instrument included items regarding demographic composition, practice characteristics, and special skills or training. This report includes the survey responses from only those dental hygienists who met the inclusion criteria. Dental hygienists who renewed their license on-line, possessed an active or probationary license, identified Indiana as their primary practice location, and answered at least one question on the survey instrument met the inclusion criteria. A total of 3,175 dental hygienists were included in the analyses presented in this report.

Results: Demographics of Survey Respondents

Approximately 30 percent of the respondents were under the age of 35 and 16.2 percent were 55 years of age or older. Almost all of the respondents were female (98.7%), and the majority belonged to the white race (91.4%) and were of non-Hispanic origin (98.0%).

Results: Practice Characteristics

Approximately 27 percent of the respondents indicated they worked in more than one dental practice, and over one-half of the respondents worked an average of 30 to 39 hours each week. A majority of the respondents indicated they treated adolescents and children. Almost 3 percent reported speaking at least one additional language with Spanish being the most common second language.

Results: Maps

Graphic information system (GIS) maps illustrated that, as expected, the counties with the highest populations also had the most dental hygienists. However, the map illustrating the ratio of dental hygienists per 100,000 residents revealed that some counties with the largest populations, like Marion, had fewer dental hygienists per 100,000 residents than counties with smaller populations.

Conclusions

Approximately 30 percent of the respondents were under the age of 35 and 16.2 percent were 55 years of age or older. Although the age distribution of the respondents doesn't indicate concern for future dental hygienist workforce shortages, patterns revealed in the age distribution of active Indiana dentists presents the possibility of under-employment within the hygienist profession. Since almost 40 percent of Indiana dentists were at or near retirement age, as recorded in the 2010 Indiana Dentists Re-licensure Survey Report, shortfalls in active Indiana dentists could result in under-employment of qualified dental hygienists.

Almost all of the respondents were female, were of the white race, and were of non-Hispanic origin. Since the number of females was substantially greater than the number of males, cross-tabulation analyses by gender did not reveal any significant associations. Cross-tabulation analyses that were conducted to explore associations between age groups and other survey variables also did not offer any meaningful results.

Chapter 1: Introduction

Understanding the personal and professional characteristics of dental hygienists licensed in Indiana is essential for the development and management of programs that effectively recruit and retain hygienists where they are most needed in the state. Quality data about dental hygienists in Indiana helps policymakers and other stakeholders make better-informed decisions regarding the oral health workforce in our state. The purpose of this report is to provide those data. The findings from this report may be used to identify dental hygienist shortage areas and develop more effective recruitment and retention strategies.

The Indiana State Department of Health (ISDH) and the Indiana Professional Licensing Agency (IPLA) collaborated in implementing the 2010 Indiana Dental Hygienist Re-licensure Survey. All dental hygienists who renewed their licenses on-line were asked to participate in a voluntary survey. This report summarizes the responses to that survey.

Methods

The data used for this report were extracted from the 2010 Indiana Dental Hygienist Re-licensure Survey data files provided by the Indiana State Department of Health and included responses to questions designed to collect information regarding demographic composition, practice characteristics, and special skills or training. The dataset included only those dental hygienists who renewed their licenses electronically.

The re-licensure survey dataset was filtered initially to identify all dental hygienists who held active or probationary Indiana licenses and listed Indiana as their principal practice location. Almost all of the respondents (99.9%) held an active Indiana license (refer to Table 1.1).

Table 1.1 Current License Status

License Status	Number	Percent
Active	3,246	99.9
Expired	0	0.0
Probation	1	0.1
Total	3,247	100.0

The dataset was further refined to include only those respondents who were actively working as a dental hygienist in Indiana. Dental hygienists who were retired, temporarily inactive, or practicing outside of Indiana were excluded from the analyses. A total of 3,175 dental hygienists (97.8% of all respondents) were selected for inclusion (refer to Table 1.2).

Table 1.2 Inclusion and Exclusion Criteria*

Work Status	Number	Percent
Included in Study		
Actively working as a dental hygienist	3,175	97.8
Total Included in Study	3,175	97.8
Excluded from Study		
Temporarily inactive as a dental hygienist	61	1.9
Retired as a dental hygienist	11	0.3
Total	3,247	100

**These numbers represent survey respondents only*

Although only dental hygienists who met the inclusion criteria were included in the analysis portion of this report, the denominator used for determining the survey response rate was based on the ***total number of hygienists who renewed their licenses electronically*** (refer to Table 1.3). The numerator for those included in the response rate (renewed electronically & responded to at least one question) also included all dental hygienists who renewed electronically, not just those who practiced in Indiana (refer to Table 1.3). The response rate for the survey was 97.6 percent.

Table 1.3 Survey Response Rate*

Dental Hygienists	Number	Percent
Renewed electronically & responded to at least one question	4,012	97.6
Did not respond to any questions on the survey	100	2.4
Total Electronic Renewals	4,112	100.0

**These numbers represent electronic survey respondents only*

Frequency and cross-tabulation analyses were performed to describe the characteristics of dental hygienists within Indiana. The data were coded in Microsoft Excel 2007 and analyzed using SAS 9.1 and PASW Statistics 18. Graphical information system (GIS) maps were developed to illustrate the number of dental hygienists per Indiana county, as well as the ratio of dental hygienists per 100,000 residents. The estimated number of dental hygienists per county was based on the respondents' principal practice location. The number of dental hygienists in each county was then adjusted (weighted) using the survey response rate (97.6%). Thus, the counts of dental hygienists are *estimates* of the actual number of dental hygienists in each county and not the number of respondents in each county. Rural counties are defined by the United States Department of Agriculture as non-metropolitan counties and are designated by hash marks on the map. The GIS maps were designed in ArcGIS™ 9.3.

Chapter 2: Responses to the 2010 Indiana Dental Hygienist Re-licensure Survey

The results in this chapter reflect the personal and professional characteristics of only those dental hygienists licensed in Indiana who participated in the 2010 Indiana Dental Hygienist Re-licensure Survey. Caution should be taken when making generalizations about all Indiana dental hygienists. Since dental hygienists who renewed their license by paper, as well as those who did not respond to the electronic survey are not included in these results, the data shown may *not* be representative of all licensed dental hygienists in Indiana. Each table shows the number of valid and missing responses to each survey question and the percentage of valid responses. The text describes the responses to the survey.

Demographic Composition

Demographic characteristics shown are the age, gender, race and ethnicity of survey respondents. The data provided by the Indiana State Department of Health included date of birth for all licensed dental hygienists who were practicing in Indiana at the time of the survey. Age was calculated using January 15, 2010 as a reference point since surveys were completed from December through February of 2010. The distribution of respondent age groups is provided in Table 2.1. Approximately one-third (32.4%) of the respondents were younger than 35 years of age, while over one-tenth (16.2%) were at or near retirement age (55 and older).

Table 2.1 Age*

Age Group	Number	Percent
Under 35	1,026	32.4
35-54	1,624	51.4
55-64	458	14.5
65 and older	54	1.7
Total	3,162	100.0
Missing	13	

**These numbers represent survey respondents only*

Table 2.2 shows the gender distribution of survey respondents. A majority of the respondents were female (98.7%) and less than 2% were male. Since the number of female respondents was substantially higher than the number of male respondents, it is expected that the percentage of females would be higher than males in every age group (refer to Table 2.3).

Table 2.2 Gender of Active Indiana Dental Hygienists*

Gender	Number	Percent
Female	3,044	98.7
Male	39	1.3
Total	3,083	100.0
Missing	92	

**These numbers represent survey respondents only*

Table 2.3 Age Group by Gender*

Age Group	Female		Male		Total		
	Number	Percent	Number	Percent	Number	Percent	
Under 35	995	98.9	11	1.1	1,006	100.0	
35-54	1,557	98.5	23	1.5	1,580	100.0	
55-64	428	99.3	3	0.7	431	100.0	
65 and older	52	98.1	1	1.9	53	100.0	
Total	3,032	98.8	38	1.2	3,070	100.0	
Missing						105	

**These numbers represent survey respondents only*

Tables 2.4 and 2.5 display the racial and ethnic distributions of survey respondents. A majority of the respondents were of the white race (97.1%) and slightly less than 2% were of Hispanic origin.

Table 2.4 Race*

Race	Number	Percent
White	3,058	97.1
Black/African-American	29	0.9
Asian/Pacific Islander	19	0.6
American Indian/Native Alaskan	2	0.1
Multi-racial	20	0.6
Other	21	0.7
Total	3,149	100.0
Missing	26	

**These numbers represent survey respondents only*

Table 2.5 Ethnicity*

Hispanic Origin	Number	Percent
Yes	52	1.7
No	3,110	98.3
Total	3,162	100.0
Missing	13	

**These numbers represent survey respondents only*

Practice Characteristics

Table 2.6 shows the distribution of survey respondents who reported working in more than one dental practice. Over one-fourth (27.4%) of the respondents indicated they worked in more than one dental practice.

Table 2.6 Dental Hygienists Who Work in More than One Dental Practice

More than One Dental Practice	Number	Percent
No	2,299	72.6
Yes	867	27.4
Total	3,166	100.0
Missing	9	

**These numbers represent survey respondents only*

Table 2.7 shows the average number of hours worked per week by respondents in all dental hygiene activities. More than one-half (55.2%) of the respondents worked 30 or more hours per week, on average, performing all dental hygiene activities.

Table 2.7 Average Number of Weekly Hours Worked in All Activities*

Average Number of Weekly Hours	Number	Percent
1-9	191	6.1
10-19	392	12.6
20-29	816	26.1
30-39	1,517	48.5
40 or more	211	6.7
Total	3,127	100.0
Missing	48	

**These numbers represent survey respondents only*

Table 2.8 displays the distribution of patient age groups treated by respondents. Respondents were allowed to select all age groups they treated in their practices; therefore, the percent totals will not equal one hundred percent. A majority of the respondents indicated they treated adolescents (58.2%) and children (56.7%). Less than four percent of the respondents saw elders in their practice.

Table 2.8 Patient Age Groups

Age Groups	Number	Percent
Infants (0-4)	838	26.5
Children (5-9)	1,795	56.7
Adolescents (10-14)	1,844	58.2
Youth (15-19)	1,038	32.8
Adults (20-64)	1,343	42.4
Elders (65 and older)	116	3.7
I do not provide direct patient care services	19	0.6

**These numbers represent survey respondents only*

Languages

Table 2.9 shows the distribution of active Indiana dental hygienists fluent in other languages. The majority of respondents did not speak another language (97.6%). The most common additional language spoken was Spanish (1.0%).

Table 2.9 Additional Languages Spoken

Language	Number	Percent
African languages	1	0.0
Burmese	1	0.0
Chinese	5	0.2
Filipino	1	0.0
French	5	0.2
German	7	0.2
Greek	2	0.1
Hindi	5	0.2
Korean	1	0.0
Polish	2	0.1
Russian	6	0.2
Sign Language	7	0.2
Spanish	31	1.0
Tagalog	1	0.0
Vietnamese	2	0.1
No Other Language	3,104	97.6

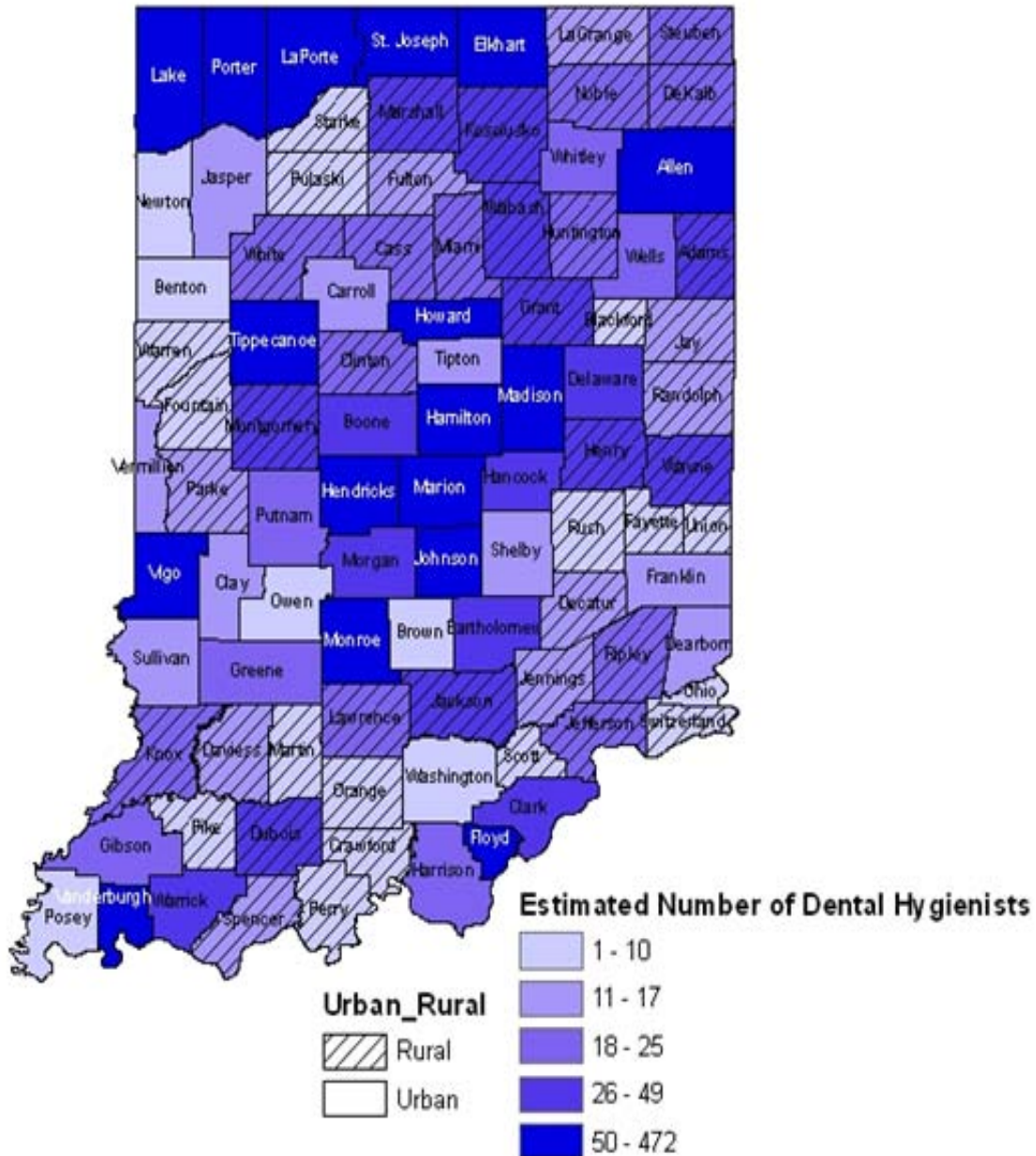
**These numbers represent survey respondents only*

Chapter 3: Maps of Dental Hygienists by Indiana County

The following maps display the estimated number of dental hygienists per county and the ratio of dental hygienists per 100,000 population. The estimates were determined by the respondents' principal practice location. In order to illustrate the data as representative of the actual dental hygienist population in each county, the number of hygienists in each county was adjusted (weighted) per the survey response rate (97.6%) for the 2010 Indiana Dental Hygienist Re-licensure Survey. *Thus, the counts of dental hygienists and ratio are estimates of the actual number of hygienists in each county and not the number of respondents in each county.*

Map 3.1 shows that the number of dental hygienists in Indiana counties is distributed roughly by population. As expected, the counties with the largest populations have the greatest number of dental hygienists. These counties include Allen, Elkhart, Floyd, Hamilton, Hendricks, Howard, Johnson, Lake, LaPorte, Madison, Marion, Monroe, Porter, St. Joseph, Tippecanoe, Vigo, and Vanderburgh. The hash marks indicate rural counties defined by the United States Department of Agriculture as non-metropolitan counties.

Map 3.1 Estimated Number of Dental Hygienists by County, 2010



Map 3.2 shows an estimated number of dental hygienists per 100,000 residents in each Indiana county. Although it seems counter-intuitive, the map illustrates that some of the most populous counties like Elkhart, Hancock, Hendricks, Lake, Marion, Porter, Warrick, and Whitley have fewer dental hygienists per 100,000 population than some of the counties with smaller populations. Ratios of dental hygienists were highest in the following counties: Benton, Vermillion and Vanderburgh. The hash marks indicate rural counties defined by the United States Department of Agriculture as non-metropolitan counties.

Map 3.2 Estimated Number of Dental Hygienists Per 100,000 Population by County, 2010

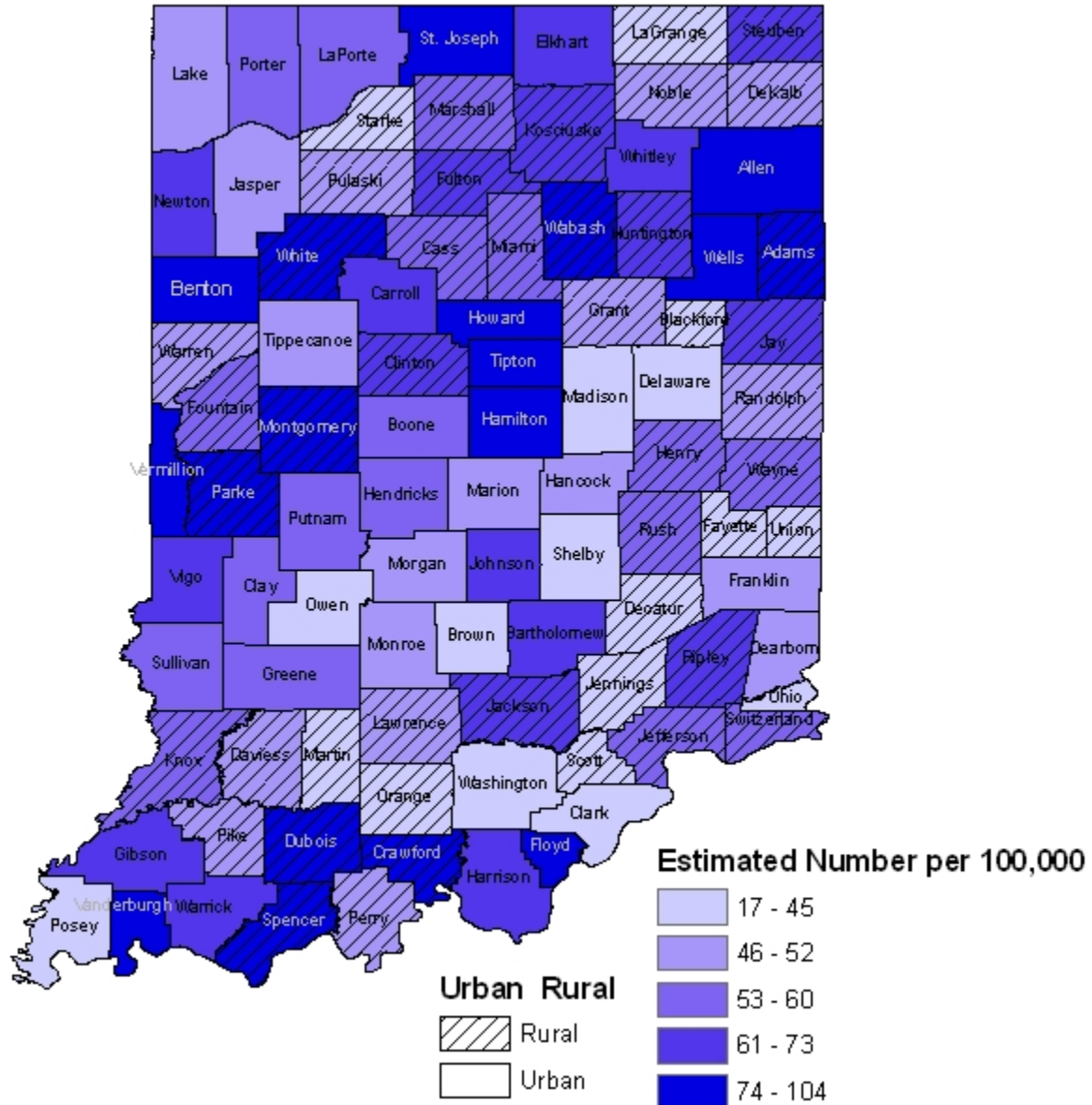


Table 3.1 Estimated Number of Dental Hygienists by County and per 10,000 Population, 2010*

County	Frequency	Weighted	Population	Ratio/100,000
Adams	29	29.71	34,387	86
Allen	281	287.91	355,329	81
Bartholomew	46	47.13	76,794	61
Benton	9	9.22	8,854	104
Blackford	4	4.10	12,766	32
Boone	32	32.79	56,640	58
Brown	3	3.07	15,242	20
Carroll	12	12.30	20,155	61
Cass	20	20.49	38,966	53
Clark	47	48.16	110,232	44
Clay	15	15.37	26,890	57
Clinton	22	22.54	33,224	68
Crawford	8	8.20	10,713	77
Daviess	14	14.34	31,648	45
DeKalb	24	24.59	50,047	49
Dearborn	13	13.32	25,740	52
Decatur	15	15.37	42,223	36
Delaware	48	49.18	117,671	42
Dubois	31	31.76	41,889	76
Elkhart	118	120.90	197,559	61
Fayette	8	8.20	24,277	34
Floyd	55	56.35	74,578	76
Fountain	10	10.25	17,240	59
Franklin	11	11.27	23,087	49
Fulton	14	14.34	20,836	69
Gibson	24	24.59	33,503	73
Grant	31	31.76	70,061	45
Greene	18	18.44	33,165	56
Hamilton	212	217.21	274,569	79
Hancock	33	33.81	70,002	48
Harrison	24	24.59	39,364	62
Hendricks	80	81.97	145,448	56
Henry	29	29.71	49,462	60
Howard	62	63.52	82,752	77
Huntington	22	22.54	37,124	61
Jackson	26	26.64	42,376	63
Jasper	15	15.37	33,478	46
Jay	14	14.34	21,253	67
Jefferson	18	18.44	32,428	57
Jennings	11	11.27	28,525	40
Johnson	92	94.26	139,654	68
Knox	20	20.49	38,440	53
Kosciusko	48	49.18	77,358	64
LaPorte	59	60.45	111,467	54
LaGrange	16	16.39	37,128	44
Lake	241	246.93	496,005	50
Lawrence	22	22.54	46,134	49

County	Frequency	Weighted	Population	Ratio/100,000
Madison	58	59.43	131,636	45
Marion	461	472.34	903,393	52
Marshall	27	27.66	47,051	59
Martin	4	4.10	10,334	40
Miami	20	20.49	36,903	56
Monroe	61	62.50	137,974	45
Montgomery	30	30.74	38,124	81
Morgan	34	34.84	68,894	51
Newton	9	9.22	14,244	65
Noble	24	24.59	47,536	52
Ohio	1	1.02	6,128	17
Orange	7	7.17	19,840	36
Owen	7	7.17	21,575	33
Parke	13	13.32	17,339	77
Perry	9	9.22	19,338	48
Pike	6	6.15	12,845	48
Porter	96	98.36	164,343	60
Posey	10	10.25	25,910	40
Pulaski	6	6.15	13,402	46
Putnam	21	21.52	37,963	57
Randolph	12	12.30	26,171	47
Ripley	18	18.44	28,818	64
Rush	10	10.25	17,392	59
Scott	6	6.15	24,181	25
Shelby	15	15.37	44,436	35
Spencer	17	17.42	20,952	83
St. Joseph	206	211.07	266,931	79
Starke	7	7.17	23,363	31
Steuben	23	23.57	34,185	69
Sullivan	12	12.30	21,475	57
Tippecanoe	83	85.04	172,780	49
Tipton	12	12.30	15,936	77
Union	3	3.07	7,516	41
Vanderburgh	155	158.81	179,703	88
Vermillion	15	15.37	16,212	95
Vigo	65	66.60	107,848	62
Wabash	25	25.61	32,888	78
Warren	4	4.10	8,508	48
Warrick	37	37.91	59,689	64
Washington	10	10.25	28,262	36
Wayne	37	37.91	68,917	55
Wells	23	23.57	27,636	85
White	18	18.44	24,643	75
Whitley	21	21.52	33,292	65

**These numbers are adjusted for the response rate.*

Chapter 4: Conclusion

This report summarizes the responses to the 2010 Indiana Dental Hygienist Re-licensure Survey. Individuals who held an active or probationary Indiana license and who were currently practicing in Indiana were included in this report. Almost all survey respondents held active licenses in 2010. Less than one percent held a probationary license.

Almost all of the respondents were female; therefore cross-tabulation analyses by gender did not reveal any significant associations. Cross-tabulation analyses that were conducted to explore associations between age groups and other survey variables did not offer any meaningful results and, therefore, were not included in this report. Approximately 30 percent of the respondents were under the age of 35 and 16.2 percent were at or near the age of retirement (55 and older). Most of the respondents spent, on average, between 30 to 39 hours each week performing dental hygienist activities. The majority of dental hygienists reported treating adolescents and children, and approximately 27 percent worked at more than one dental practice. The majority of dental hygienists were not fluent in a second language. However, Spanish was the most common language spoken by those who were fluent in at least one additional language.

Although the age distribution of the respondents indicates there are more hygienists entering the profession than there are those who are at or near retirement age, patterns revealed in the age distribution of active Indiana dentists is a concern for the dental hygienist workforce. The 2010 Indiana Dentist Re-licensure Survey Report stated that almost 40 percent of Indiana dentists were at or near retirement age. Since dental hygienists are generally employed by dentists, shortfalls in active Indiana dentists could result in fewer employment opportunities for hygienists.

Appendix 1: 2009-10 Indiana Dental Hygienist Re-licensure Survey

Your answers to these questions will help the Indiana State Department of Health to respond to emergencies and to identify health professional shortages and geographic shortage areas. The survey is voluntary and will not affect the status of your license.

1. What is your current work status as a dental hygienist? Consider yourself active as a dental hygienist if you are engaged in direct patient care, administration, teaching, or research. **Please select only one.**

DROP-DOWN LIST

Actively working as a dental hygienist
Retired as a dental hygienist
Temporarily inactive as a dental hygienist

2. What type of patient care do you work in? If you are retired or temporarily inactive, please select the type of patient care you are most experienced in. **Please select only one.**

DROP-DOWN LIST

Dental public health
Endodontics
General dental practice
Implant dentistry
Oral and/or maxillofacial radiology
Oral and/or maxillofacial surgery
Oral pathology
Orthodontics
Orthodontics and dentofacial orthopedics
Pediatric dentistry
Periodontics
Prosthodontics
Other area of dentistry
I do not provide patient care.

3. Would you be willing to provide services in case of a bio-terrorism event or other public health emergency? If you answer “Yes,” we may contact you using your PLA contact information.

DROP-DOWN LIST

Yes
No

4. Are you fluent in any of the following languages? PLEASE SELECT ALL THAT APPLY.

SELECT ALL THAT APPLY LIST

African languages

Arabic

Burmese

Cambodian

Chinese

Filipino

French

German

Greek

Hindi

Italian

Japanese

Korean

Pennsylvania Dutch

Polish

Portuguese

Russian

Sign language

Spanish

Tagalog

Thai

Turkish

Vietnamese

5. Do you work at more than one dental practice as a dental hygienist? **If you are retired or temporarily inactive, please do not answer this question and skip to Questions 8-11.**

DROP-DOWN LIST

Yes

No

6. How many hours per week on average do you spend in ALL activities as a dental hygienist (all positions)? **Please select only one.**

DROP-DOWN LIST

1-9

10-19

20-29

30-39

40 or more

7. Which age patients do you most frequently work with? PLEASE SELECT ALL THAT APPLY.

SELECT ALL THAT APPLY LIST

Infants (0-4)

Children (5-9)

Adolescents (10-14)

Youth (15-19)

Adults (20-64)

Elders (65 and older)

I do not provide direct patient care services.

8. Are you of Hispanic origin?

DROP-DOWN LIST

Yes No

9. Which of the following best describes your race? **Please select only one.**

DROP-DOWN LIST

White

Black/African American

Asian/Pacific Islander

American Indian/Native Alaskan

Multi-racial

Other

10. What is your gender?

DROP-DOWN LIST

Female Male

11. Please provide the street address, city, state, and zip code of your principal practice location.

That was the last question. Thank you for responding.