

# 2010 Indiana Dentist 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 Indiana Dentist Re-licensure Survey | 4   |
| Chapter 3: Location of Dentists by County in Indiana                 | 14  |
| Chapter 4: Conclusions   | 19  |
|  |     |
| Appendices   |     |
| Appendix 1: 2010 Indiana Dentist Re-licensure Survey                 | 20  |

## Acknowledgements

We would like to extend our gratitude to all the talented and dedicated individuals who provided valuable and timely assistance to us during the project. Preparing this report required the assistance, cooperation, and effort of many individuals and agency staff. The survey data and additional data elements were provided by the Indiana Professional Licensing Agency through the Indiana State Department of Health. An advisory committee provided direction and insights regarding the data analysis and report generation:

- **Jennifer Bruner**, JD, Staff Attorney, Indiana State Department of Health
- **James Miller**, DDS, MSD, PhD, State Oral Health Director, Indiana State Department of Health
- **Jatin Patel**, Senior Applications Systems Analyst/Programmer, Indiana Professional Licensing Agency
- **Ed Popcheff**, Director of Governmental Affairs, Indiana Dental Association
- **Karen Yoder**, MSD, PhD, Professor and Director, Division of Community Dentistry, Department of Preventive and Community Dentistry, Indiana University School of Dentistry
- **Nancy Young**, M.Ed., Director, Dental Hygiene Program, Indiana University School of Dentistry

The cooperation and support of the Indiana State Department of Health was instrumental in obtaining the survey data delivery and interpretation. The authors are grateful for the financial support received from the Indiana Area Health Education Centers Program to produce this report.

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## Executive Summary

### ***Introduction***

The 2010 Indiana Dentist 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 dentists who met the inclusion criteria. Dentists 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 2,693 dentists were included in the analyses presented in this report.

### ***Results: Demographics of Survey Respondents***

Approximately 15 percent of the respondents were under the age of 35, while almost 40 percent were 55 years of age or older. There were almost three times as many male respondents (78.0%) as there were female (22.0%) respondents. Additionally, almost 45 percent of those under the age of 35 were female, while only 11 percent of those at or near retirement age (55 and older) were female. A majority of the respondents were of the white race (91.4%) and 98 percent were of non-Hispanic origin.

### ***Results: Practice Characteristics***

Almost all (99.7%) of the respondents held active licenses in 2010. The three most common practice areas were general dentistry (77.0%), orthodontics and dentofacial orthopedics (5.3%), and pediatric dentistry (4.4%). Almost 15 percent of the respondents reported working less than 30 hours per week performing direct patient care activities. Females accounted for almost 40 percent of respondents who reported working less than 30 hours per week.

Since the majority of respondents were male, it is expected that the percentage of males would be higher than the percentage of females across all areas of practice. However, the difference between the number of males and females is less than would be expected in the dental public health, pediatric dentistry, and other areas of dentistry practice areas. A majority of the respondents indicated they treated adolescents, children, and infants.

### ***Results: Special Skills and Training Characteristics***

Over one-tenth of the respondents indicated they were trained in forensic dentistry. Almost 8 percent indicated they spoke 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 dentists. However, the map illustrating the ratio of dentists per 100,000 residents revealed that some counties with the largest populations, like Marion, had fewer dentists per 100,000 residents than counties with smaller populations.

### ***Conclusions***

Almost 40 percent of the respondents were at or near retirement age (55 or older), while only 14 percent were younger than 35 years of age. This pattern indicates a potential shortage of dentists in Indiana in the next 10 to 15 years. There were three times as many males as there were females; however, almost 45 percent of those under the age of 35 were female, while males made up the majority of those at or near retirement age. This pattern indicates a shift in gender composition within the Indiana dentist workforce. The majority of respondents indicated they were of the white race and of non-Hispanic origin. In order to increase diversity in the workforce, there is a need to reach out to other minority sub-populations within the state.

Only 15 percent of respondents reported working less than 30 hours per week on average. Over half of the respondents worked, on average, between 30 to 39 hours each week performing all dental related activities. Of those respondents who spoke a second language, the most common language was Spanish.

## Chapter 1: Introduction

Understanding the personal and professional characteristics of dentists licensed in Indiana is essential for the development and management of programs that effectively recruit and retain dentists where they are most needed in the state. Quality data about dentists 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 dentist 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 Dentist Re-licensure Survey. All dentists who renewed their licenses on-line were asked to complete a voluntary survey instrument. This report summarizes the responses to the 2010 Indiana Dentist Re-licensure Survey.

### Methods

The data used for this report were extracted from the 2010 Indiana Dentist 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 dentists who renewed their license electronically.

The re-licensure survey dataset was filtered initially to identify all dentists who held active or probationary Indiana licenses and listed Indiana as their principal practice location. Almost all of the respondents (99.7%) held an active Indiana license (refer to Table 1.1).

**Table 1.1 Current License Status**

| License Status | Number | Percent |
|----------------|--------|---------|
| Active         | 2,741  | 99.7    |
| Expired        | 0      | 0.0     |
| Probation      | 8      | 0.3     |
| Inactive       | 0      | 0.0     |
| Total          | 2,749  | 100.0   |

The dataset was further refined to include only those dentists who were currently practicing dentistry in Indiana. Dentists who were retired, temporarily inactive, or practicing outside of Indiana were excluded from the analyses. A total of 2,693 dentists (98.2% of all respondents) were selected for inclusion (refer to Table 1.2).

**Table 1.2 Inclusion and Exclusion Criteria\***

| <b>Work Status</b>                                | <b>Number</b> | <b>Percent</b> |
|---|---------------|----------------|
| <b>Included in Study</b>                          |               |                |
| Dentist active in dentistry                       | 2,658         | 96.9           |
| Dentist active in dentistry, federally – employed | 13            | 0.5            |
| Dentist in training (trainee in dental resident)  | 22            | 0.8            |
| <b>Total Included in Study</b>                    | <b>2,693</b>  | <b>98.2</b>    |
| <b>Excluded from Study</b>                        |               |                |
| Retired from active dental practice               | 29            | 1.1            |
| Temporarily inactive in dentistry                 | 22            | 0.8            |
| <b>Total</b>                                      | <b>2,744</b>  | <b>100.0</b>   |
| Missing   | 5             |                |

*\*These numbers represent survey respondents only*

Although only dentists 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 dentists 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 dentists who renewed electronically, not just those who were included in the analysis (refer to Table 1.3). The response rate for the survey was 95.4 percent.

**Table 1.3 Survey Response Rate\***

| <b>Dentist</b>  | <b>Number</b> | <b>Percent</b> |
|---|---------------|----------------|
| Renewed electronically & responded to at least one question | 3,267         | 95.4           |
| Did not respond to any questions on the survey              | 156           | 4.6            |
| Total Electronic Renewals                                   | 3,423         | 100.0          |

*\*These numbers represent electronic survey respondents only*



Frequency and cross-tabulation analyses were performed to describe the characteristics of dentists 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 dentists per Indiana county, as well as the ratio of dentists per 100,000 residents. The estimated number of dentists per county was based on the respondents' principal practice location. The number of dentists in each county was then adjusted (weighted) using the survey response rate (95.4%). Thus, the counts of dentists are *estimates* of the actual number of dentists 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 designated by hash marks on the map. The GIS maps were designed in ArcGIS™ 9.3.

## Chapter 2: Responses to the 2010 Indiana Dentist Re-licensure Survey

The results in this chapter reflect the personal and professional characteristics of only those dentists licensed in Indiana who responded to the 2010 Indiana Dentist Re-licensure Survey. Caution should be taken when making generalizations about all Indiana dentists. Since dentists 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 dentists in Indiana. Each table shows the number of valid and missing responses to each survey item and the percentage of valid responses. The text describes the responses to the survey.

### Demographic Composition

Demographic characteristics shown are 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 dentists 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 of 2009 through February of 2010. The age distribution of respondents is provided in Table 2.1. Almost two-fifths (38.1%) of the respondents were at or near retirement age (55 and older), while only 14.3 percent were younger than 35 years of age.

**Table 2.1 Age Groups\***

| Age Group      | Number | Percent |
|----------------|--------|---------|
| Under 35       | 384    | 14.3    |
| 35-54          | 1,274  | 47.6    |
| 55-64          | 743    | 27.8    |
| 65 and greater | 276    | 10.3    |
| Total          | 2,677  | 100.0   |
| Missing        | 16     |         |

*These numbers represent survey respondents only*

Table 2.2 shows the gender distribution of survey respondents. Over three-fourths (78.0%) of the respondents were male and less than one-fourth (22.0%) were female. However, almost two-fifths (44.4%) of those under the age of 35 were female, while only 10.9 percent of those at or near retirement (55 and older) were female (refer to Table 2.3).

**Table 2.2 Gender\***

| <b>Gender</b> | <b>Number</b> | <b>Percent</b> |
|---------------|---------------|----------------|
| Female        | 568           | 22.0           |
| Male          | 2,019         | 78.0           |
| Total         | 2,587         | 100.0          |
| Missing       | 106           |                |

*\*These numbers represent survey respondents only*

**Table 2.3 Gender by Age Group\***

| <b>Age Groups</b> | <b>Female</b> |                | <b>Male</b>   |                | <b>Total</b>  |                |  |
|-------------------|---------------|----------------|---------------|----------------|---------------|----------------|--|
|                   | <b>Number</b> | <b>Percent</b> | <b>Number</b> | <b>Percent</b> | <b>Number</b> | <b>Percent</b> |  |
| Under 35          | 168           | 44.4           | 210           | 55.6           | 378           | 100.0          |  |
| 35-54             | 329           | 26.9           | 895           | 73.1           | 1,224         | 100.0          |  |
| 55-64             | 61            | 8.6            | 644           | 91.3           | 705           | 100.0          |  |
| 65 and older      | 6             | 2.3            | 258           | 97.7           | 264           | 100.0          |  |
| Total             | 564           | 21.9           | 2,007         | 78.1           | 2,571         | 100.0          |  |
| Missing           |               |                |               |                |               | 122            |  |

*\*These numbers represent survey respondents only*

Tables 2.4 and 2.5 display the racial and ethnic distributions of respondents. A majority of the respondents were of the white race (91.4%) and only 2 percent were of Hispanic origin.

**Table 2.4 Race**

| <b>Race</b>                     | <b>Number</b> | <b>Percent</b> |
|---------------------------------|---------------|----------------|
| White                           | 2,383         | 91.4           |
| Black/African-American          | 64            | 2.5            |
| Asian/Pacific Islander          | 101           | 3.9            |
| American Indian/ Native Alaskan | 1             | 0.0            |
| Multi-racial                    | 25            | 1.0            |
| Other                           | 34            | 1.4            |
| Total                           | 2,608         | 100.0          |
| Missing                         | 85            |                |

*\*These numbers represent survey respondents only*

**Table 2.5 Ethnicity**

| <b>Hispanic Origin</b> | <b>Number</b> | <b>Percent</b> |
|------------------------|---------------|----------------|
| No                     | 2,613         | 98.0           |
| Yes                    | 53            | 2.0            |
| Total                  | 2,666         | 100.0          |
| Missing                | 27            |                |

*\*These numbers represent survey respondents only*

## Practice Characteristics

Table 2.6 shows the distribution of respondents across dental practice areas. Over three-fourths (77.0%) of the respondents reported their primary practice area as general dentistry. The three most common specialties were orthodontics and dentofacial orthopedics (5.3%), pediatric dentistry (4.4%) and oral and/or maxillofacial surgery (4.0%).

**Table 2.6 Area of Practice\***

| Area of Practice                         | Number | Percent |
|--|--------|---------|
| Dental public health                     | 46     | 1.7     |
| Endodontics                              | 73     | 2.7     |
| General dental practice                  | 2,071  | 77.0    |
| Oral and/or maxillofacial surgery        | 109    | 4.0     |
| Oral and/or maxillofacial radiology      | 7      | 0.3     |
| Oral pathology                           | 2      | 0.1     |
| Orthodontics and dentofacial orthopedics | 143    | 5.3     |
| Pediatric dentistry                      | 119    | 4.4     |
| Periodontics                             | 60     | 2.2     |
| Prosthodontics                           | 31     | 1.2     |
| Other area of dentistry                  | 29     | 1.1     |
| Total                                    | 2,690  | 100.0   |
| Missing                                  | 3      |         |

*\*These numbers represent survey respondents only*

The cross-tabulation of specialty by age group did not reveal any significant patterns. Almost one-half (47.6%) of all respondents were between 35 and 54 years of age, therefore it is not surprising that the majority of respondents in each specialty area were between the ages of 35 and 54 (refer to Tables 2.1 and Table 2.7).

**Table 2.7 Specialty by Age Group**

| Specialty                                | Under 35 |         | 35-54  |         | 55-64  |         | 65 and greater |         | Total  |         |
|--|----------|---------|--------|---------|--------|---------|----------------|---------|--------|---------|
|  | Number   | Percent | Number | Percent | Number | Percent | Number         | Percent | Number | Percent |
| Dental Public Health                     | 8        | 17.4    | 18     | 39.1    | 13     | 28.3    | 7              | 15.2    | 46     | 100.0   |
| Endodontics                              | 8        | 11.3    | 41     | 57.7    | 19     | 26.8    | 3              | 4.2     | 71     | 100.0   |
| General Dental Practice                  | 322      | 15.6    | 980    | 47.5    | 579    | 28.1    | 182            | 8.8     | 2,063  | 100.0   |
| Oral and/or maxillofacial Surgery        | 5        | 4.6     | 57     | 52.3    | 32     | 29.4    | 15             | 13.8    | 109    | 100.0   |
| Oral and/or maxillofacial Radiology      | 0        | 0.0     | 2      | 28.6    | 3      | 42.9    | 2              | 28.6    | 7      | 100.0   |
| Oral Pathology                           | 0        | 0.0     | 0      | 0.0     | 1      | 50.0    | 1              | 50.0    | 2      | 100.0   |
| Orthodontics and dentofacial Orthopedics | 9        | 6.4     | 75     | 53.6    | 31     | 22.1    | 25             | 17.9    | 140    | 100.0   |
| Pediatric Dentistry                      | 26       | 22.2    | 47     | 40.2    | 24     | 20.5    | 20             | 17.1    | 117    | 100.0   |
| Periodontics                             | 4        | 6.8     | 30     | 50.8    | 16     | 27.1    | 9              | 15.3    | 59     | 100.0   |
| Prosthodontics                           | 2        | 6.5     | 12     | 38.7    | 11     | 35.5    | 6              | 19.4    | 31     | 100.0   |
| Other area of Dentistry                  | 0        | 0.0     | 11     | 37.9    | 13     | 44.8    | 5              | 17.2    | 29     | 100.0   |
| Total                                    | 384      | 14.4    | 1,273  | 47.6    | 742    | 27.7    | 275            | 10.3    | 2,674  | 100.0   |
| Missing                                  |          |         |        |         |        |         |                |         |        | 19      |

*\*These numbers represent survey respondents only*

The number of male respondents was substantially higher than the number of female respondents, therefore, it is expected that the percentage of males would be higher than females in every specialty (refer to Table 2.8). Nevertheless, the difference between the number of males and females is less than would be expected in the dental public health, pediatric dentistry, and other areas of dentistry specialties.

**Table 2.8 Specialty by Gender\***

| Specialty                                | Female |         | Male   |         | Total  |         |
|--|--------|---------|--------|---------|--------|---------|
|  | Number | Percent | Number | Percent | Number | Percent |
| Dental Public Health                     | 16     | 35.6    | 29     | 64.4    | 45     | 100     |
| Endodontics                              | 9      | 12.5    | 63     | 87.5    | 72     | 100     |
| General Dental Practice                  | 451    | 22.6    | 1,542  | 77.4    | 1,993  | 100     |
| Oral and/or maxillofacial Surgery        | 2      | 1.9     | 104    | 98.1    | 106    | 100     |
| Oral and/or maxillofacial Radiology      | 2      | 28.6    | 5      | 71.4    | 7      | 100     |
| Oral Pathology                           | 1      | 50      | 1      | 50      | 2      | 100     |
| Orthodontics and dentofacial Orthopedics | 26     | 19.4    | 108    | 80.6    | 134    | 100     |
| Pediatric Dentistry                      | 42     | 37.8    | 69     | 62.2    | 111    | 100     |
| Periodontics                             | 4      | 7       | 53     | 93      | 57     | 100     |
| Prosthodontics                           | 6      | 20      | 24     | 80      | 30     | 100     |
| Other area of Dentistry                  | 9      | 32.1    | 19     | 67.9    | 28     | 100     |
| Total                                    | 568    | 22      | 2,017  | 78      | 2,585  | 100     |
| Missing                                  |        |         |        |         |        | 108     |

*\*These numbers represent survey respondents only*

Table 2.9 displays the distribution of patient age groups treated in direct patient care practices. Respondents were allowed to select all age groups they treated in their practices; therefore, the percent totals will not equal 100 percent. A majority of the respondents indicated they treated adolescents (91.2%), children (86.6%), and infants (56.7%). Four percent of the respondents saw elders in their practice.

**Table 2.9 Patient Age Groups**

| Age Groups            | Number | Percent |
|-----------------------|--------|---------|
| Infants (0-4)         | 1,526  | 56.7    |
| Children (5-9)        | 2,333  | 86.6    |
| Adolescents (10-14)   | 2,456  | 91.2    |
| Youth (15-19)         | 981    | 36.4    |
| Adults (20-94)        | 317    | 11.8    |
| Elders (65 and older) | 111    | 4.1     |

*\*These numbers represent survey respondents only*

Table 2.10 displays the average number of hours worked per week performing all dental activities. Over one-half of the respondents (54.8%) worked an average of 30 to 39 hours each week and almost 15 percent worked less than 30 hours per week. Females accounted for almost two-fifths (36.9) of dentists who worked less than 30 hours per week on average (refer to Table 2.11).

**Table 2.10 Average Number of Hours Worked Per Week\***

| Average Number of Weekly Hours | Number | Percent |
|--------------------------------|--------|---------|
| 1-9                            | 45     | 1.7     |
| 10-19                          | 94     | 3.6     |
| 20-29                          | 247    | 9.5     |
| 30-39                          | 1,419  | 54.8    |
| 40 or more                     | 783    | 30.4    |
| Total                          | 2,588  | 100.0   |
| Missing                        | 105    |         |

*\*These numbers represent survey respondents only*

**Table 2.11 Average Number of Hours Worked Per Week by Gender\***

| Average Number of Weekly Hours | Female |         | Male   |         | Total  |         |  |
|--------------------------------|--------|---------|--------|---------|--------|---------|--|
|                                | Number | Percent | Number | Percent | Number | Percent |  |
| 1-9                            | 17     | 37.8    | 28     | 62.2    | 45     | 100.0   |  |
| 10-19                          | 28     | 30.1    | 65     | 69.9    | 93     | 100.0   |  |
| 20-29                          | 94     | 39.3    | 145    | 60.7    | 239    | 100.0   |  |
| 30-39                          | 283    | 20.7    | 1,081  | 79.3    | 1,364  | 100.0   |  |
| 40 or more                     | 133    | 17.9    | 611    | 82.1    | 744    | 100.0   |  |
| Total                          | 555    | 22.3    | 1,930  | 77.7    | 2,485  | 100.0   |  |
| Missing                        |        |         |        |         |        | 208     |  |

*\*These numbers represent survey respondents only*



Respondents who were 65 years of age or older accounted for one-third (30.3%) of those working less than 30 hours per week and almost two-fifths (44.5%) of those working less than 20 hours per week on average. Only 5.8 percent of dentists working less than 20 hours per week on average were under the age of 35 (refer to Table 2.12).

**Table 2.12 Average Number of Hours Worked Per Week by Age Group\***

| Average Number of Weekly Hours | Under 35 |         | 35-54  |         | 55-64  |         | 65 and older |         | Total  |         |
|--------------------------------|----------|---------|--------|---------|--------|---------|--------------|---------|--------|---------|
|                                | Number   | Percent | Number | Percent | Number | Percent | Number       | Percent | Number | Percent |
| 1-9                            | 1        | 2.2     | 15     | 33.3    | 9      | 20.0    | 20           | 44.4    | 45     | 100.0   |
| 10-19                          | 7        | 7.6     | 26     | 28.3    | 18     | 19.6    | 41           | 44.6    | 92     | 100.0   |
| 20-29                          | 22       | 8.9     | 91     | 37.0    | 78     | 31.7    | 55           | 22.4    | 246    | 100.0   |
| 30-39                          | 203      | 14.4    | 711    | 50.3    | 400    | 28.3    | 100          | 7.1     | 1,414  | 100.0   |
| 40 or more                     | 146      | 18.8    | 392    | 50.5    | 194    | 25.0    | 44           | 5.7     | 776    | 100.0   |
| Total                          | 379      | 14.7    | 1,235  | 48.0    | 699    | 27.2    | 260          | 10.1    | 2,573  | 100.0   |
| Missing                        |          |         |        |         |        |         |              |         |        | 120     |

*\*These numbers represent survey respondents only*

Table 2.13 shows the distribution of professional activities that dentists indicated required the majority of their time. Respondents indicated that they spent most of their time performing activities related to direct patient care.

**Table 2.13 Professional Activities\***

| <b>Area Time Spent</b>                                 | <b>Number</b> | <b>Percent</b> |
|--|---------------|----------------|
| Direct patient care or patient care related activities | 2,571         | 96.2           |
| Administration   | 20            | 0.8            |
| Teaching   | 68            | 2.5            |
| Research   | 8             | 0.3            |
| Other  | 6             | 0.2            |
| Total  | 2,673         | 100.0          |
| Missing  | 20            |                |

*\*These numbers represent survey respondents only*

## Special Skills or Training

Table 2.14 shows the distribution of survey respondents who had training in forensic dentistry. Over one-tenth (11.3%) of the respondents indicated they were trained in forensic dentistry.

**Table 2.14 Active Indiana Dentist's training in Forensic Dentistry**

| Training in Forensic Dentistry | Number | Percent |
|--------------------------------|--------|---------|
| No                             | 2,319  | 88.7    |
| Yes                            | 295    | 11.3    |
| Total                          | 2,614  | 100.0   |
| Missing                        | 79     |         |

*\*These numbers represent survey respondents only*

Table 2.15 shows the distribution of additional languages spoken by active Indiana dentists. Almost 8 percent of respondents indicated they spoke at least one additional language. Spanish was the most common second language at 3.1 percent.

**Table 2.15 Additional Languages Spoken**

| Language                       | Number | Percent |
|--------------------------------|--------|---------|
| African Language               | 2      | 0.1     |
| Arabic                         | 16     | 0.6     |
| Burmese                        | 0      | 0.0     |
| Cambodian                      | 0      | 0.0     |
| Chinese                        | 16     | 0.6     |
| Filipino                       | 2      | 0.1     |
| French                         | 13     | 0.5     |
| German                         | 18     | 0.7     |
| Greek                          | 16     | 0.6     |
| Hindi                          | 19     | 0.7     |
| Italian                        | 4      | 0.1     |
| Japanese                       | 2      | 0.1     |
| Korean                         | 12     | 0.4     |
| Pennsylvania Dutch             | 1      | 0.0     |
| Polish                         | 1      | 0.0     |
| Portuguese                     | 4      | 0.1     |
| Russian                        | 7      | 0.3     |
| Sign Language                  | 2      | 0.1     |
| Spanish                        | 83     | 3.1     |
| Tagalog                        | 2      | 0.1     |
| Thai                           | 3      | 0.1     |
| Turkish                        | 2      | 0.1     |
| Vietnamese                     | 7      | 0.3     |
| No additional languages spoken | 2,479  | 92.1    |

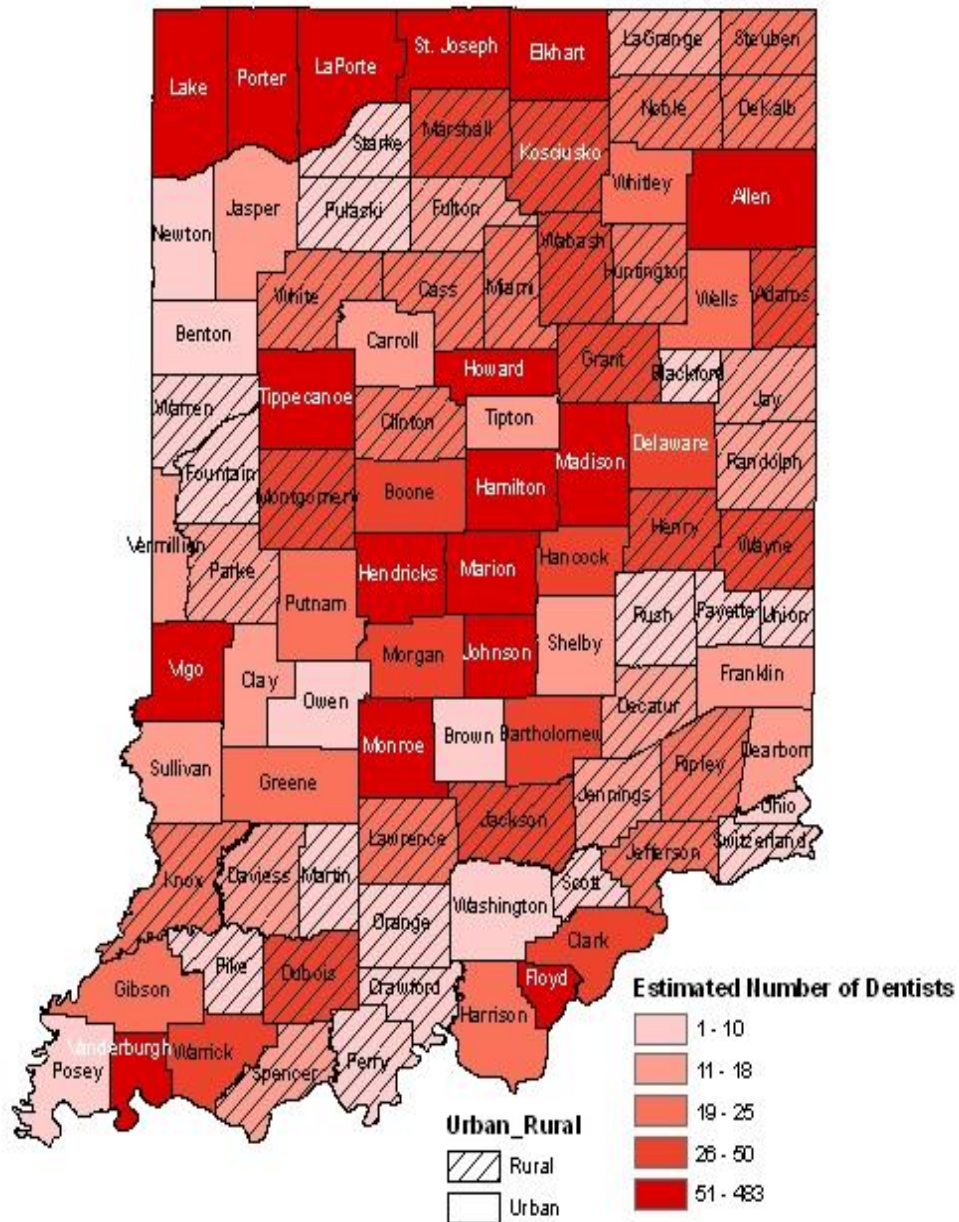
*\*These numbers represent survey respondents only*

### Chapter 3: Location of Dentists by County in Indiana

The following maps display the estimated number of dentists by county and the ratio of dentists 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 dentist population in each county, the number of dentists in each county was adjusted (weighted) using the response rate (95.4%) for the 2010 Indiana Dentist Re-licensure Survey. ***Thus, the counts of dentists and ratio are estimates of the actual number of dentists in each county and not the number of respondents in each county.***

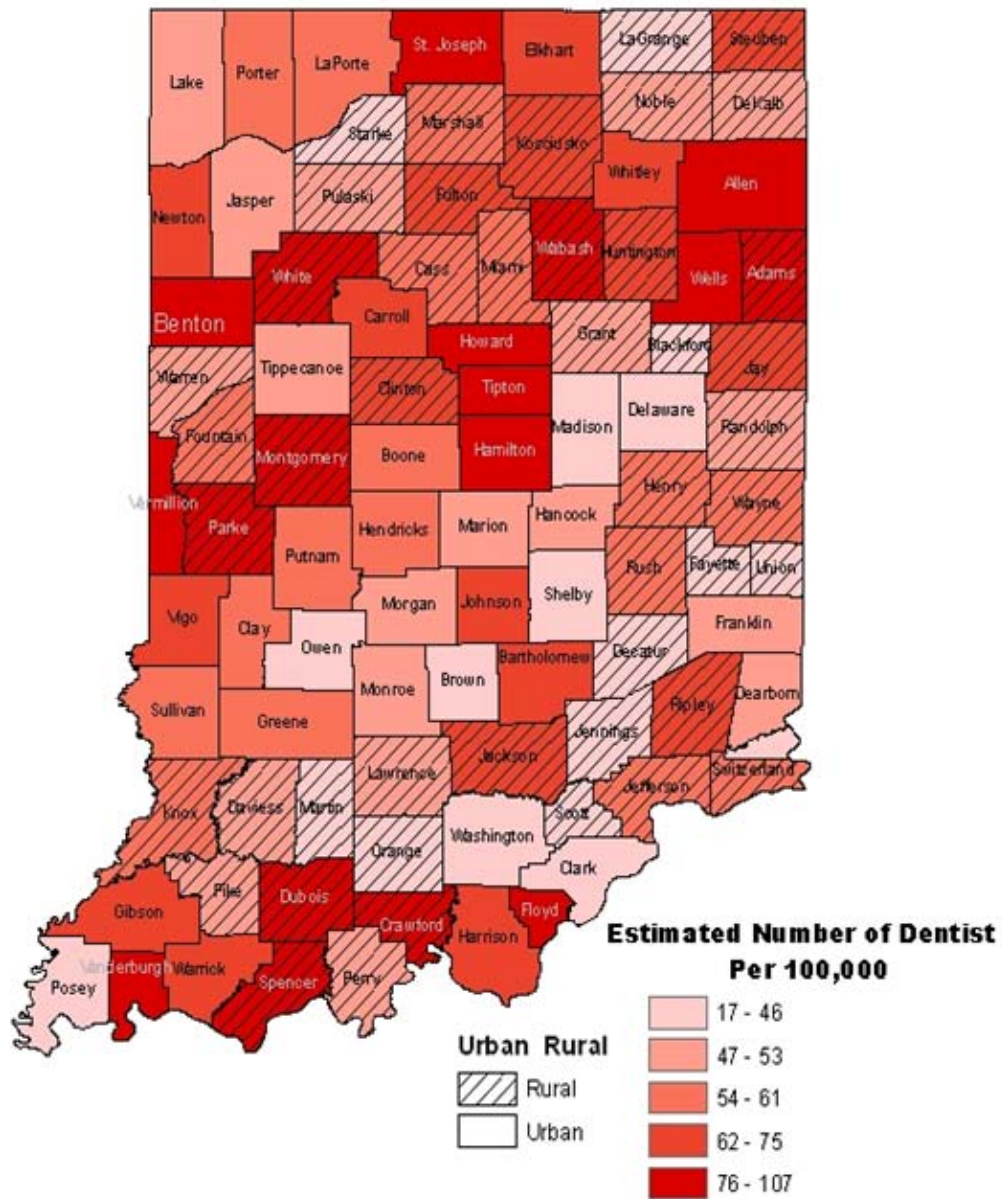
Map 3.1 shows that the number of dentists in Indiana counties is distributed roughly by population. As expected, the counties with the largest populations have the greatest number of dentists. These counties include Allen, Elkhart, Floyd, Hamilton, Hendricks, Howard, Johnson, Lake, LaPorte, Madison, 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 Dentists by County, 2010**



Map 3.2 shows an estimated number of dentists per 100,000 population by county in Indiana. Although it seems counter-intuitive, the map illustrates that some of the most populous counties like Marion, Hendricks, Hancock, Warrick, Whitley, Elkhart, Porter and Lake have fewer dentists per 100,000 residents than some of the counties with smaller populations. Ratios of dentists were higher in the following counties: Adams, Crawford, Spencer, Dubois, Floyd, Montgomery, Parke, Spencer, Wabash and White. The hash marks indicate rural counties defined by the United States Department of Agriculture as non-metropolitan counties.

**Map 3.2 Estimated Number of Dentists Per 100,000 Population by County, 2010**



**Table 3.1 Estimated Number of Dentists by County and per 10,000 Population, 2010\***

| <b>County</b> | <b>Frequency</b> | <b>Weighted</b> | <b>Population</b> | <b>Ratio/100,000</b> |
|---------------|------------------|-----------------|-------------------|----------------------|
| Adams         | 29               | 30.39832285     | 34,387            | 88                   |
| Allen         | 281              | 294.5492662     | 355,329           | 83                   |
| Bartholomew   | 46               | 48.21802935     | 76,794            | 63                   |
| Benton        | 9                | 9.433962264     | 8,854             | 107                  |
| Blackford     | 4                | 4.192872117     | 12,766            | 33                   |
| Boone         | 32               | 33.54297694     | 56,640            | 59                   |
| Brown         | 3                | 3.144654088     | 15,242            | 21                   |
| Carroll       | 12               | 12.57861635     | 20,155            | 62                   |
| Cass          | 20               | 20.96436059     | 38,966            | 54                   |
| Clark         | 47               | 49.26624738     | 110,232           | 45                   |
| Clay          | 15               | 15.72327044     | 26,890            | 58                   |
| Clinton       | 22               | 23.06079665     | 33,224            | 69                   |
| Crawford      | 8                | 8.385744235     | 10,713            | 78                   |
| Daviess       | 14               | 14.67505241     | 31,648            | 46                   |
| DeKalb        | 24               | 25.1572327      | 50,047            | 50                   |
| Dearborn      | 13               | 13.62683438     | 25,740            | 53                   |
| Decatur       | 15               | 15.72327044     | 42,223            | 37                   |
| Delaware      | 48               | 50.31446541     | 117,671           | 43                   |
| Dubois        | 31               | 32.49475891     | 41,889            | 78                   |
| Elkhart       | 118              | 123.6897275     | 197,559           | 63                   |
| Fayette       | 8                | 8.385744235     | 24,277            | 35                   |
| Floyd         | 55               | 57.65199161     | 74,578            | 77                   |
| Fountain      | 10               | 10.48218029     | 17,240            | 61                   |
| Franklin      | 11               | 11.53039832     | 23,087            | 50                   |
| Fulton        | 14               | 14.67505241     | 20,836            | 70                   |
| Gibson        | 24               | 25.1572327      | 33,503            | 75                   |
| Grant         | 31               | 32.49475891     | 70,061            | 46                   |
| Greene        | 18               | 18.86792453     | 33,165            | 57                   |
| Hamilton      | 212              | 222.2222222     | 274,569           | 81                   |
| Hancock       | 33               | 34.59119497     | 70,002            | 49                   |
| Harrison      | 24               | 25.1572327      | 39,364            | 64                   |
| Hendricks     | 80               | 83.85744235     | 145,448           | 58                   |
| Henry         | 29               | 30.39832285     | 49,462            | 61                   |
| Howard        | 62               | 64.98951782     | 82,752            | 79                   |
| Huntington    | 22               | 23.06079665     | 37,124            | 62                   |
| Jackson       | 26               | 27.25366876     | 42,376            | 64                   |
| Jasper        | 15               | 15.72327044     | 33,478            | 47                   |
| Jay           | 14               | 14.67505241     | 21,253            | 69                   |
| Jefferson     | 18               | 18.86792453     | 32,428            | 58                   |
| Jennings      | 11               | 11.53039832     | 28,525            | 40                   |
| Johnson       | 92               | 96.4360587      | 139,654           | 69                   |
| Knox          | 20               | 20.96436059     | 38,440            | 55                   |
| Kosciusko     | 48               | 50.31446541     | 77,358            | 65                   |
| LaPorte       | 59               | 61.84486373     | 111,467           | 55                   |
| LaGrange      | 16               | 16.77148847     | 37,128            | 45                   |
| Lake          | 241              | 252.6205451     | 496,005           | 51                   |

| <b>County</b>      | <b>Frequency</b> | <b>Weighted</b> | <b>Population</b> | <b>Ratio/100,000</b> |
|--------------------|------------------|-----------------|-------------------|----------------------|
| <b>Lawrence</b>    | 22               | 23.06079665     | 46,134            | 50                   |
| <b>Madison</b>     | 58               | 60.7966457      | 131,636           | 46                   |
| <b>Marion</b>      | 461              | 483.2285115     | 903,393           | 53                   |
| <b>Marshall</b>    | 27               | 28.30188679     | 47,051            | 60                   |
| <b>Martin</b>      | 4                | 4.192872117     | 10,334            | 41                   |
| <b>Miami</b>       | 20               | 20.96436059     | 36,903            | 57                   |
| <b>Monroe</b>      | 61               | 63.94129979     | 137,974           | 46                   |
| <b>Montgomery</b>  | 30               | 31.44654088     | 38,124            | 82                   |
| <b>Morgan</b>      | 34               | 35.639413       | 68,894            | 52                   |
| <b>Newton</b>      | 9                | 9.433962264     | 14,244            | 66                   |
| <b>Noble</b>       | 24               | 25.1572327      | 47,536            | 53                   |
| <b>Ohio</b>        | 1                | 1.048218029     | 6,128             | 17                   |
| <b>Orange</b>      | 7                | 7.337526205     | 19,840            | 37                   |
| <b>Owen</b>        | 7                | 7.337526205     | 21,575            | 34                   |
| <b>Parke</b>       | 13               | 13.62683438     | 17,339            | 79                   |
| <b>Perry</b>       | 9                | 9.433962264     | 19,338            | 49                   |
| <b>Pike</b>        | 6                | 6.289308176     | 12,845            | 49                   |
| <b>Porter</b>      | 96               | 100.6289308     | 164,343           | 61                   |
| <b>Posey</b>       | 10               | 10.48218029     | 25,910            | 40                   |
| <b>Pulaski</b>     | 6                | 6.289308176     | 13,402            | 47                   |
| <b>Putnam</b>      | 21               | 22.01257862     | 37,963            | 58                   |
| <b>Randolph</b>    | 12               | 12.57861635     | 26,171            | 48                   |
| <b>Ripley</b>      | 18               | 18.86792453     | 28,818            | 65                   |
| <b>Rush</b>        | 10               | 10.48218029     | 17,392            | 60                   |
| <b>Scott</b>       | 6                | 6.289308176     | 24,181            | 26                   |
| <b>Shelby</b>      | 15               | 15.72327044     | 44,436            | 35                   |
| <b>Spencer</b>     | 17               | 17.8197065      | 20,952            | 85                   |
| <b>St. Joseph</b>  | 206              | 215.932914      | 266,931           | 81                   |
| <b>Starke</b>      | 7                | 7.337526205     | 23,363            | 31                   |
| <b>Steuben</b>     | 23               | 24.10901468     | 34,185            | 71                   |
| <b>Sullivan</b>    | 12               | 12.57861635     | 21,475            | 59                   |
| <b>Switzerland</b> | 6                | 6.289308176     | 10,613            | 59                   |
| <b>Tippecanoe</b>  | 83               | 87.00209644     | 172,780           | 50                   |
| <b>Tipton</b>      | 12               | 12.57861635     | 15,936            | 79                   |
| <b>Union</b>       | 3                | 3.144654088     | 7,516             | 42                   |
| <b>Vanderburgh</b> | 155              | 162.4737945     | 179,703           | 90                   |
| <b>Vermillion</b>  | 15               | 15.72327044     | 16,212            | 97                   |
| <b>Vigo</b>        | 65               | 68.13417191     | 107,848           | 63                   |
| <b>Wabash</b>      | 25               | 26.20545073     | 32,888            | 80                   |
| <b>Warren</b>      | 4                | 4.192872117     | 8,508             | 49                   |
| <b>Warrick</b>     | 37               | 38.78406709     | 59,689            | 65                   |
| <b>Washington</b>  | 10               | 10.48218029     | 28,262            | 37                   |
| <b>Wayne</b>       | 37               | 38.78406709     | 68,917            | 56                   |
| <b>Wells</b>       | 23               | 24.10901468     | 27,636            | 87                   |
| <b>White</b>       | 18               | 18.86792453     | 24,643            | 77                   |
| <b>Whitley</b>     | 21               | 22.01257862     | 33,292            | 66                   |

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



## Chapter 4: Conclusions

This report summarizes responses to the 2010 Indiana Dentist 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 of the survey respondents held active licenses in 2010. Very few respondents were either federally employed or in training.

Analyses revealed some interesting insights regarding the demographic composition of Indiana's dentist workforce. Almost 40 percent of the respondents were at or near retirement age (55 or older), while only 14 percent were younger than 35 years of age. This pattern indicates a potential shortage of dentists in the next 10 to 15 years. A majority of the respondents were of the white race, male and of non-Hispanic origin. More females appear to be entering the profession and accounted for 44 percent of those under the age of 35, whereas only 11 percent were at or near retirement age (55 and older). A shift in the gender composition of the workforce appears to be taking place.

A majority of the respondents reported their primary practice area as general dentistry. Approximately 22 percent of the respondents practiced in a specialty area. The three most common specialties were identified as orthodontics and dentofacial orthopedics, pediatric dentistry and oral and/or maxillofacial surgery.

Most of the respondents reported working with infants (0-4), children (5-9) and adolescents (10-14). The majority of their time is spent performing direct patient care or patient care related activities. Over half of the respondents worked, on average, between 30 to 39 hours each week performing all dental related activities. Almost 15 percent of the respondents reported working less than 30 hours per week performing direct patient care activities. Females accounted for almost 40 percent of respondents who reported working less than 30 hours per week. Approximately 11 percent of the respondents indicated they were trained in forensic dentistry. Of those respondents who spoke a second language, the most common language was Spanish.

## Appendix 1: 2010 Indiana Dentist Re-licensure Survey

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

**Thank you very much for your help.**

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

DROP-DOWN LIST

Dentist active in dentistry

Dentist in training (trainee in a dental residency, fellowship or graduate program)

Dentist active in dentistry, federally-employed

Retired from active dental practice

Temporarily inactive in dentistry

2. In which dental practice area do you spend most of your time? **Please select only one.** If you are retired or temporarily inactive, please choose the dental practice area in which you are most experienced.

DROP-DOWN LIST

Dental public health

Endodontics

Forensic dentistry

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

3. If forensic dentistry is not your principal practice area, do you have any training in forensic dentistry?

DROP-DOWN LIST

Yes No

4. 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

5. 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

6. In which professional activity do you spend most of your time? **Please select only one. If you are retired or temporarily inactive, please skip to Questions 9-12.**

DROP-DOWN LIST

Direct patient care or patient-care-related activities

Administration

Teaching

Research

Other

7. How many hours per week on average do you spend in ALL activities in dentistry?  
**Please select only one.**

DROP-DOWN LIST

1-9  
10-19  
20-29  
30-39  
40 or more

8. Which of the following age groups do you treat in your patient care practice? PLEASE SELECT ALL THAT APPLY.

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.

9. Are you of Hispanic origin?

DROP-DOWN LIST

Yes No

10. 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

11. What is your gender?

DROP-DOWN LIST

Female Male

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

**That was the last question. Thank you for responding.**