

# Dentists in Delaware 2012

by Lisa Gilman  
Tibor Tóth

Center for Applied Demography &  
Survey Research  
University of Delaware

# **Dentists in Delaware 2012**

prepared for



*DELAWARE HEALTH AND SOCIAL SERVICES*

Division of Public Health

by

**Lisa M. Gilman  
Tibor Tóth**

**Center for Applied Demography & Survey Research  
College of Arts and Sciences  
University of Delaware**

**Newark, Delaware 19716**

**January, 2013**

The University of Delaware is committed to assuring equal opportunity to all persons and does not discriminate on the basis of race, color, gender, religion, ancestry, national origin, sexual orientation, veteran status, age, or disability in its educational programs, activities, admissions or employment practices as required by Title IX of the Educational Amendments of 1972, Title VI of the Civil Rights Act of 1964, the Rehabilitation Act of 1973, the Americans with Disabilities Act, other applicable statutes and University policy. Inquiries concerning these statutes and information regarding campus accessibility should be referred to the Affirmative Action Officer, 305 Hullihen Hall, (302) 831-2835 (voice), (302) 831-4552 (TDD).

## **ACKNOWLEDGEMENT**

This research was funded primarily by Delaware's Division of Public Health's Bureau of Health Planning and Resources Management, the Bureau of Oral Health and Dental Services and the Health Resources and Services Administration - Oral Health Workforce grant HRSA # T12HPI4660.

The author would also like to acknowledge the Delaware Division of Professional Regulation for providing the licensure data that served as the basis for the survey; and also thank the Delaware State Dental Society for its support of this project and encouraging its members to respond to the survey.

## TABLE OF CONTENTS

	<b>Page</b>
List of Figures .....	v
Executive Summary.....	1
Overview.....	3
Demographics .....	9
Practice Characteristics .....	21
Spatial Distribution .....	39
Appendix A – Survey Questionnaire .....	44
Appendix B – Dental Health Professional Shortage Area Designation Criteria (excerpt).....	49

---

**LIST OF FIGURES**

<b>Figure</b>	<b>Page</b>
1.1 Delaware Dentists, 2012 .....	5
1.2 Delaware Population to Dentist (General/Pediatric) Ratios, 1998 to 2012 .....	6
2.1 Gender of Delaware Dentists, 2012 .....	9
2.2 Race of Delaware Dentists, 2012 .....	10
2.3 Hispanic Origin of Delaware Dentists, 2012 .....	10
2.4 Age of Delaware Dentists, 2012 .....	12
2.5 Age Distribution of Delaware Dentists, 2012 .....	12
2.6 Number of Delaware Dentists, 2012, Active in Five Years .....	14
2.7 Percentage of Delaware Dentists, 2012, Active in Five Years .....	14
2.8 State of High School Graduation of Delaware Dentists, 2012 .....	15
2.9 State of Dental School Attendance of Delaware Dentists, 2012 .....	16
2.10 State of Dental Residency Program of Delaware Dentists, 2012 .....	17
2.11 Dental Residency Program Completion by Delaware Dentists, 2012 .....	18
2.12 Type of Dental Residency Program by Delaware Dentists, 2012 .....	19
2.13 Delaware Dental Specialists, 2012 .....	20
3.1 Type of Practice of Delaware Dentists, 2012.....	21
3.2 Average Number of Delaware Dentists at the Primary Site, 2012 .....	22
3.3 Average Weekly Patient Encounters of Delaware Dentists, 2012 .....	23
3.4 Use of Non-Dentist Resources by Delaware Dentists, 2012.....	24
3.5 Languages Other than English Spoken at Delaware Dentists' Practices, 2012 .....	25
3.6 Saturday and/or Evening Hours of Delaware Dentists, 2012 .....	26
3.7 Delaware Dentists Accepting New Patients, 2012 .....	27
3.8 Average Wait Time for New and Established Patients for Delaware Dentists, 2012 .....	28
3.9 Delaware Dentists Serving Pediatric Patients, 2012 .....	29
3.10 Age of Youngest Pediatric Patients Treated by Delaware Dentists, 2012 .....	30
3.11 Dental Insurance Plan Participation by Delaware Dentists, 2012 .....	31
3.12 Participation in Medicaid and Non-Medicaid Insurance Programs by Delaware Dentists, 2012 .....	32
3.13 Delaware Dentists Providing Flexible Payment Plans, 2012 .....	34
3.14 Delaware Dentists Providing Charity Care In/Out of Office, 2012 .....	34
3.15 Percent of Gross Fees Unreimbursed of Delaware Dentists, 2012 .....	35
3.16 Delaware Dentists Indicating Fully Staffed Offices, 2012 .....	36

**LIST OF FIGURES**  
**(continued)**

<b>Figure</b>	<b>Page</b>
3.17 Delaware Dentists Indicating Shortage of Qualified Dental Staff, 2012 .....	37
3.18 Most Difficult Positions to Fill Identified by Delaware Dentists, 2012 .....	38
4.1 Persons per FTE General/Pediatric Dentist in Delaware, 2012, by Census County Division .....	41
4.2 Persons per FTE Dentist (General/Pediatric and Specialist) in Delaware, 2012, by Census County Division .....	43

---

## Executive Summary

The *Dentists in Delaware 2012* survey follows its predecessors fielded in 2008, 2005 and 1998. It is intended to provide information needed to guide policymakers in the State of Delaware. The results of the survey indicate that Delaware has 309 dentists working in general/pediatric dentistry and 71 dentists working in other specialties. In addition to these findings, the following can be drawn from the data:

- Overall, the number of active dentists decreased since 2008 from 396 to 380 in 2012.
- The number of general/pediatric dentists decreased from 331 to 309, while the number of specialists increased from 65 to 71.
- The full-time equivalent (using federal guidelines) general/pediatric dentist count decreased from 379 in 2008 to 326 in 2012. The full time equivalent count of specialists increased from 50 in 2008 to 55 in 2012.
- The population to dentist (general/pediatric) ratio (using federal guidelines) increased from 2,300 persons per full-time equivalent dentist in 2008 to 2,806 persons in 2012.
- If entire counties are considered rational service areas, neither Kent nor New Castle counties would be considered underserved areas. However, Sussex County exceeds the Health Professional Shortage Area threshold of 5,000:1. Please note, provider population to provider ratio is only one of the variables used for Health Professional Shortage Area designation.
- The proportion of Asian dentists increased by three percentage points since 2008. African American dentists decreased by about 4 percentage points since 2008. The proportion of dentists reporting “other” as their race (including multi-racial), rose from about 1% to about 2.5% statewide.
- Nearly 45% of dentists statewide are 55 years of age or older. Just over 20% are 65 years of age or older.
- About 18% of Delaware dentists will either not be practicing dentistry in five years or are unsure if they will be practicing.

- More than 97% of general/pediatric dentists and specialists in Delaware state that they are accepting new patients.
- General/pediatric dentists in Sussex County see more patients per week than their colleagues in New Castle and Kent counties. Weekly patient encounters for general/pediatric dentists in Kent County are 87 patients per week and 113 patients per week in Sussex County, while general/pediatric dentists in New Castle County see 90 patients per week.
- Waiting times for new patients seeking an appointment with a general/pediatric dentist are somewhat longer in Sussex County (~10 days) than in Kent County (~7 days) or New Castle (~5 days).
- Most dentists in Delaware participate in dental insurance plans, offer flexible payment plans, and provide charity care.
- Medicaid is accepted by about 67% of general/pediatric dentists and 77% of specialists.
- Almost all dentists use resources provided by hygienists and dental assistants. Dental technicians were not addressed in this survey.
- Many of Delaware's dentists offer flexible hours by remaining open at night and on Saturday. General/pediatric dentists are more likely to offer such hours than are specialists. These hours are more likely to be found among dentists in New Castle County.
- Approximately 41% of dentists practicing in Delaware accept pediatric patients under three years of age.

---

## Overview

In 1998, the Division of Public Health began an effort to measure the number and spatial distribution of dentists practicing in Delaware. The study was repeated in 2005 and again in 2008. The objective was to identify underserved areas and to understand any existing or developing trends that could impact the supply of dental services. In 2012, the survey was fielded again, replicating much of the survey instrument used in previous years. This report provides new information and analysis for assessing the need for dental services and understanding trends impacting the supply of dental services.

The method chosen to gather the information was a self-administered mail survey to all of Delaware's 462 licensed dentists. This approach included a pre-letter and an initial mail survey coupled with three follow-up mailings to non-respondents. By the conclusion of the project, 459 dentists were contacted. Responses were received from 323 dentists. Of those responding, 279 dentists (86%) were practicing dentistry either full or part-time in Delaware. The effective response rate in 2012 was 70.4% (compared with 61.9% in 2008).

As of March 2012, Delaware has 462 licensed dentists. (This is an increase of 14 licensed dentists from 2008, when Delaware had 448 licensed dentists). Of those 462 dentists, 378 have a Delaware address, but this does not mean they are active or that they have a Delaware practice. Similarly, dentists living in other states may have an active practice in Delaware. Based on the survey results, adjusted for non-respondents, the number of dentists actively practicing in Delaware is approximately 380. This total is used to produce all estimates presented throughout this report.<sup>1</sup> The adjustment for non respondents is based on geographic weights. The weights are calculated as a ratio of dentists in a Census County Division and the number of responses received from that Census County Division. This weight is then applied to all responses received.

---

<sup>1</sup> On occasion, the data in the tables may not add to the total of 368 dentists because some information was not reported.

This report focuses on all dentists. This population includes general/pediatric dentist along with specialists in one of the eight areas. Using the survey data, it is estimated that today there are 309 dentists working as general/pediatric dentists and 71 dentists practicing in one of the eight specialties. In the balance of this report, most responses will be reported for these two major groups.

It is important to note that the term general/pediatric dentists used in the report refers to dentists who chose the following three self designated practice codes when asked about their specialty: DG – general/pediatric dentistry, PED DENT – pediatric dentistry and GRP – general practice residency. For a listing of all codes see Appendix A, page 5. The inclusion of these dentists among general/pediatric dentists decision is based on the Health Professional Shortage Area (HPSA) designation criteria – see page Appendix B, Part I – Geographic Area/B. Methodology/ 3. Counting Dental Practitioners. The term “specialist” used in the report refers to dentists who selected one of the remaining eight specialties, Appendix A, page5. The only exception to the above use of the term specialist is page 20, Figure 2.13, where pediatricians are listed/tabulated among specialists for comparison purpose only.

Not all dentists practice full-time. To account for this, according to the Federal Health HPSA guidelines<sup>2</sup>, adjustments are necessary to allow for a true measure of dental service capacity within a given geographic area from year to year. This adjustment provides the number of full-time equivalent (FTE) dentists. To further elaborate, a dentist who is engaged in delivering care directly to patients 40 or more hours per week is defined as a full-time dentist. Less than 40 hours is considered less than full-time. For each four hours less than 40 hours, 0.1 FTE is deducted. Anything more than 40 hours is considered only as full-time. In other words, a dentist delivering 60 hours per week of care is still counted as one full-time equivalent dentist.

The Federal HPSA guidelines indicate that general and pediatric dentists’ FTEs should be further adjusted to reflect variations in productivity measured by the number of auxiliary staff members employed to assist in the practice. A dentist’s FTE is increased incrementally for each

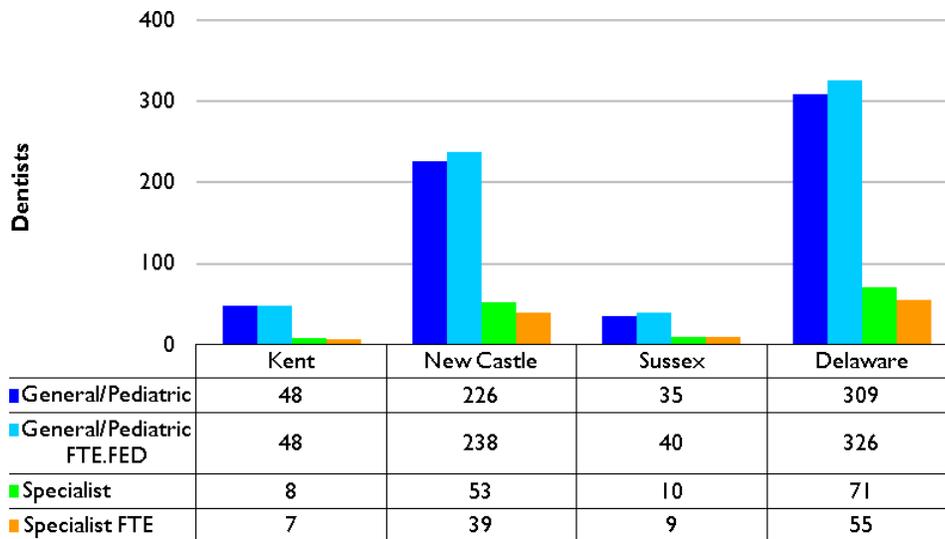
---

<sup>2</sup> Federal Register/Vol.45, No.223/ Monday, November 17, 1980, Part IV Department of Health and Human Services, 42 CFR Part 5, p.76004.

dental hygienist and/or dental assistant employed. Also, due to the fact that age is often a factor in a dentist’s availability, adjustments are further made to account for the practitioner’s age in line with criteria outlined by the rules governing Health Professional Shortage Area Designations. Thus, beginning at the age of 55, a dentist’s FTE is incrementally decreased. These factors are used in calculating the FTE.FED number of dentists in Delaware (FTE.FED stands for Full Time Equivalent calculated using federal government productivity factor). These adjustments are further described in Appendix B.

Although the federal HSPA guidelines for determining dental shortage areas refer to Doctors of Dental Surgery (DDS) or Doctors of Dental Medicine (DMD) who practice general and/or pediatric dentistry, this study applies the time adjustment formula described above (FTE formula only) to account for the service capacity of specialists throughout the state. Thus, following the federal guidelines, the FTE calculation is used in reporting the full-time equivalent number of specialists while the FTE.FED number is used to report the fulltime equivalent number of those who practice general or pediatric dentistry, taking into account recommended productivity measures.

**Figure I.1**  
**Delaware Dentists 2012, Delaware and Counties**

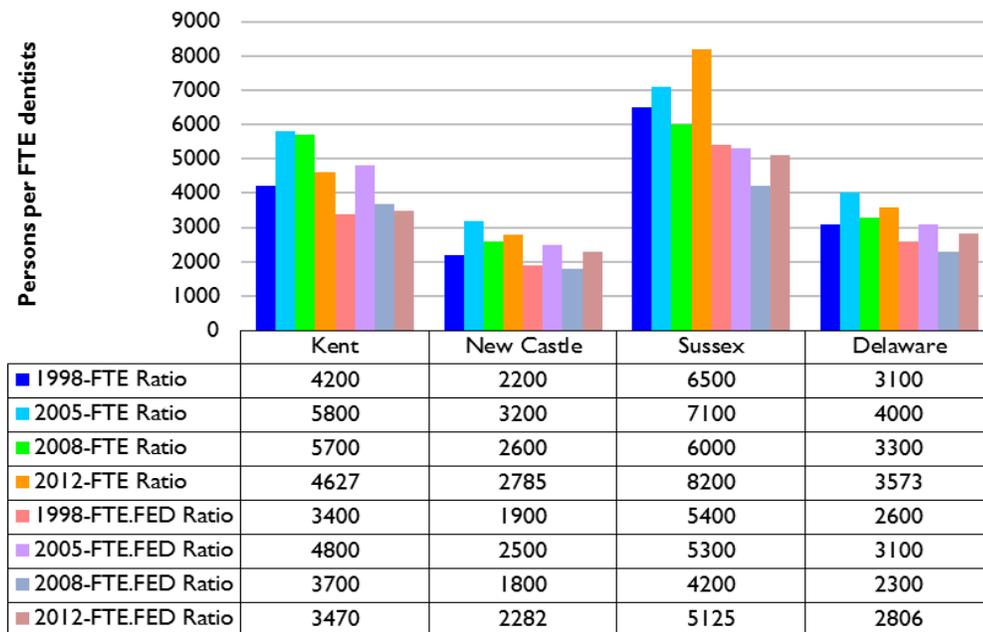


Source: Center for Applied Demography & Survey Research  
University of Delaware

Figure I.1 summarizes the current number of dentists practicing in Delaware by county of practice. The number of active dentists is provided in Figure I.1 along with estimates of full-time equivalents. The FTE.FED is calculated using the federal guidelines which applies to general practitioners and pediatric dental specialists. FTE's for specialists are computed based on 40 hours of direct patient care and do not reflect either the age adjustment or an adjustment for hygienists or dental assistants.

The actual number of general/pediatric dentists practicing declined from 331 in 2008 to 309 in 2012. This decrease can be largely attributed to the number of dentists who are no longer practicing in Delaware. In 2008, about 43 Delaware dentists indicated that they would not be active in five years. This decrease is lower than anticipated and may be offset by incoming practitioners during the same time period. Delaware has experienced a slight increase in the number of specialists since 2008. In 2012 there were 71 specialists practicing in Delaware, up from 65 in 2008.

**Figure I.2**  
**Delaware Population to Dentist (General/Pediatric) Ratios 1998 to 2012**  
**Delaware and Counties**



**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

The shift in general/pediatric full-time equivalencies (FTE.FED) is attributed to the decrease in the number of practitioners, coupled with an aging dental practitioner population and a decrease in the number of hours engaged in direct patient care. The increase in the number of specialists contributes to the increase in this classification's full-time equivalency.

Given Delaware's 2012 population of 914,621<sup>3</sup>, there are about 2,806 persons served by each "FTE.FED" dentist, which is an increase from 2,300 persons per FTE.FED dentist since 2008 as shown in Figure 1.2. These ratios reflect only those dentists in general/pediatric or pediatric practice. For the three counties, the estimates are 3,470 persons for each FTE.FED dentist in Kent County (down from 3,700 in 2008), 2,282 for New Castle County (up from 1,800 in 2008), and 5,125 for Sussex County (up from 4,200 in 2008).

The data labeled simply "FTE Ratio" represents full-time equivalencies without making the federal productivity adjustments for age and auxiliaries and is shown for reference purposes only. Only the hours of direct patient care are considered. The data items labeled as "FTE.FED Ratio" represent full-time equivalencies with adjusted ratios for age and auxiliaries. Both ratios are lower for Kent County than in 2008 because of an increase in the number of dentists. Ratios in New Castle County are higher than in 2008 because of a substantial decrease in the number of dentists serving the population. The ratios in Sussex County are again higher than in 2008, because of the decreased number of dentists.

One of the main criteria used by the federal government to determine a dental health professional shortage area (HPSA), is the ratio of persons per FTE.FED dentist.<sup>4</sup> The threshold of 5,000 persons per FTE.FED dentists must be reached for an area to be considered a shortage area. In 2012, using that criteria alone, neither Kent nor New Castle counties would come close to qualifying. However, Sussex County exceeds the HPSA threshold. To offset this, recruitment efforts should be focused on drawing more practitioners to Delaware's southernmost county.

As the population increases throughout the state and the demographic landscape shifts, recruitment and retention efforts are evaluated on a regular basis to assure that necessary

---

<sup>3</sup> Annual Population Projections, Delaware Population Consortium, October 27, 2011, v 2011.1, Delaware

dental services continue to be available to a wide range of people varying in age, ethnicity and racial backgrounds. In the remainder of this report, different aspects of dentists practicing in Delaware and his/her practices are examined. Overall the objective is to present those attributes that affect the availability of dental services across population groups throughout the state.

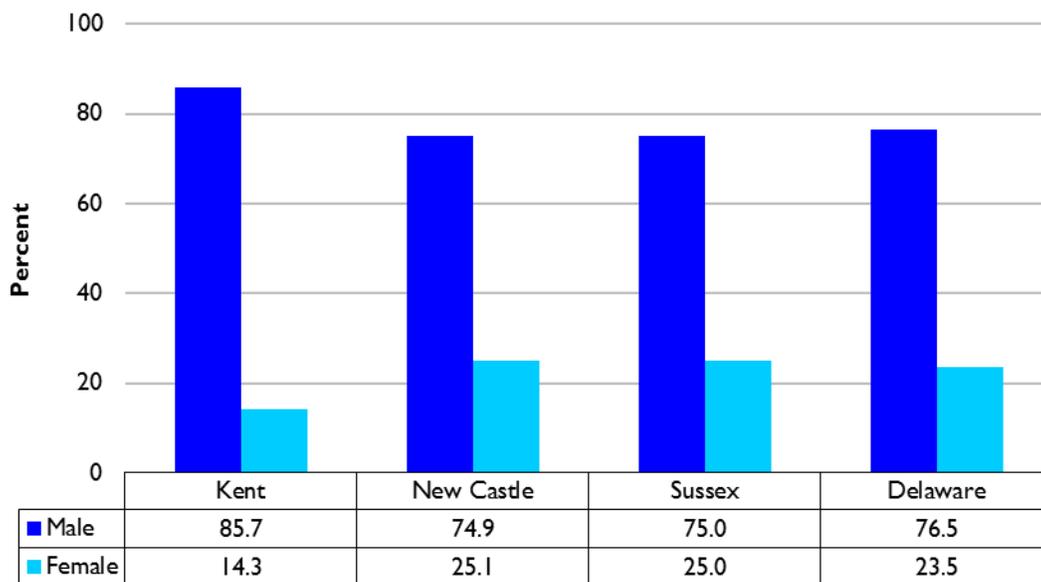
---

<sup>4</sup> In special cases this threshold is lower as described in Appendix B, Dental HPSA Designation Criteria.

## Demographics

The dental community in Delaware is 76.5% male (Figure 2.1). There is, however, some variation among the counties. Kent County has about nine percentage points fewer female dentists than the state overall. However, the proportion of female dentists in New Castle County and Sussex County are about the same (~25%). The gender distribution among Delaware dentists is similar to that of dentists at the national level. According to the American Dental Association, only about 22% of the active dental workforce is female.<sup>5</sup>

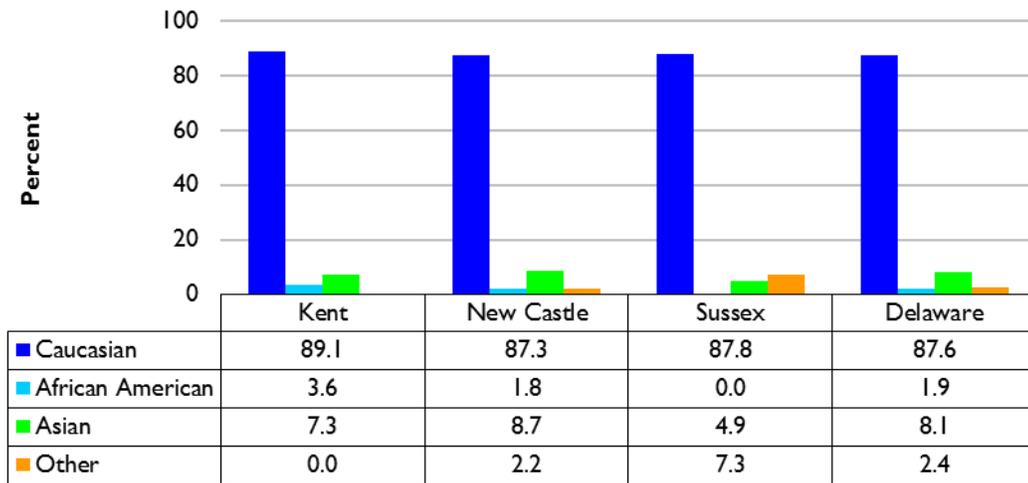
**Figure 2.1**  
**Gender of Delaware Dentists 2012**  
**Delaware and Counties**



**Source:** Center for Applied Demography & Survey Research  
University of Delaware

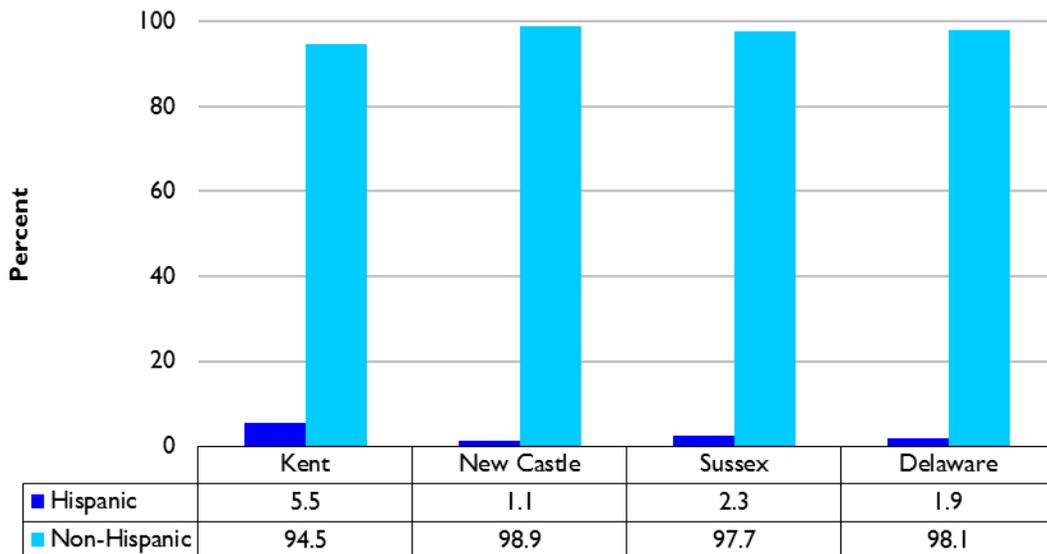
<sup>5</sup> American Dental Association, ADA Survey Center. *Distribution of Dentists in the United States by Region and State*, 2009. April 2011.

**Figure 2.2**  
**Race of Delaware Dentists 2012**  
**Delaware and Counties**



**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

**Figure 2.3**  
**Hispanic Origin of Delaware Dentists 2012 Delaware and Counties**



**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

The racial distribution of dentists by county is shown in Figure 2.2. The most striking aspect of this table is the low proportion of African American dentists relative to the proportion of African Americans in Delaware. African Americans account for more than 20% of Delaware's population, yet only 1.9% of Delaware dentists are African American. This is a decrease of four percentage points since the last survey in 2008. There was about a three-point increase in the proportion of Asian dentists. Dentists identifying themselves as "other", including multi-racial, rose from .8% in 2008 to 2.4% in 2012 statewide. At the county level, Sussex County experienced the greatest shift in racial diversity among its dentists. In 2008, no racial minority dentists were reported actively practicing in Sussex County. In 2012, roughly 5% of Sussex County dentists are Asian and about 7% identify themselves as "other" or multi-racial. Kent and New Castle counties each experienced a decrease in the number of African American dentists and a slight increase in Asian dentists.

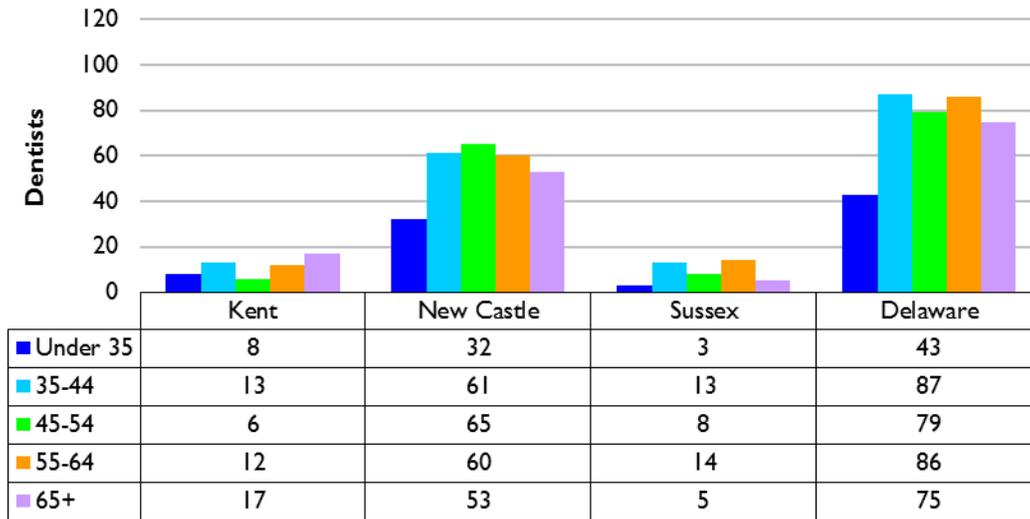
Practitioners of Hispanic origin are of particular interest in Delaware. In the 1990s, Delaware experienced a rapid growth in its Hispanic population, particularly in Sussex County. The distribution of dentists by Hispanic origin is found in Figure 2.3. Currently, Delaware's Hispanic population is approximately 8% while the dentist population is only about 2%. The highest proportion of Hispanic dentists is found in Kent County (5.5%) where 6% of the population is of Hispanic origin.

The U.S. Department of Health and Social Services suggests that greater diversity within health professions is positively correlated with improved public health outcomes. Greater diversity has been found to not only increase access to care for underserved populations, but better enables minority patients to see practitioners with whom they share a common race, ethnicity or language.<sup>6</sup> Thus, there may be a need to recruit or train more African American and Spanish speaking dentists and/or staff, as the population in Delaware becomes more diverse, particularly in New Castle and Sussex counties.

---

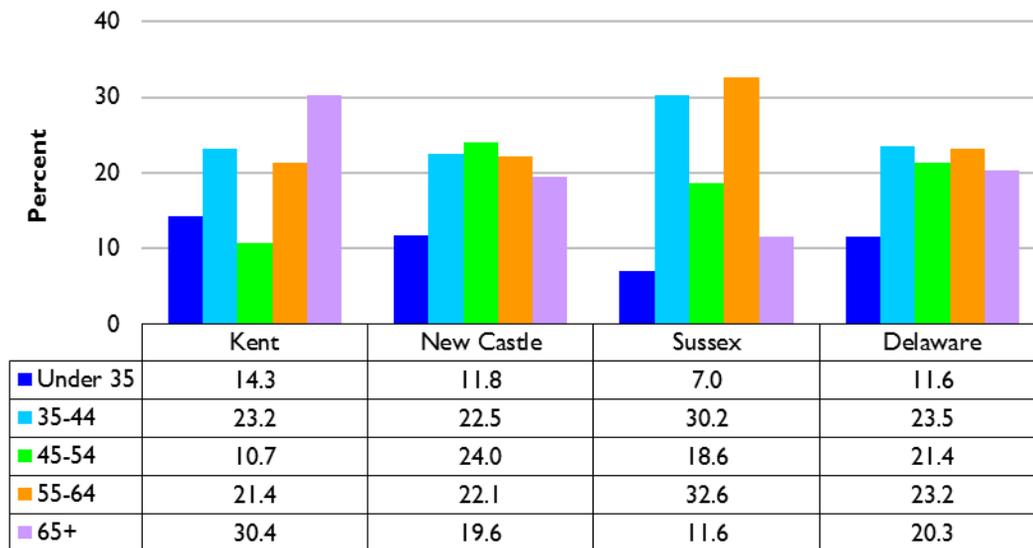
<sup>6</sup> U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions. *The Rationale for Diversity in the Health Professions: A Review of the Evidence*. October 2006.

**Figure 2.4**  
**Age of Delaware Dentists 2012 Delaware and Counties**



Source: Center for Applied Demography & Survey Research  
University of Delaware

**Figure 2.5**  
**Age Distribution of Delaware Dentists Delaware and Counties**



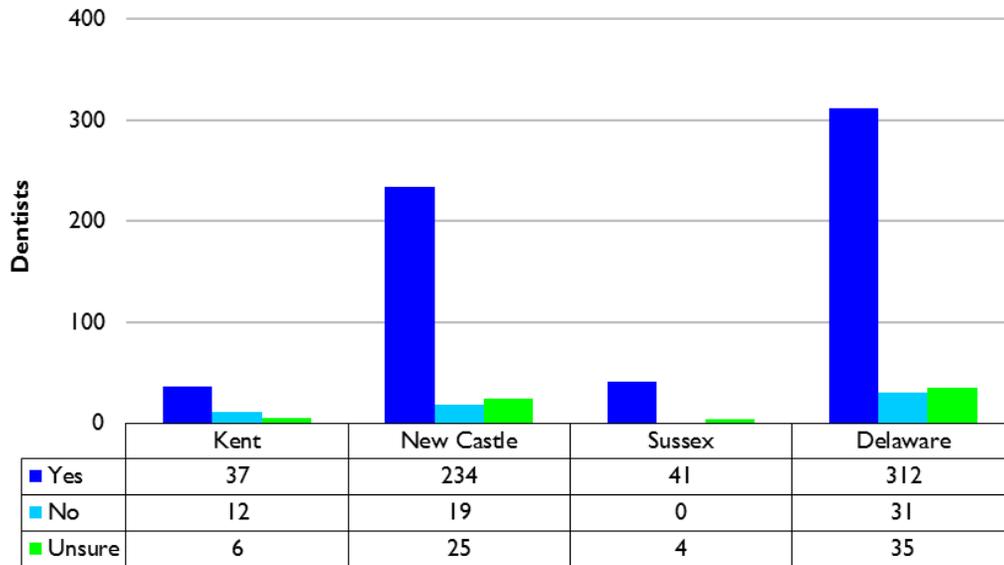
Source: Center for Applied Demography & Survey Research  
University of Delaware

The number of dentists by age and county is shown in Figure 2.4 followed by the age distribution in Figure 2.5. While between 1998 and 2005, a significant increase in the proportion of newly graduated dentists was found in Sussex County, this was not repeated in 2008. However, there is a slight increase in 2012. Yet, the majority of Delaware dentists are 45 years of age or older; and 20% are 65 years of age or older. The average age of Delaware Dentists is 52. Kent County has the highest proportion of dentists 65+ (~30%) followed by New Castle County (~20%).

The guidelines governing Federal Health Professional Shortage Area (HPSA) designations suggest that age factors into productivity levels. The Federal Health Professional HPSA guidelines include a reduction in full-time equivalency (FTE) estimates beginning at age 55 to more accurately assess dental service capacity at the aggregate level. Overall, nearly 45% of Delaware dentists are 55 years of age or older. As a result, unless proactive measures are taken, the state as a whole will continue to see a decline in the number of dental practitioners working at full capacity. This downward trend will be most felt in Kent and New Castle Counties.

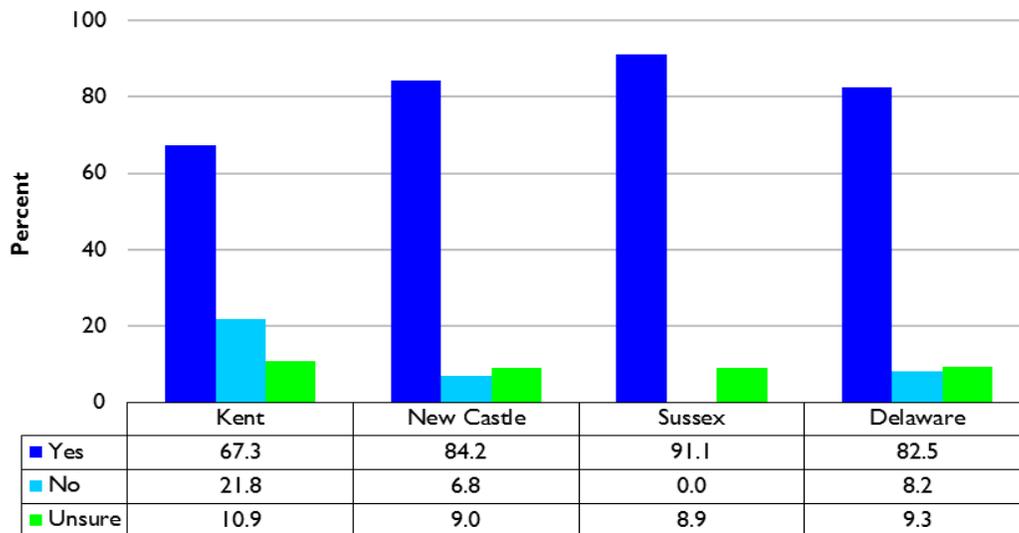
Dentists were next asked if they planned to be active in dentistry five years from now. Those answers are summarized in Figure 2.6 and Figure 2.7. Overall, about 8% of Delaware dentists do not expect to be practicing five years from now, just under 10% are unsure. As indicated above, given the age distribution of dentists in Kent and New Castle counties, a decline in the number of dentists practicing in these counties should be expected and the data herein reflect this. About 22% of Kent County dentists indicate that they have no intention of continuing to practice five years from now, followed by roughly 7% of New Castle County Dentists. In addition, approximately 11% of Kent County dentists are unsure of their plans to be practicing in the next five years. About 9% of New Castle and Sussex county dentists are also unsure.

**Figure 2.6**  
**Number of Delaware Dentists 2012 Active in Five Years**  
**Delaware and Counties**



Source: Center for Applied Demography & Survey Research  
 University of Delaware

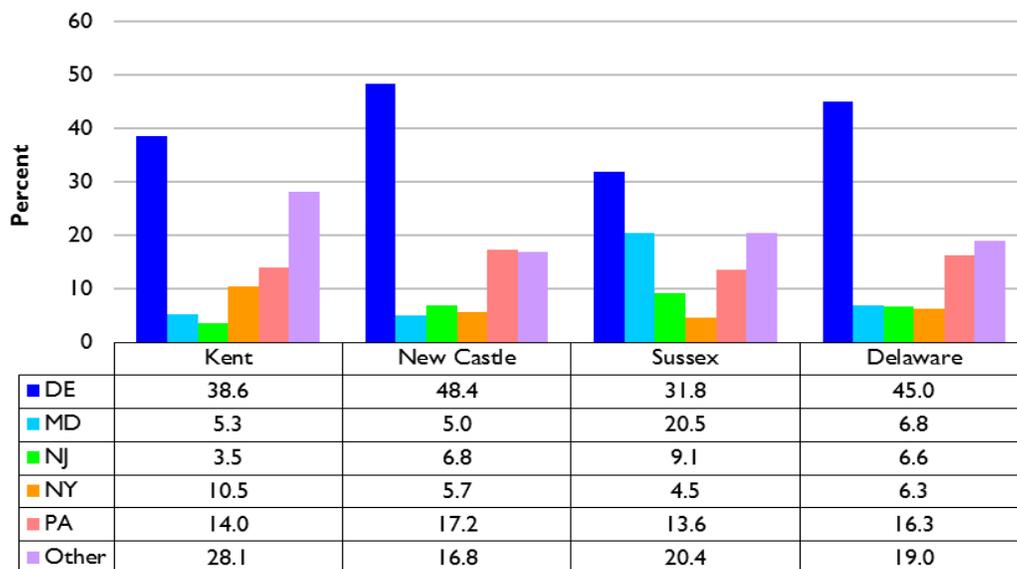
**Figure 2.7**  
**Percentage of Delaware Dentists 2012 Active in Five Years**  
**Delaware and Counties**



Source: Center for Applied Demography & Survey Research  
 University of Delaware

To better understand why some dentists choose to practice in Delaware and others practice in other states, it is necessary to look at several factors. This choice affects the adequacy of the supply for serving Delaware residents. Several pieces of information are useful for this purpose. First, where did this dentist originally reside as measured by the state from which he/she graduated high school? Second, in what state did the dentist attend dental school? Third, in what state did the dentist complete his/her residency?

**Figure 2.8**  
**State of High School Graduation of Delaware Dentists 2012**  
**Delaware and Counties**

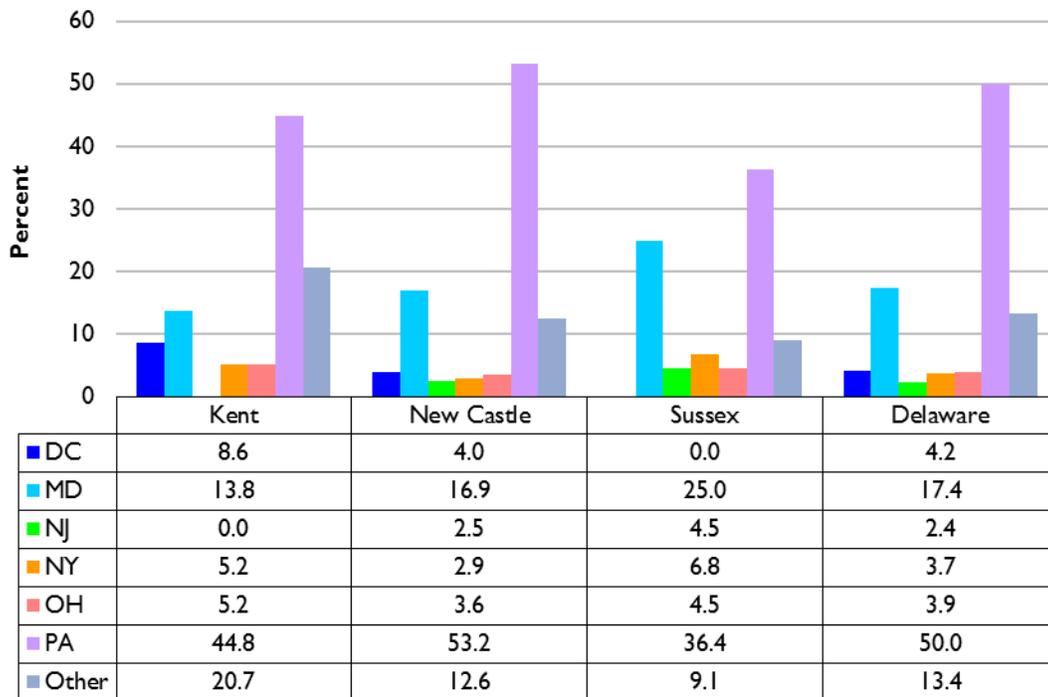


**Source:** Center for Applied Demography & Survey Research  
University of Delaware

As shown in Figure 2.8, about 81% of Delaware's dentists graduated from a high school in Delaware or one of the surrounding states (MD, NJ, NY or PA), thereby suggesting that they grew up in the region. These findings are similar to that of the 2008 survey. It appears that there is some variation in preferred practice location relative to the state in which they (presumably) grew up. Delaware dentists who grew up in Maryland are more prominent in Sussex County than the northern parts of the state. In contrast, dentists originating from

Pennsylvania appear more oriented toward New Castle County. Kent County hosts a far larger percentage of dentists who come from outside the region. Retired Air Force dentists from either current or past association with Dover Air Force Base may contribute to this finding.

**Figure 2.9**  
**State of Dental School Attendance of Delaware Dentists 2012**  
**Delaware and Counties**

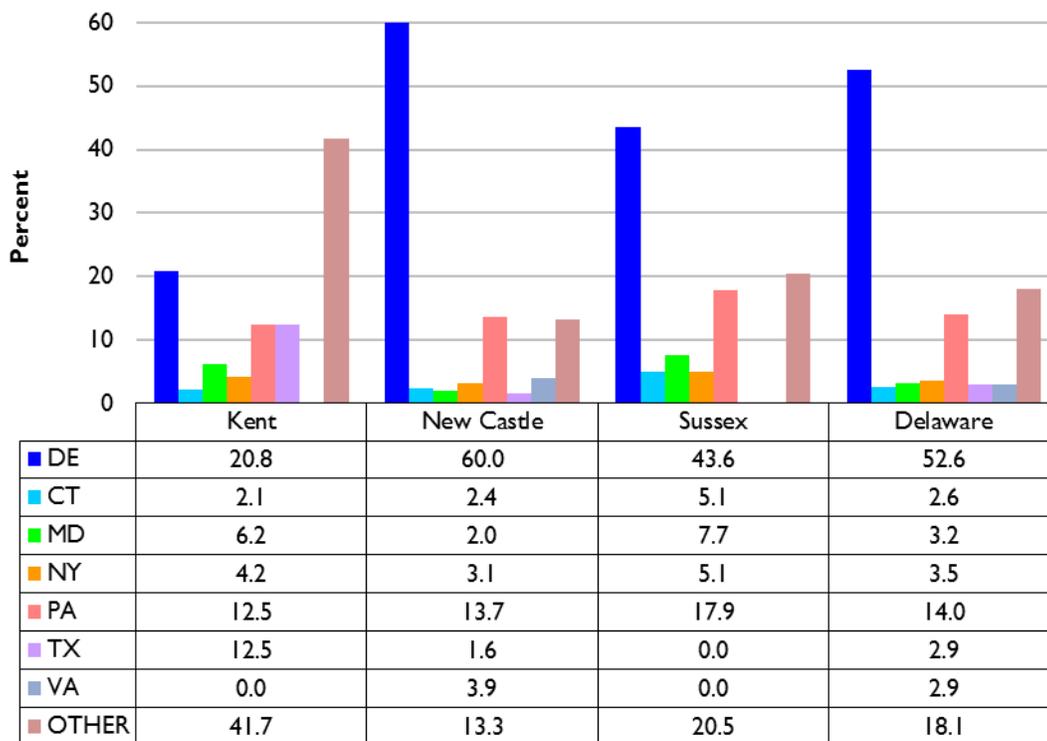


**Source:** Center for Applied Demography & Survey Research  
University of Delaware

Figure 2.9 shows that half of all Delaware dentists graduated from dental schools in Pennsylvania with the second highest proportion from Maryland schools (~17%). The distribution among the other states is not all that different among the counties, with the exception of Kent County. About 21% Delaware dentists practicing in Kent County graduated from dental school outside of the region surrounding Delaware.

Figure 2.10 reflects the state in which Delaware dentists completed their residency program. Please note, responses are only tabulated for dentists who indicated having completed a residency. There are dentists in Delaware who qualify based on their experience. Over half of Delaware dentists, who indicated completing a residency, completed it within the state of Delaware. However, dentists practicing in Kent County are least likely to have completed their residency program in Delaware. Only about 20% completed their residency in the state compared to 60% of dentists practicing in New Castle County and nearly 44% practicing in Sussex County.

**Figure 2.10**  
**State of Dental Residency Program of Delaware Dentists 2012**  
**Delaware and Counties**

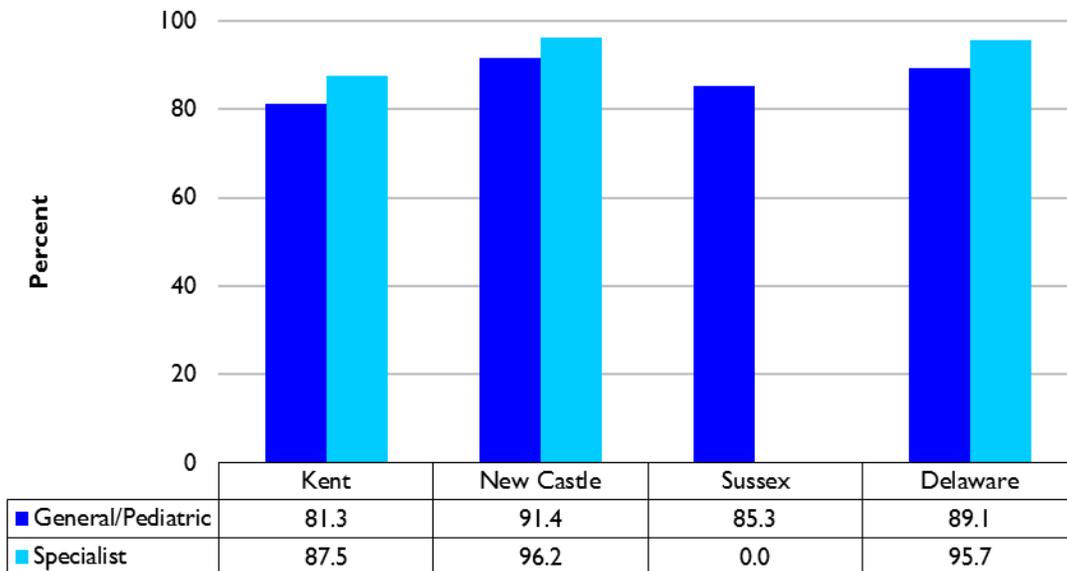


**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

There is clearly a geographic orientation exhibited by these responses. It is plausible to suggest that similar patterns might emerge with the state of the dentist’s residency. In fact, that relationship might be even stronger. However, these findings demonstrate that most go to college within several hundred miles of their homes and also go to dental school within several hundred miles of where they went to college. Almost 75% of those who graduated from high school in Delaware went to dental school in the region. This information may prove valuable to those making an effort to recruit new dentists to Delaware.

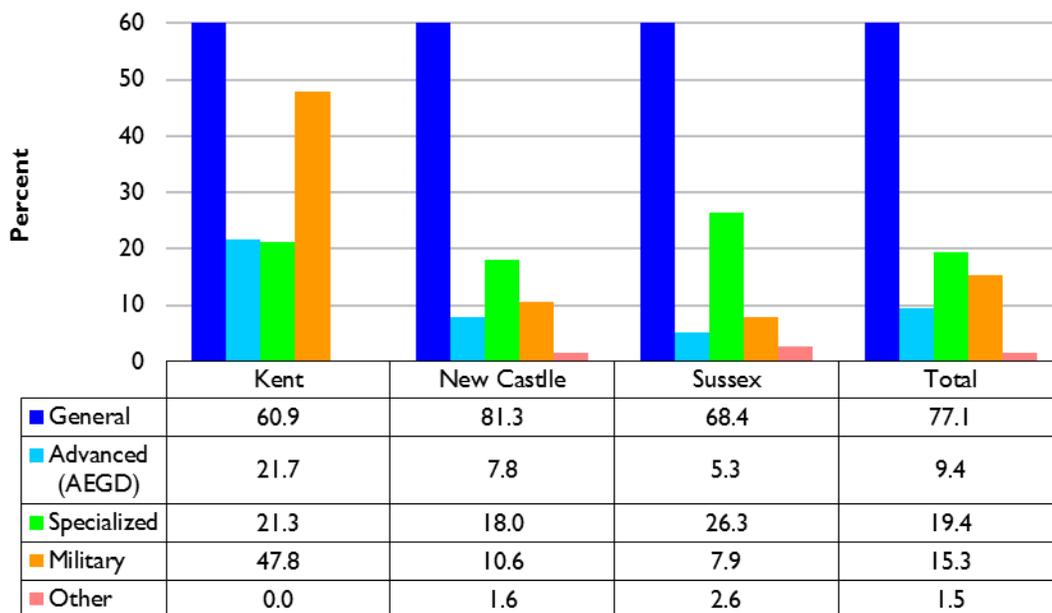
It should be noted that not all dentists have completed a residency program. Although Delaware law requires that licensees have done so, there are two exceptions. Dentists that have practiced for three years elsewhere may be granted a waiver. In addition, there is a waiver for those who practiced dentistry for two years while on active military duty. That explains in part, the 89.1% completion rate among non-specialists reported in Figure 2.11.

**Figure 2.11**  
**Dental Residency Program Completion by Delaware Dentists 2012**  
**Delaware and County**



**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

**Figure 2.12**  
**Type of Dental Residency Program by Delaware Dentists 2012**  
**Delaware and County**



**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

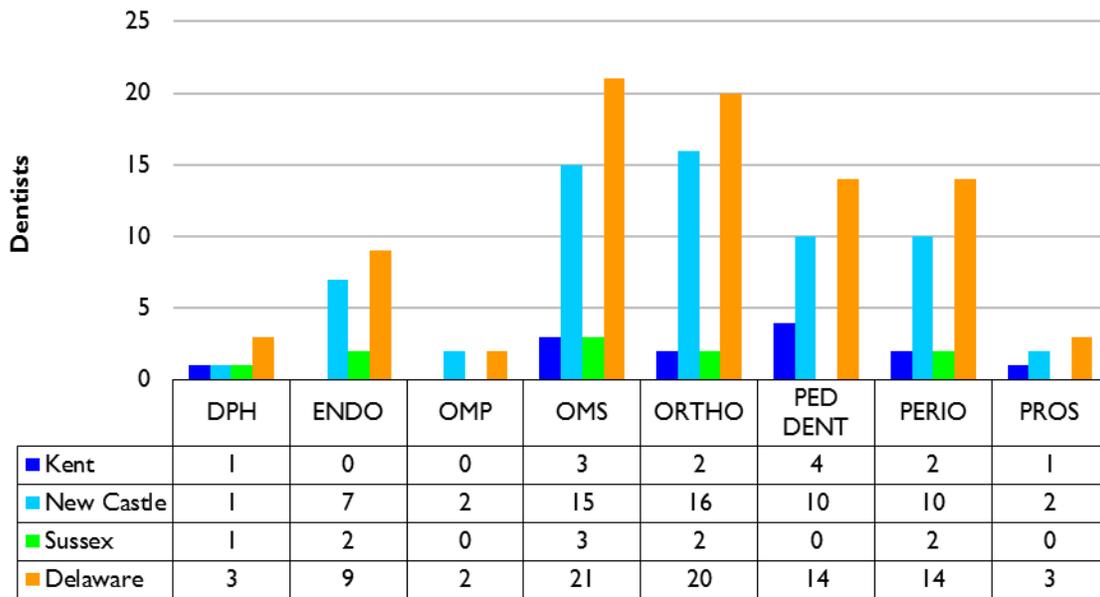
The types of residency programs respondents completed are found in Figure 2.12. Please note, responses are tabulated only for dentists who indicated having completed a residency. The totals will not add to 100% because some dentists reported more than one type of residency.<sup>7</sup> This was particularly true for those with military service. The distribution of types of residency programs dentists reported is different in several ways. First, fewer dentists practicing in Kent County reported completing a general/pediatric dental residency than in either of the other two counties. Second, Kent County has the highest proportion reporting training associated with the military. Presumably this is related to Dover Air Force Base being located in Kent County. Third, Sussex County dentists were more likely to have completed a specialized dentistry residency program (~26%) than dentists practicing in Kent County (~21%) or New Castle County (18%).

<sup>7</sup> AEGD is not generally recognized as meeting the requirement of having had a residency for licensure in the State of Delaware. However, it is included for reference purposes.

The number of specialist dentists is found in Figure 2.13 below. Those with a specialty in pediatric dentistry are shown here even though they are included in the General/Pediatric category for the FTE.FED calculation. This allows for an estimate of the number of active providers specializing in pediatric dentistry in each of Delaware’s three counties.

Overall, specialists are more likely to practice in New Castle County than in either Kent or Sussex counties. This is important for recruitment purposes with a focus on increasing specialists in those areas of the state lacking these types of dental services.

**Figure 2.13  
Delaware Dental Specialists 2012  
Delaware and Counties**



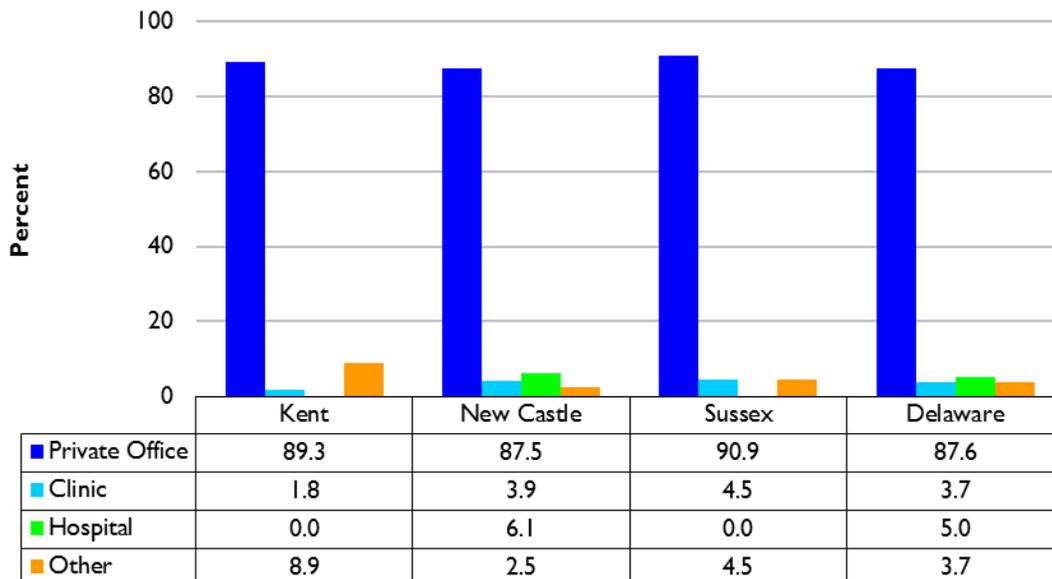
**Source:** Center for Applied Demography & Survey Research  
University of Delaware

DPH	dental public health	ORTHO	orthodontics and dentofacial orthopedics
ENDO	endodontics	PED DENT	pediatric dentistry
OMP	oral and maxillofacial pathology	PERIO	periodontics
OMS	oral and maxillofacial surgery	PROS	prosthodontics

## Practice Characteristics

In this section, the practice characteristics of the 380 dentists actively practicing in Delaware are examined. These characteristics can be roughly divided into four areas. First, some broad attributes of the practice are presented. Second, issues related to accessibility are reviewed. Third, characteristics that affect payment for services are reported. Finally, information related to hiring of qualified dental staff is provided.

**Figure 3.1**  
**Type of Practice of Delaware Dentists 2012**  
**Delaware and Counties**



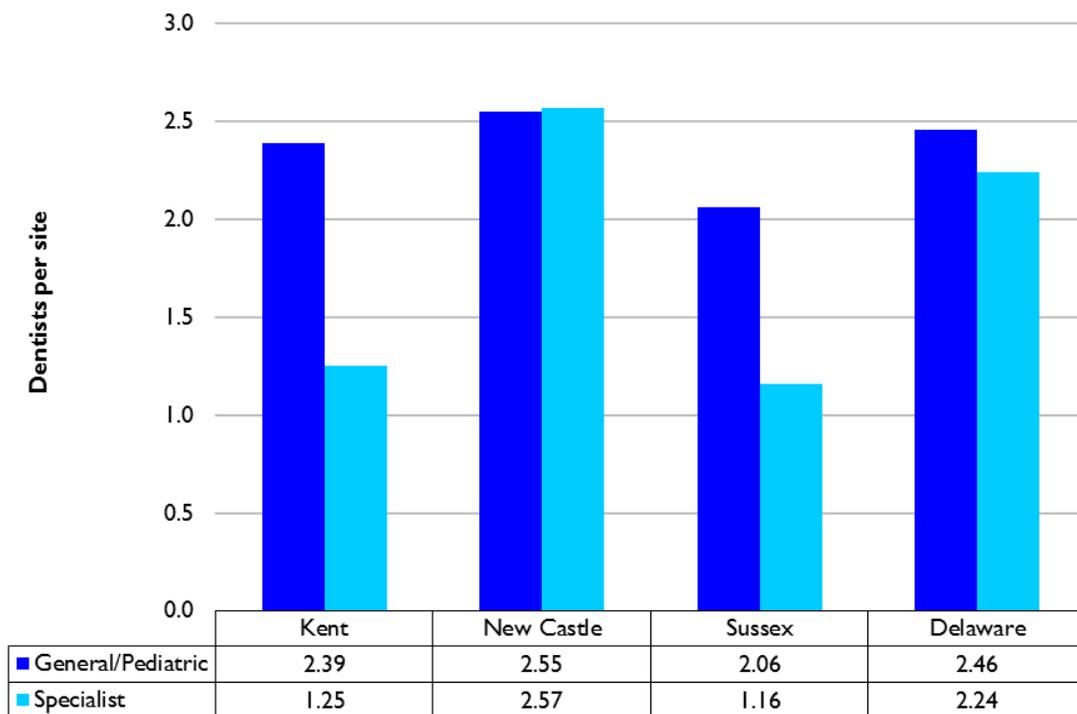
**Source:** Center for Applied Demography & Survey Research  
University of Delaware

Respondents were asked about the setting of their primary employment. Those responses are summarized in Figure 3.1. The overwhelming majority of dentists are operating in private practitioners' offices. However, it is important to note that other types of settings were listed. This means that the responses supplied throughout the survey include elements outside the private sector. The diversity of settings was somewhat lower in the lower two counties when compared to New Castle County. The zero percent reported for Hospital setting in

both Kent and Sussex counties is likely related to question wording – where respondents were asked to identify the setting of their primary employment.

Dentist practices are generally small, at least in terms of the number of dentists located at the practice site (see Figure 3.2). Statewide, about 40% of practices have only one dentist on staff. However, there is some variability by county as to the number of dentists on staff. About 62% of dental practices in New Castle County have more than one dentist, compared to 58.9% of dental practices in Kent County and 45.5% of practices located in Sussex County.

**Figure 3.2**  
**Average Number of Delaware Dentists at the Primary Site 2012**  
**Delaware and Counties**



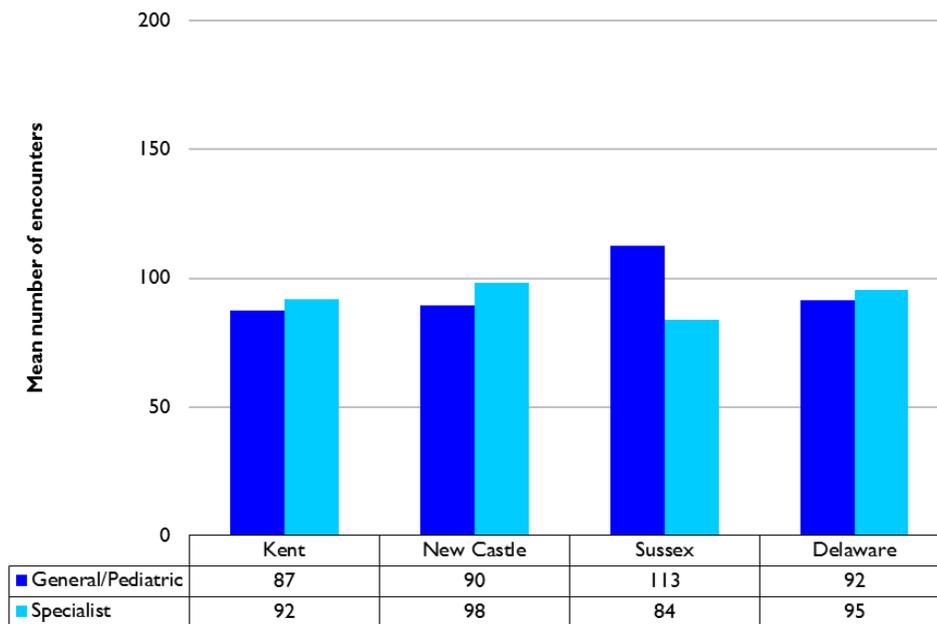
**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

Another measure of size and capacity is the patient flow. The survey attempted to measure this by asking for the number of patient encounters the dentists or associated hygienists served each week. Data was collected for total number of patient encounters, number of patients for treatment, post treatment evaluation and the number of hygiene

patients. For all of these, the results mirror the results for number of patient encounters by dentists found in Figure 3.3.

On average, Delaware dentists see just under 100 patients per week at their primary practice location. As shown in Figure 3.3, in Sussex County, general/pediatric dentists see an average of 113 patients per week, up from 102 patients per week in 2008. Specialists in Sussex County see about 84 patients per week, up from about 40 in 2008. In New Castle County the average number of patient encounters among general/pediatric dentists has remained about the same. However, the average number of patient encounters of specialists in New Castle County has decreased from about 142 per week in 2008 to 98 per week in 2012. Kent County has experienced the greatest decline in the average number of patient encounters per week. General/pediatric dentists in Kent County see about 87 patients per week compared to 146 per week in 2008. Specialists in Kent County are down from 118 average patient encounters per week to about 92 encounters per week.

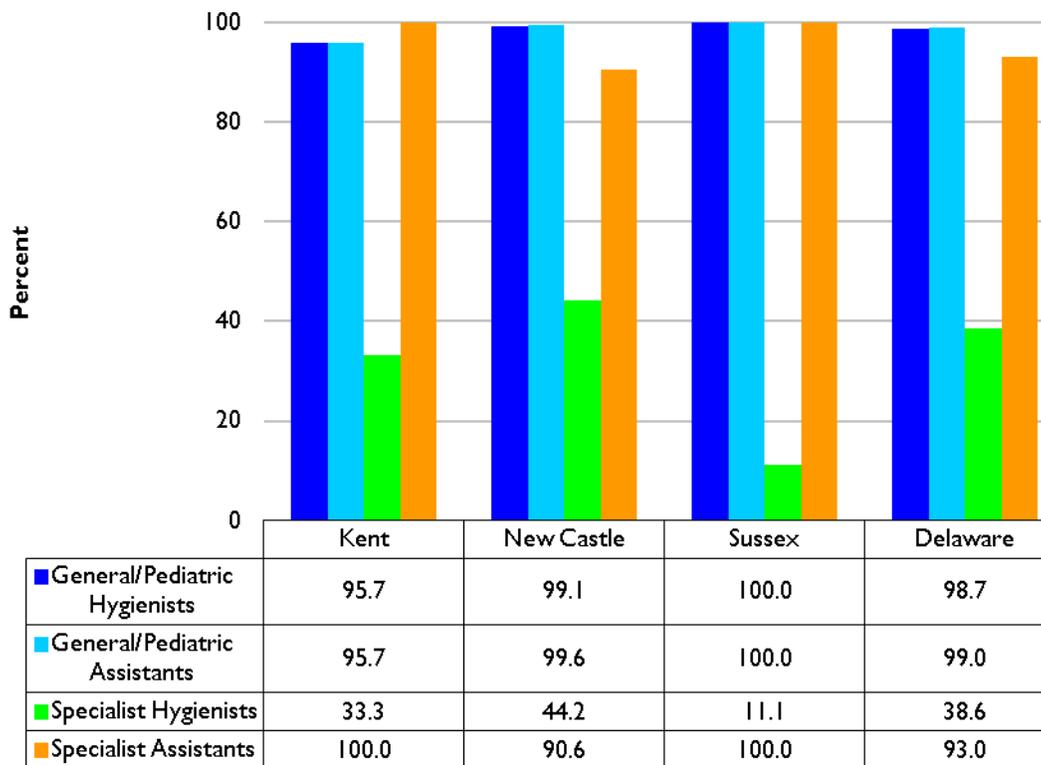
**Figure 3.3**  
**Average Weekly Patient Encounters of Delaware Dentists**  
**Delaware and Counties**



Source: Center for Applied Demography & Survey Research  
University of Delaware

The calculation of full-time equivalencies discussed in the first section made allowances for “auxiliaries” (dental hygienists and dental assistants) in determining the productivity of a dentist. These resources are used to provide many dental services (e.g., teeth cleaning, radiographs, etc.) that would otherwise have to be performed by the dentist. The utilization of such resources is quite high, as is shown in Figure 3.4.

**Figure 3.4**  
**Use of Non-Dentist Resources by Delaware Dentists 2012**  
**Delaware and Counties**

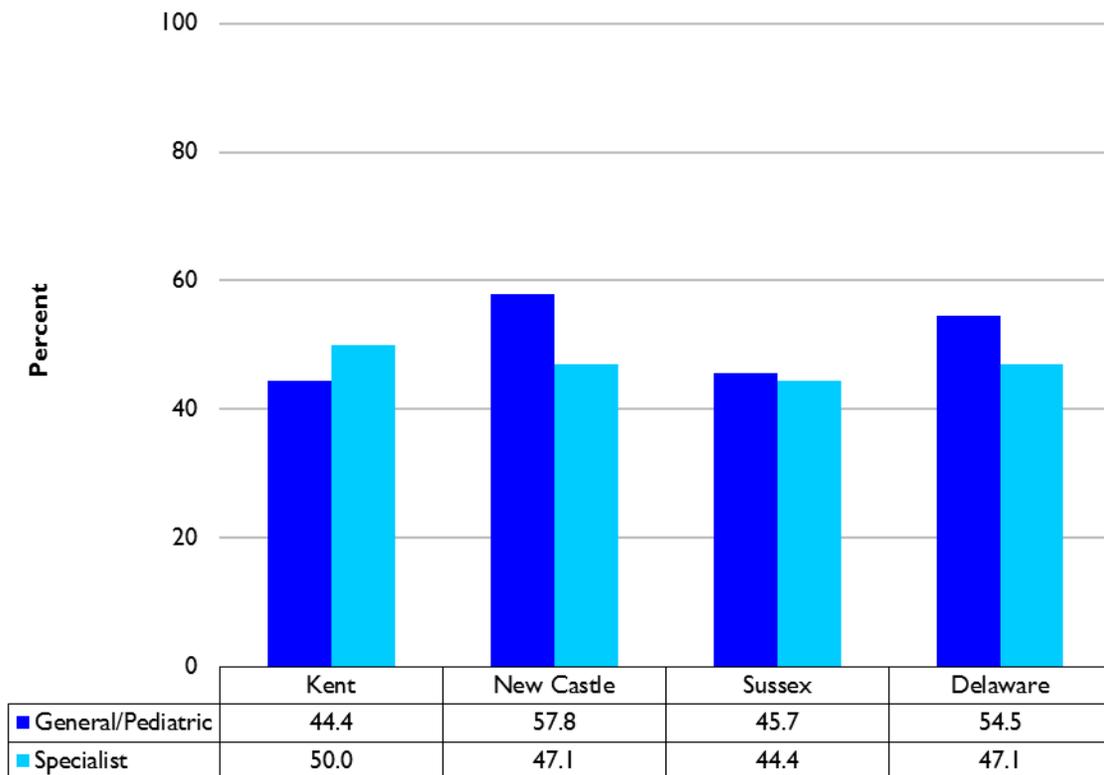


**Source:** Center for Applied Demography & Survey Research  
University of Delaware

Around 100% of those practicing general/pediatric dentistry in New Castle and Sussex counties use both dental assistants and hygienists to provide the necessary services expected of a general dental practice. In fact, there is little difference in the distributions between those counties. The result for Kent County in both categories suggests a lower utilization rate by general/pediatric dentists for both categories of employees. However, Kent County’s utilization rate of non-dentist resources has increased considerably since 2008.

The lower utilization of hygienists by dental specialists reflects differences between the specialties and not a lack of interest in using non-dentist resources. For example, a periodontist would rely heavily on hygienists, while an endodontist would not. Their use of dental assistants is comparable to that for those in general/pediatric dentistry.

**Figure 3.5**  
**Languages Other than English Spoken at Delaware Dentists' Practices 2012**  
**Delaware and Counties**



**Source:** Center for Applied Demography & Survey Research  
University of Delaware

The population of Delaware is becoming more diverse. For example, there has been a significant increase in the number of Hispanic Delawareans. Between 2000 and 2010, Delaware's Hispanic population has nearly doubled.<sup>8</sup> For many of these new arrivals, English is a second language or is not spoken at all. This presents a challenge for the dental community as they try

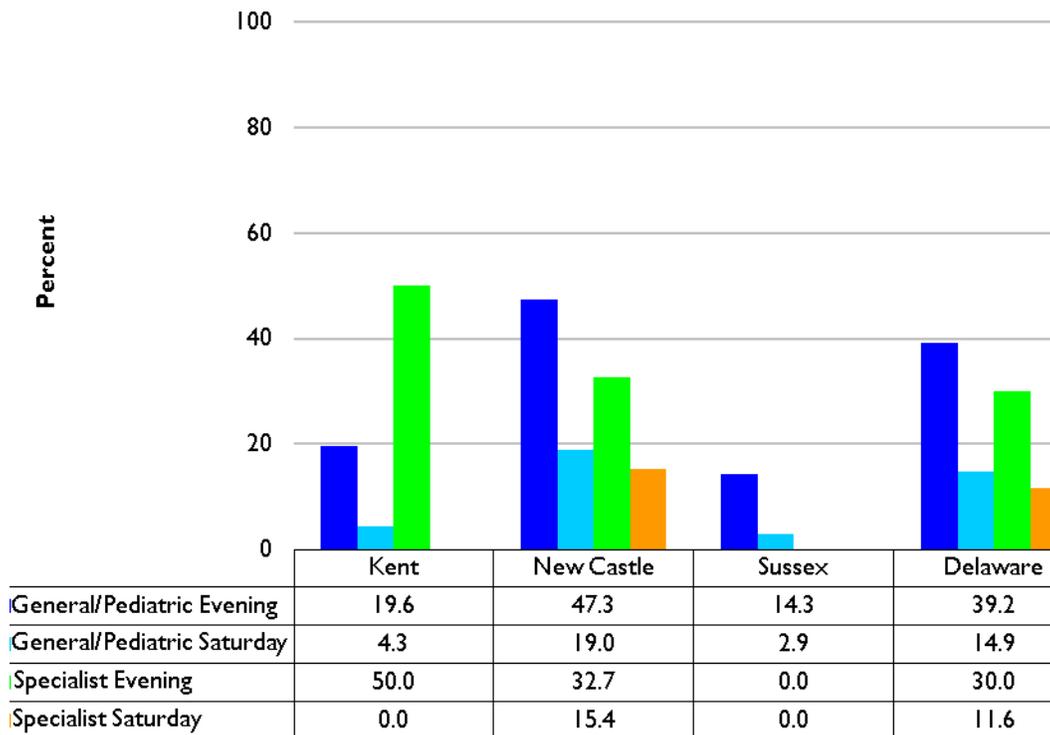
<sup>8</sup> U.S. Census Bureau, 2000 and 2010 Census, retrieved from <http://www.census.gov/>

to provide service to this population. Respondents were asked if languages other than English were spoken at their practice site. The results are detailed in Figure 3.5 above.

Across the state, almost 55% of general/pediatric dentists and about 47% of dental specialists in Delaware have the capability of dealing in a language other than English. Spanish was the most frequently mentioned language. Few differences exist between counties for both types of dental practices.

Another dimension of accessibility to dental services is non-traditional office hours, i.e. hours other than 9 a.m. to 5 p.m., Monday through Friday. Respondents were asked if they provided either Saturday or evening office hours. Their responses are tabulated in Figure 3.6.

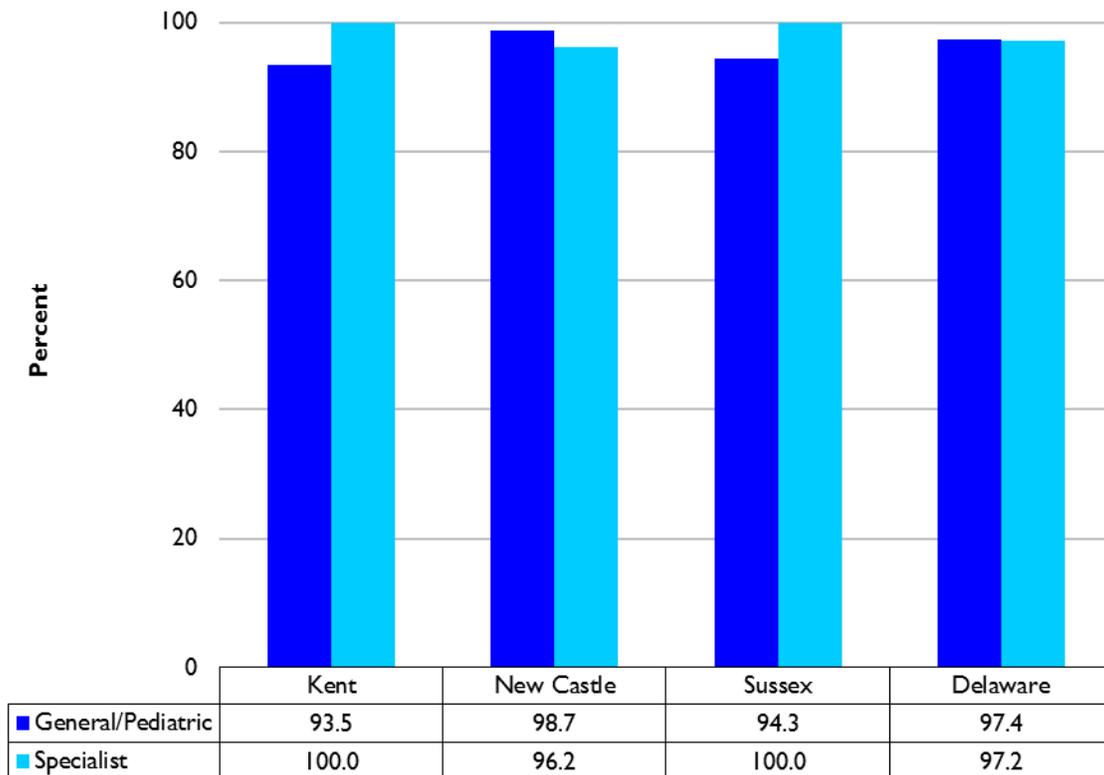
**Figure 3.6**  
**Saturday and/or Evening Hours of Delaware Dentists 2012**  
**Delaware and Counties**



Source: Center for Applied Demography & Survey Research  
University of Delaware

Overall, general/pediatric dentists are more likely to offer non-traditional office hours than specialists. Offering evening hours is roughly two and a half times more popular than providing Saturday hours. Dentists in New Castle County are much more likely to offer non-traditional hours than dentists located in Kent or Sussex counties.

**Figure 3.7**  
**Delaware Dentists Accepting New Patients 2012 Delaware and Counties**

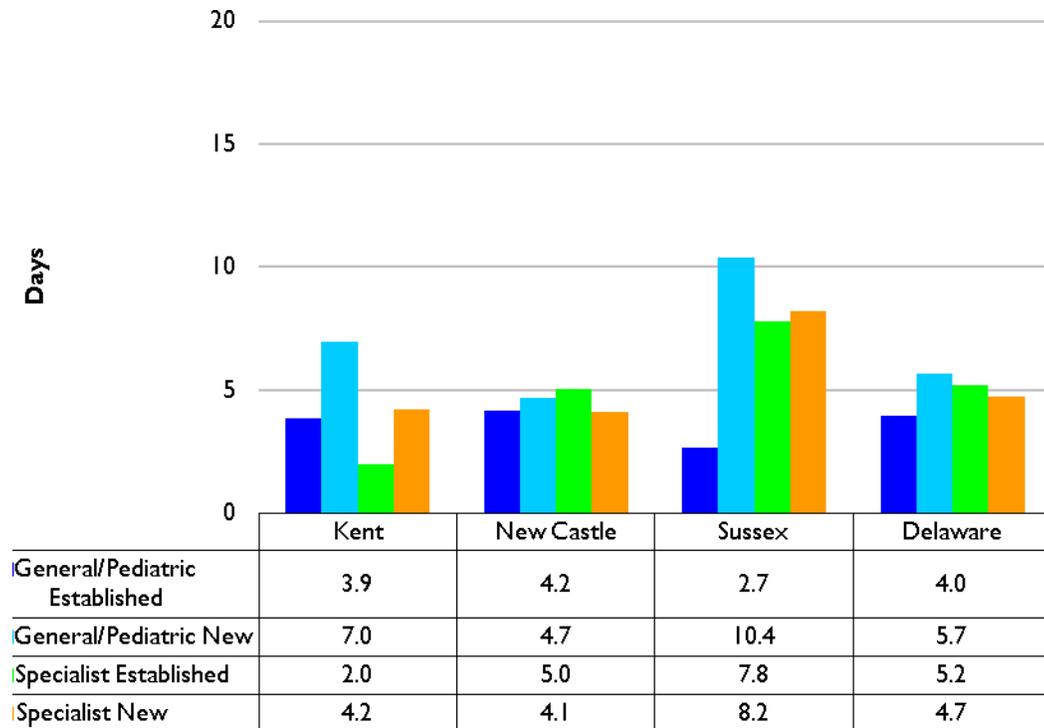


**Source:** Center for Applied Demography & Survey Research  
University of Delaware

A more direct measure of accessibility is whether dentists are accepting new patients. Similar to 2008, almost all dentists (generalists and specialists alike) are accepting new patients. Accessibility has improved in Kent County; in 2012 93.5% of generalists were accepting new patients in Kent County, up from about 85% in 2008. A slight decrease in the number of generalists accepting new patients in Sussex County should be noted; in 2008 100% of

generalists practicing in Sussex County were accepting new patients, compared to about 94% in 2012. The rate of new patient acceptance among specialists has remained virtually unchanged.

**Figure 3.8**  
**Average Wait Time for New and Established Patients for Delaware Dentists 2012 Delaware and Counties**



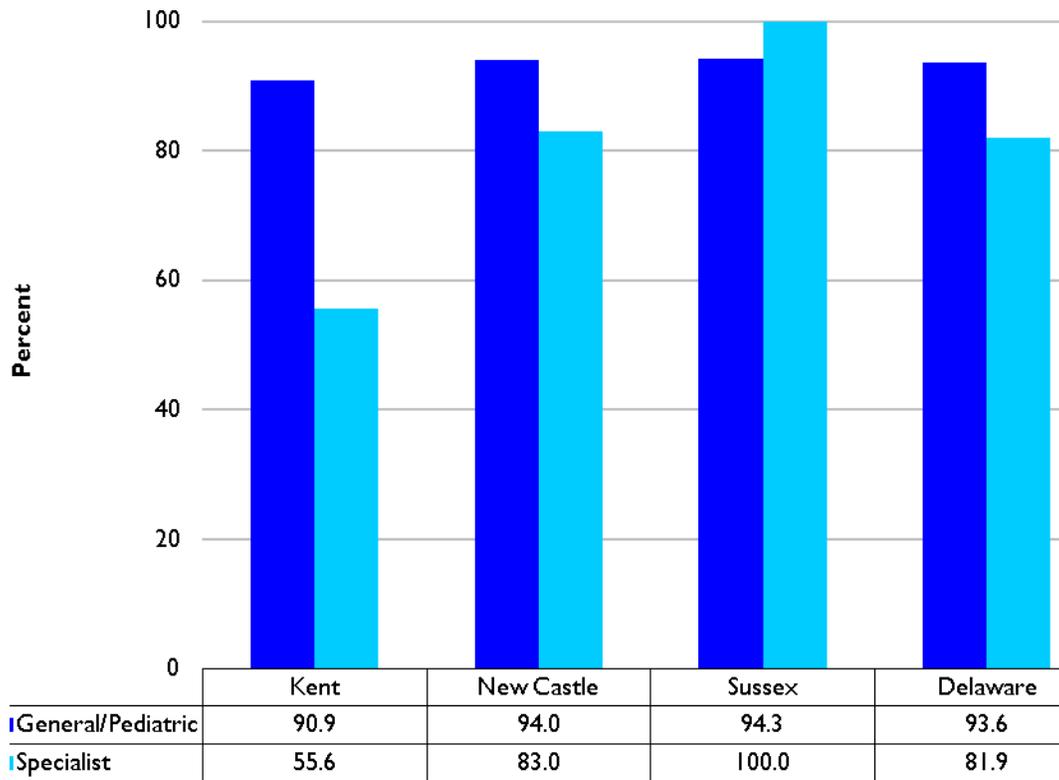
Source: Center for Applied Demography & Survey Research  
University of Delaware

Another measure of capacity is the “wait time” or how long a person has to wait for an appointment once they have called the dentist’s office. This time will vary significantly depending on whether the problem is characterized as an emergency. Most dentists leave openings to handle emergency cases. Respondents were asked about “wait time” for non-emergency cases. The results are shown in Figure 3.8.

In 2012, wait times are in general shorter for general/pediatric dentists than they are for specialist dentists. However, in Sussex County new patients seeking an appointment with a dentist providing general/pediatric dental care will wait about 10 days, compared to five days in New Castle County. In Kent County the average wait time for new patients for

general/pediatric dentists is around seven days. Again, for new patients seeking specialist dental care in Sussex Counties, they must wait around eight days compared to four days in Kent County or New Castle County. The decrease in wait time may be attributable to the decrease in average patient encounters (Figure 3.3) coupled with greater availability of evening and weekend appointments. (Figure 3.6)

**Figure 3.9**  
**Delaware Dentists Serving Pediatric Patients 2012**  
**Delaware and Counties**



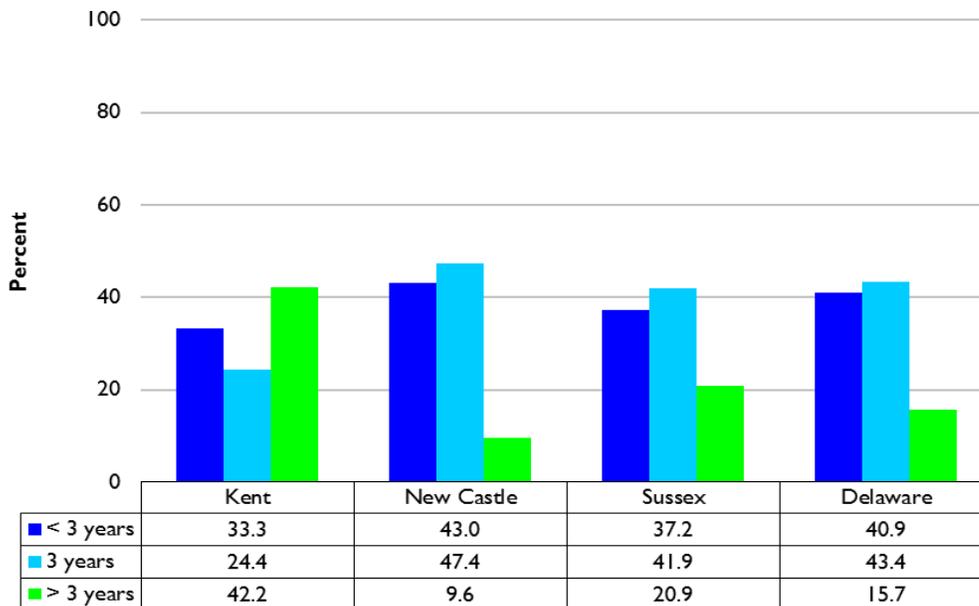
Source: Center for Applied Demography & Survey Research  
 University of Delaware

Another area of interest is that of pediatric patients. According to the results found in Figure 3.9, many dentists serve pediatric patients. However, Sussex County’s specialists stand out – 100% of the specialists in Sussex County indicate seeing pediatric patients compared to none in 2008. This can, in part, be attributed to the increase in specialists practicing in Sussex County from two to 10. In contrast, Kent County saw a decrease of 26.2 percentage points in

the proportion of specialists seeing pediatric patients in that county and a 7.4 percentage point decrease in New Castle County. Simultaneously, a greater proportion of general dentists is seeing pediatric patients in all three counties.

The American Dental Association<sup>9</sup> and the American Academy of Pediatric Dentistry<sup>10</sup> recommend that a child's first dental checkup should occur no later than his/her first birthday, yet many children do not see the dentist until around the age of three or older. In Delaware, about 41% of dentists do evaluate and/or treat children under the age of three (up from 34% in 2008). However, as shown in Figure 3.10, plurality of dentists (43%) starts seeing children at around age three. Sixteen percent of dentists reports seeing children older than three.

**Figure 3.10**  
**Age of Youngest Pediatric Patients Treated by Delaware Dentists 2012**  
**Delaware and Counties**

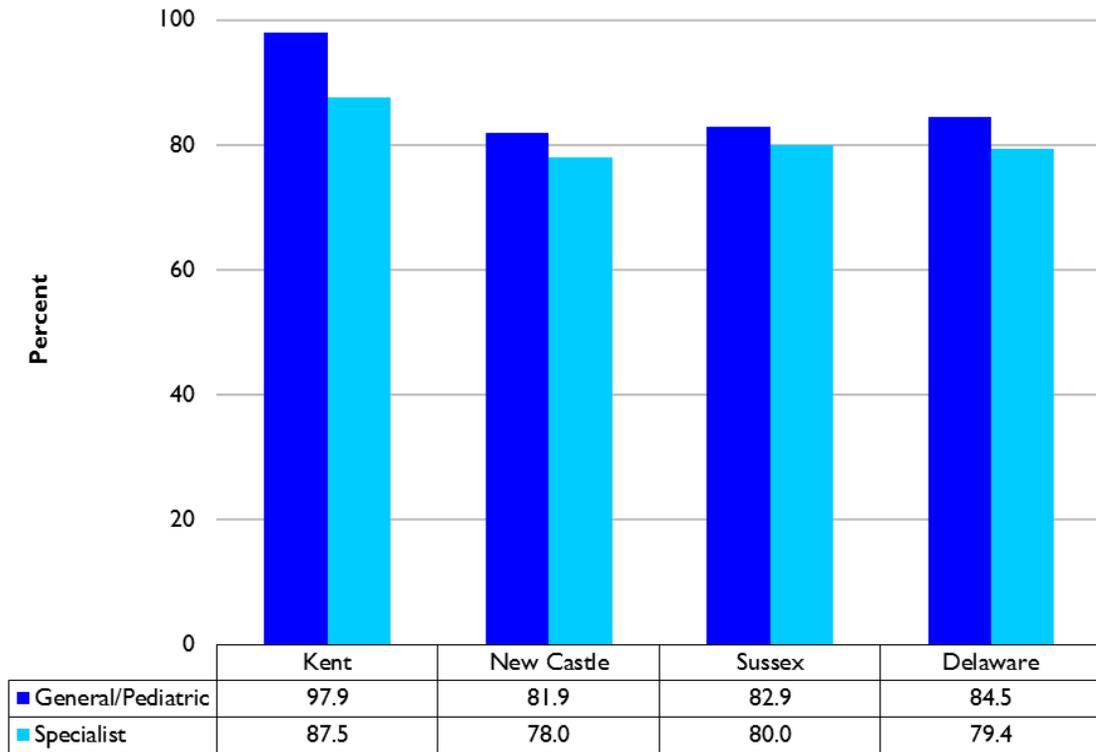


**Source:** Center for Applied Demography & Survey Research  
University of Delaware

<sup>9</sup> [https://www.ada.org/sections/scienceAndResearch/pdfs/patient\\_11.pdf](https://www.ada.org/sections/scienceAndResearch/pdfs/patient_11.pdf)

<sup>10</sup> [http://www.aapd.org/resources/frequently\\_asked\\_questions/](http://www.aapd.org/resources/frequently_asked_questions/)

**Figure 3.11**  
**Dental Insurance Plans Participation by Delaware Dentists in 2012**  
**Delaware and Counties**



**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

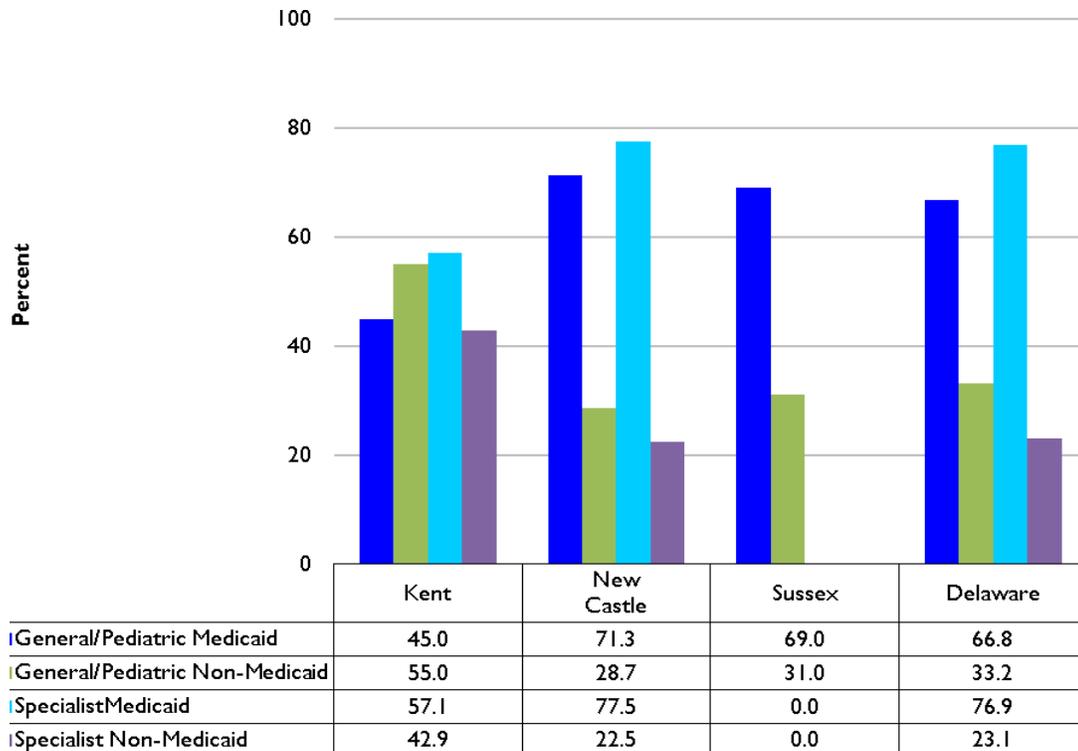
Accessibility can be influenced by the acceptance of dental insurance plans. Respondents were asked if they participated in such plans. The responses are found in Figure 3.11. Overall, 80% of dentists in Delaware indicate participating in dental insurance programs including Medicaid.

In Kent County and New Castle County, there has been little change in the percentage of general/pediatric dentists accepting dental insurance since 2008. This does not hold true for Sussex County. The proportion of general/pediatric dentists accepting dental insurance plans in Sussex County increased by about 22 percentage points (compared to roughly 61% in 2008). Similar trends hold true for specialists as well with relatively small changes in the proportion of specialists in Kent and New Castle Counties accepting dental insurance. However, in 2008 no

specialists in Sussex County were accepting dental insurance. Today, 80% are accepting such plans. The increase in the number of specialists accepting dental insurance in Sussex County may be attributed simply to the changing landscape of dentistry in the county in the form of an increase in the number of specialists practicing in the county. In 2008, only two specialists were practicing in Sussex County; today, there are a total of 10.

Accessibility of dental services can also be influenced by the patient's ability to pay for services rendered. This has been an issue for those qualifying for dental coverage under Medicaid. This population group has traditionally had difficulty accessing dental care due to the limited number of dentists accepting Medicaid. To assess the availability of dental services to this population group, respondents were asked what types of insurance plans they accepted. The results are shown in Figure 3.12.

**Figure 3.12**  
**Participation in Medicaid and Non-Medicaid Insurance Programs**  
**by Delaware Dentists 2012, Delaware and Counties**



Source: Center for Applied Demography & Survey Research  
University of Delaware

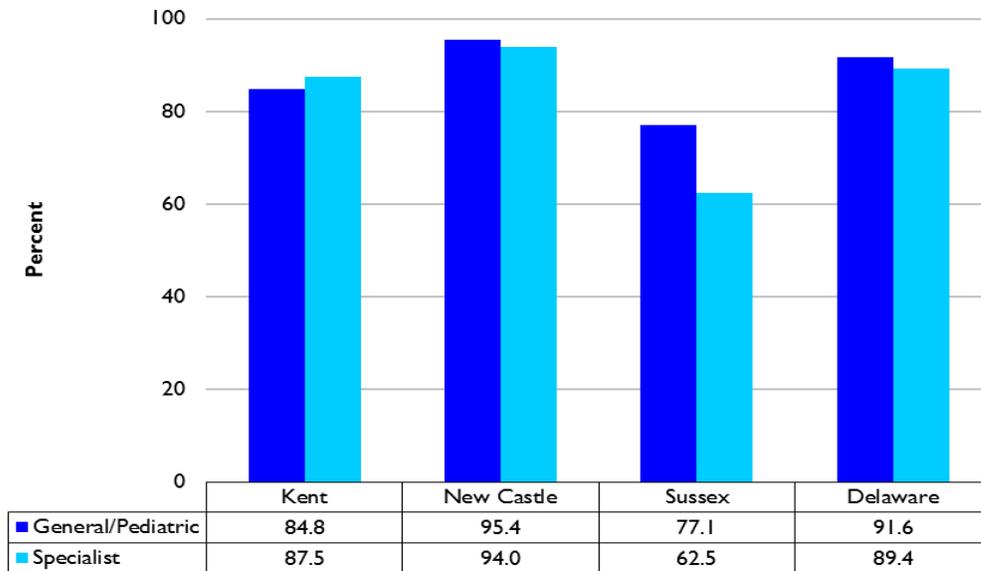
The proportion of dentists accepting Medicaid has consistently increased. When this survey was fielded in 1998, less than 4% of general/pediatric dentists statewide indicated they accepted Medicaid. In 2005 the survey revealed that more than a third of dentists accepted Medicaid payments, and in 2008 almost 46% of general/pediatric dentists throughout the state accepted Medicaid. Today, approximately 67% of general/pediatric dentists are accepting Medicaid payments. The proportion of specialists accepting Medicaid payments has remained about the same between 2008 and 2012 and is similar to their general/pediatric counterparts, with the exception of specialists in Sussex County who report that they do not participate in any type of insurance programs.

Respondents were also asked if they provided flexible payment plans or installment plans. Those responses are summarized in Figure 3.13. Dentists practicing in New Castle County are more likely than those practicing in Kent or Sussex counties to provide flexible payment options. In Sussex County, specialists are less likely than their general/pediatric counterparts to provide such options. Overall, about 90% of all Delaware dentists offer flexible payment or installment plans for their patients.

Given that medically necessary dental care is not always affordable, in addition to offering flexible payment plans, respondents were also asked if they provided any type of charity care. For purposes of this study, charity care is defined as providing a service for which the dentist understood that he/she would not be paid. Bad debt was excluded from the definition of charity care. The results are shown below in Figure 3.14.

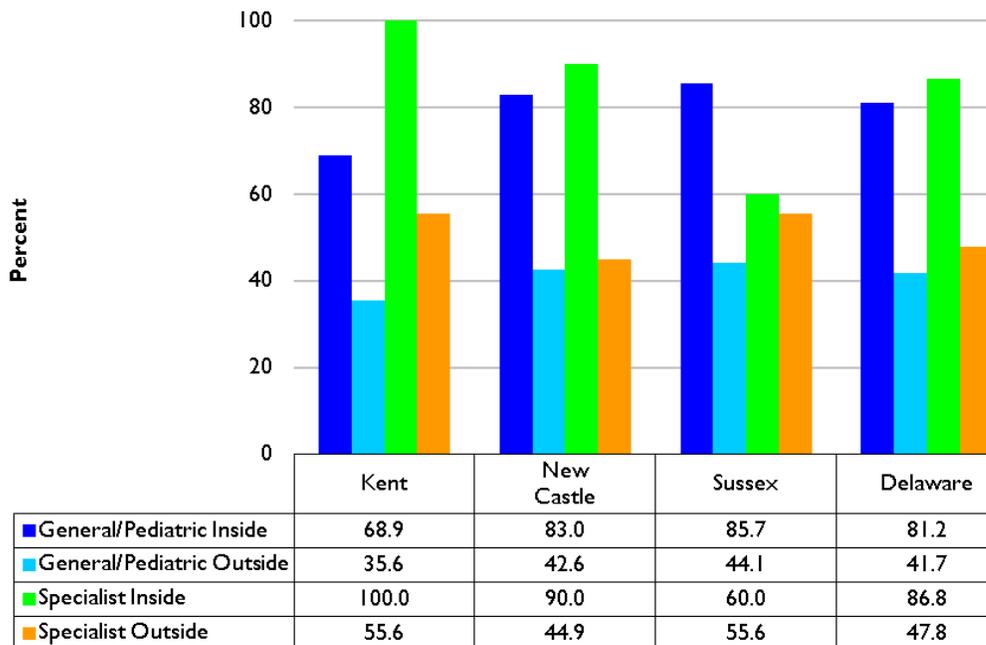
Overall, about 82% of all dentists provide some form of charity care in their offices and specialists are more likely than general/pediatric dentists to provide such care. This pattern is similar across the counties with the exception of Sussex County. Only 60% of specialists in Sussex County provide charity care inside their offices compared to about 86% of general/pediatric dentists. In addition, approximately 43% of dentists in Delaware provide charity care outside of their offices, presumably in clinics and other similar settings.

**Figure 3.13**  
**Delaware Dentists Providing Flexible Payment Plans 2012**  
**Delaware and Counties**



Source: Center for Applied Demography & Survey Research  
 University of Delaware

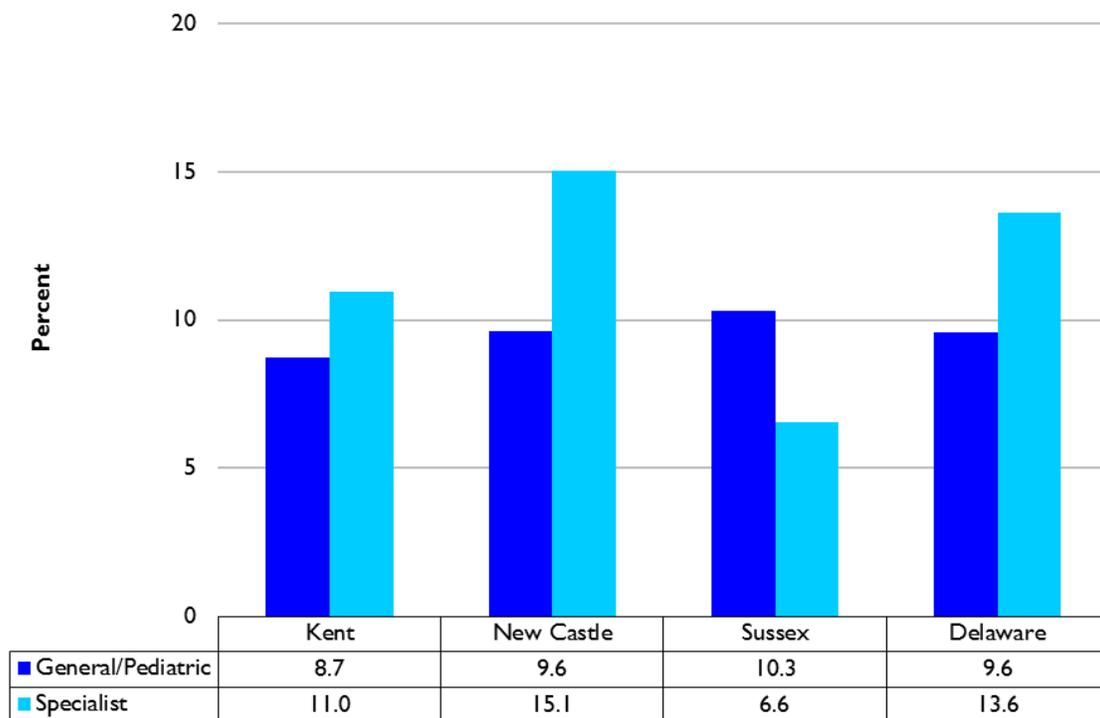
**Figure 3.14**  
**Delaware Dentists Providing Charity Care In/Out of Office 2012**  
**Delaware and Counties**



Source: Center for Applied Demography & Survey Research  
 University of Delaware

Survey respondents were asked what proportion of their gross fees were unreimbursed, including uncollectables, non-charity or discounts. Those results are found in Figure 3.15, and they are consistent with those provided by other health professionals. New Castle County's specialists are most burdened followed by specialists in Kent County and general/pediatric dentists practicing in Sussex County.

**Figure 3.15**  
**Percent of Gross Fees Unreimbursed of Delaware Dentists 2012**  
**Delaware and Counties**



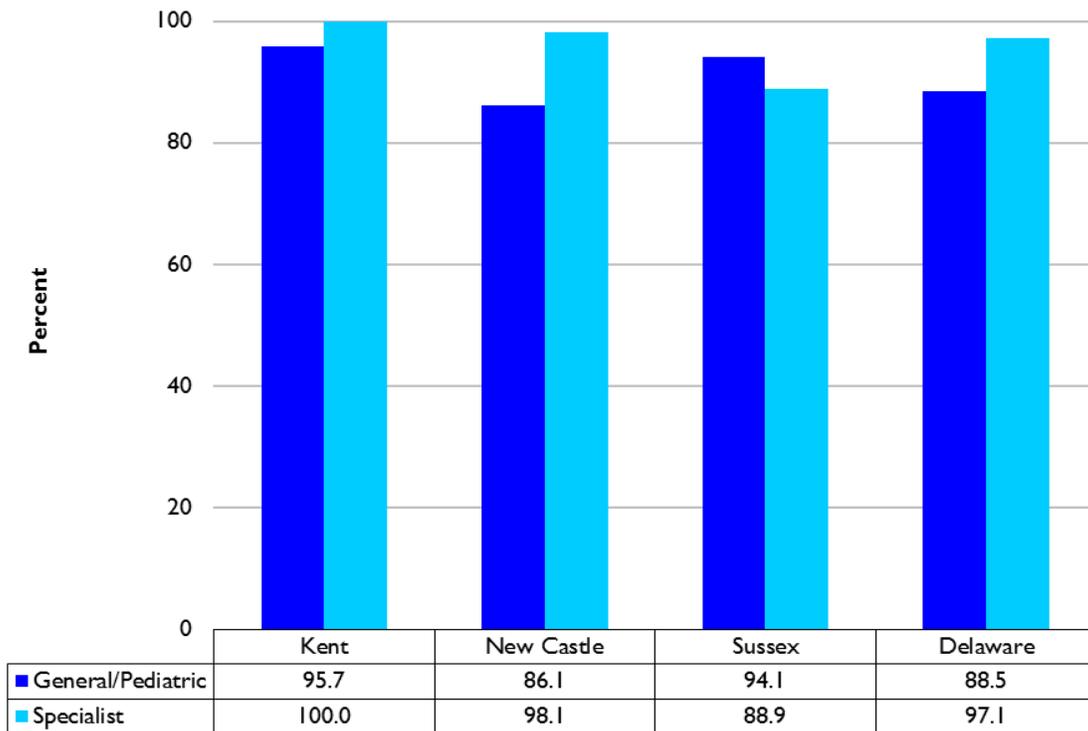
**Source:** Center for Applied Demography & Survey Research  
University of Delaware

In order for dentists to be as productive as possible, it is imperative that they be able to obtain qualified hygienists, dental assistants, and office staff. These are force multipliers and impact the calculated federal FTE's (FED.FTE). The first issue was to measure what percent of dentists consider their facility to be fully staffed. The results are found in Figure 3.16.

About 89% of general/pediatric dentists feel that their offices are fully staffed (an increase of five percentage points from 2008). The lowest rate (86%) is measured among New

Castle County’s general/pediatric dentists where the percentage reporting being fully staffed stands at about 86%. Specialists report better staffing levels than the general/pediatric dentists with 97.1% believing that they are fully staffed. One needs to remember that the staffing needs are different for specialists and general/pediatric dentists.

**Figure 3.16**  
**Delaware Dentists Indicating Fully Staffed Offices 2012**  
**Delaware and Counties**



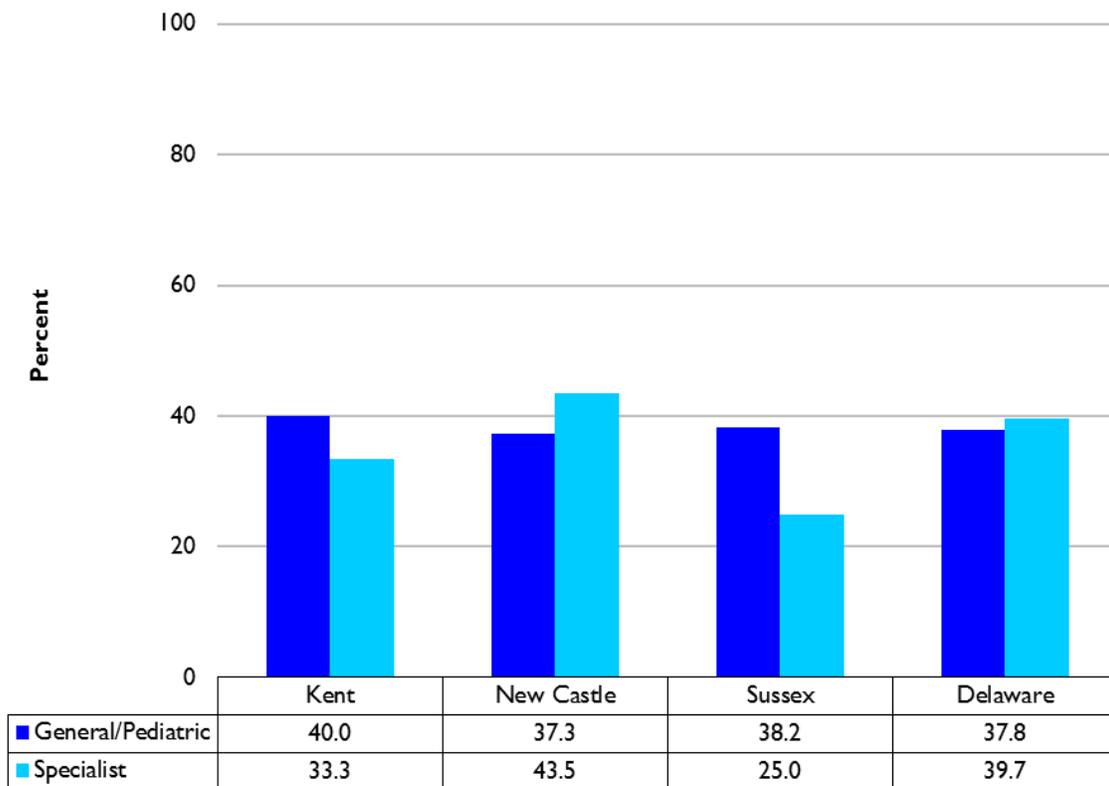
**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

The second major issue was whether or not there is a shortage of qualified dental staff. The intent of this question is more directed toward the difficulty of filling a position whether the dentist is fully staffed or not. The results are shown in Figure 3.17.

In 2008 there was broad agreement among both general/pediatric dentists and specialists that there was a shortage of qualified applicants for dental staff positions (dental hygienists and dental assistants) wherein 68% of generalists and 76% of specialists perceived

shortages. Today, the data reflect a very different view. In the case of general/pediatric dentists, about 38% report a perceived shortage, and about 40% of specialists report a scarcity of dental staff applicants. Perception of shortages is fairly consistent across counties with the exception of specialists in New Castle County (~44%).

**Figure 3.17**  
**Delaware Dentists Indicating Shortage of Qualified Dental Staff 2012**  
**Delaware and Counties**

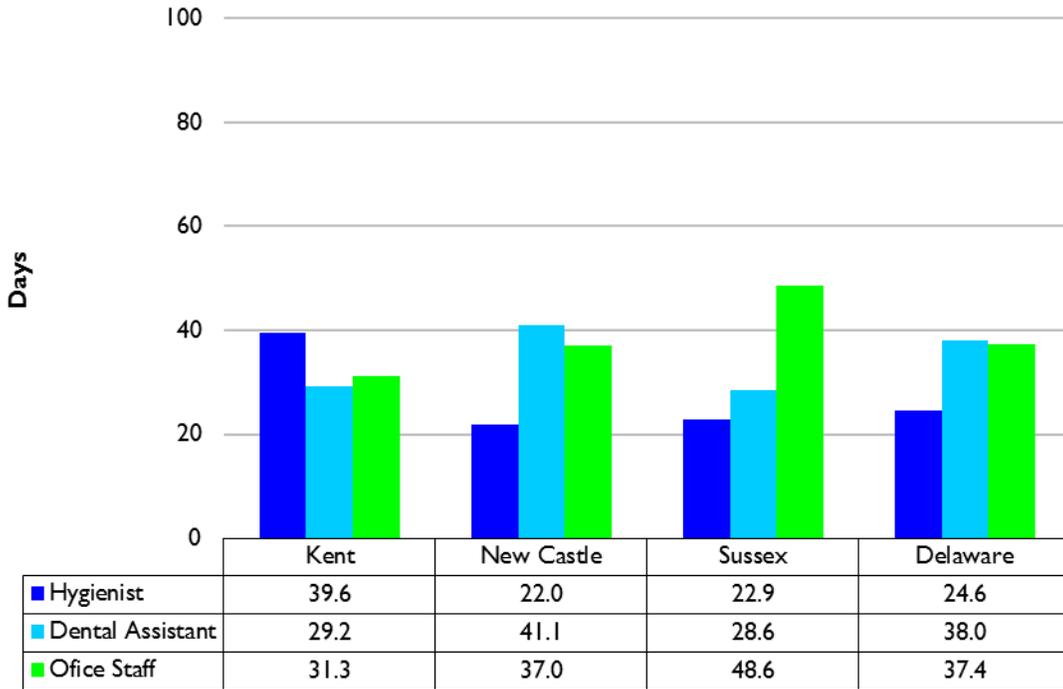


**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

The final issue addressed in the survey was the degree of difficulty in filling different categories of non-dentist positions. The respondents' perceptions are provided in Figure 3.18. There is a good deal of variation in the responses. It appears that New Castle County's dentists have more difficulty filling dental assistant positions than the lower two counties. Sussex County

has the most difficulty hiring basic office staff, and Kent County has a more difficult time filling hygienist positions.

**Figure 3.18**  
**Most Difficult Positions to Fill Identified by Delaware Dentists 2012**  
**Delaware and Counties**



**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

---

## Spatial Distribution

In the first section of this report, Sussex County was identified as an area having the worst population to FTE.FED dentist ratio, with Kent County following close behind. In New Castle and Sussex counties, the population to FTE.FED dentist ratio increased since 2008. The population to dentist ratio has decreased somewhat in Kent County.

The federal government recognizes the importance of having an adequate number of dentists in areas smaller than states or even counties. The federal guidelines governing the shortage area designation program for dentally underserved areas and populations among others indicate: (For an excerpt from the rule governing HPSA designation, see Appendix B.)

- a) Rational areas for the delivery of primary dental care services can be counties, parts of counties, and even neighborhoods within metropolitan areas with a strong identity and a population of 20,000.
- b) In general, an underserved area will have a ratio of 5000:1 or higher to qualify. Note, population to dentist ratio is only one of the criteria used for shortage area designation.
- c) The distance criterion, which defines such areas in Delaware, is roughly 25 miles between centers.

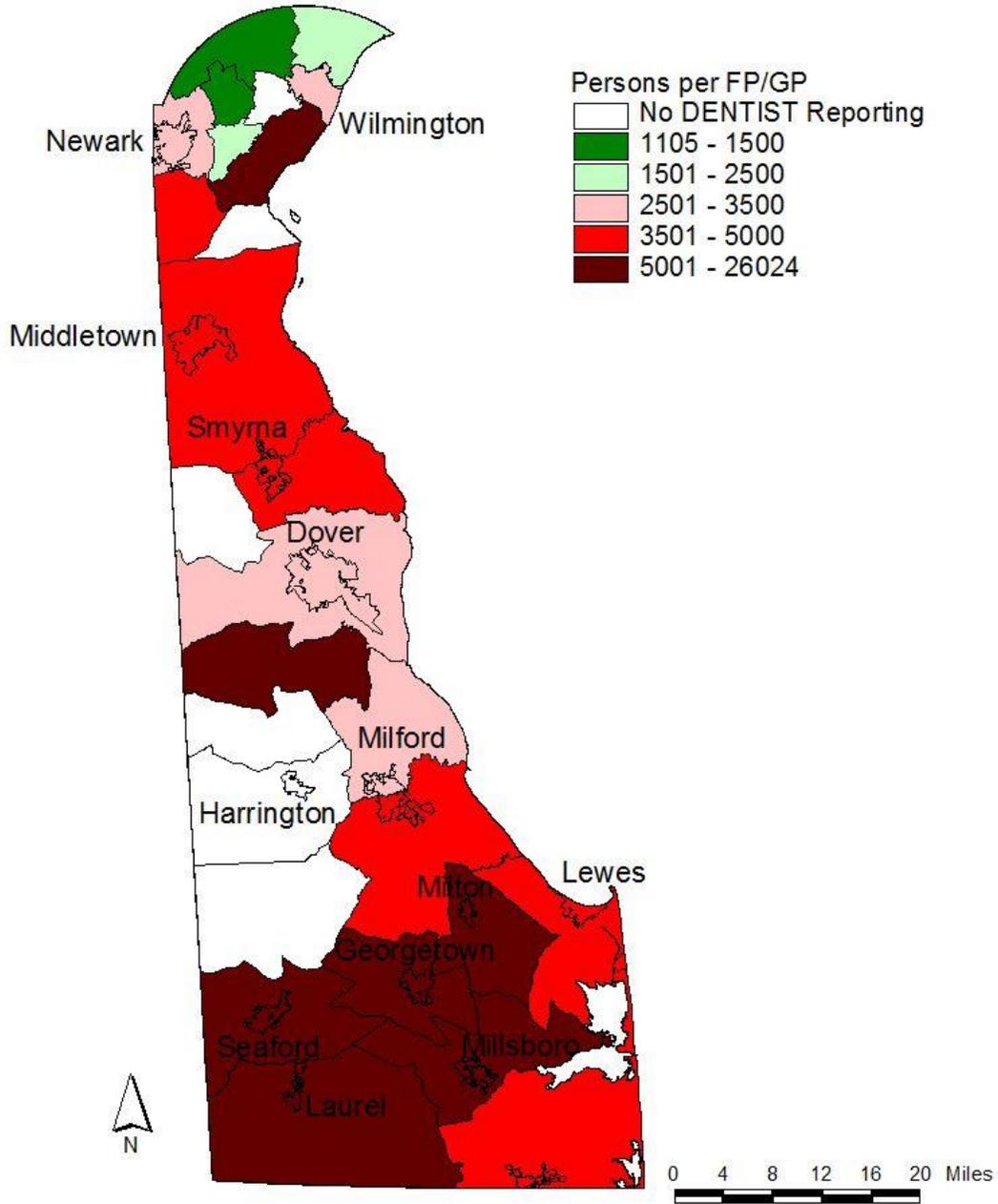
Good examples for such markets in Sussex County would include Lewes/Rehoboth, Georgetown, Milford, Millsboro, and Seaford. In Delaware, these general areas are census county divisions. These work well in Sussex County because of the number of distinct town centers. The distinctions are not quite as clear in Kent County, where Dover and its suburbs are paramount. The Smyrna and Harrington areas are the best examples. The issue is just as murky in New Castle County because of the dominance of population in unincorporated areas. Wilmington, Newark, New Castle, and Middletown are the most distinct areas, although their suburban fringes are not well defined. However, the census county division, of which there are

27 in Delaware, is the most useful for the spatial examination presented in this report. Please note that alternative designations of geographies are possible for the definition of a rational service area and additional criteria are used for HPSA designations.

The spatial distribution of general/pediatric dentists relative to population by census county division (CCD) in Delaware is found in Figure 4.1. The important areas to look at are those in shades of red. Those in burgundy are already too high with too few FTE dentists for the resident population. This map shows that in general New Castle County is well served by dentists, even though they are unevenly distributed across the county. Dentists seem to locate in the northern part of New Castle County. While the distances are short and certainly within the federal 25-mile criteria, there may still be reason for concern as transportation, personal finances and convenience of dentist office hours may be a barrier to access in some areas and populations. The New Castle census county division (in burgundy) is above the 5000:1 ratio indicating a potential dental shortage area. Two areas, Red Lion and Lower Christiana census county division are reporting no dentists. In the case of Red Lion, the population is too small to be considered a rational service area. Lower Christiana's population is above 20,000 but the perceived shortage is potentially alleviated by the surrounding census county divisions. Also, Wilmington seemingly has a sufficient supply of dentists but those dentists also see patients from outside the city. This may leave the minority community with too few dentists to meet their needs.

Kent County has a very different profile. The majority of the dentists practicing in Kent County appear to be focused around Smyrna, Dover, Milford North and Central Kent. In three of the census county divisions (Felton, Harrington and Kenton) there are no dentists reporting. This is unchanged from 2008. With the exception of Dover (the pink area in the middle of Kent County with a population of around 77,000), Smyrna (the red area north of Dover with a population around 23,000), and Central Kent (the burgundy area south of Dover with a population around 25,000), none of the other census county divisions reach a population of 20,000; thus they do not meet the criteria for a rational service area.

**Figure 4.1**  
**Persons per FTE General/Pediatric Dentist in Delaware 2012**  
**by Census County Division**



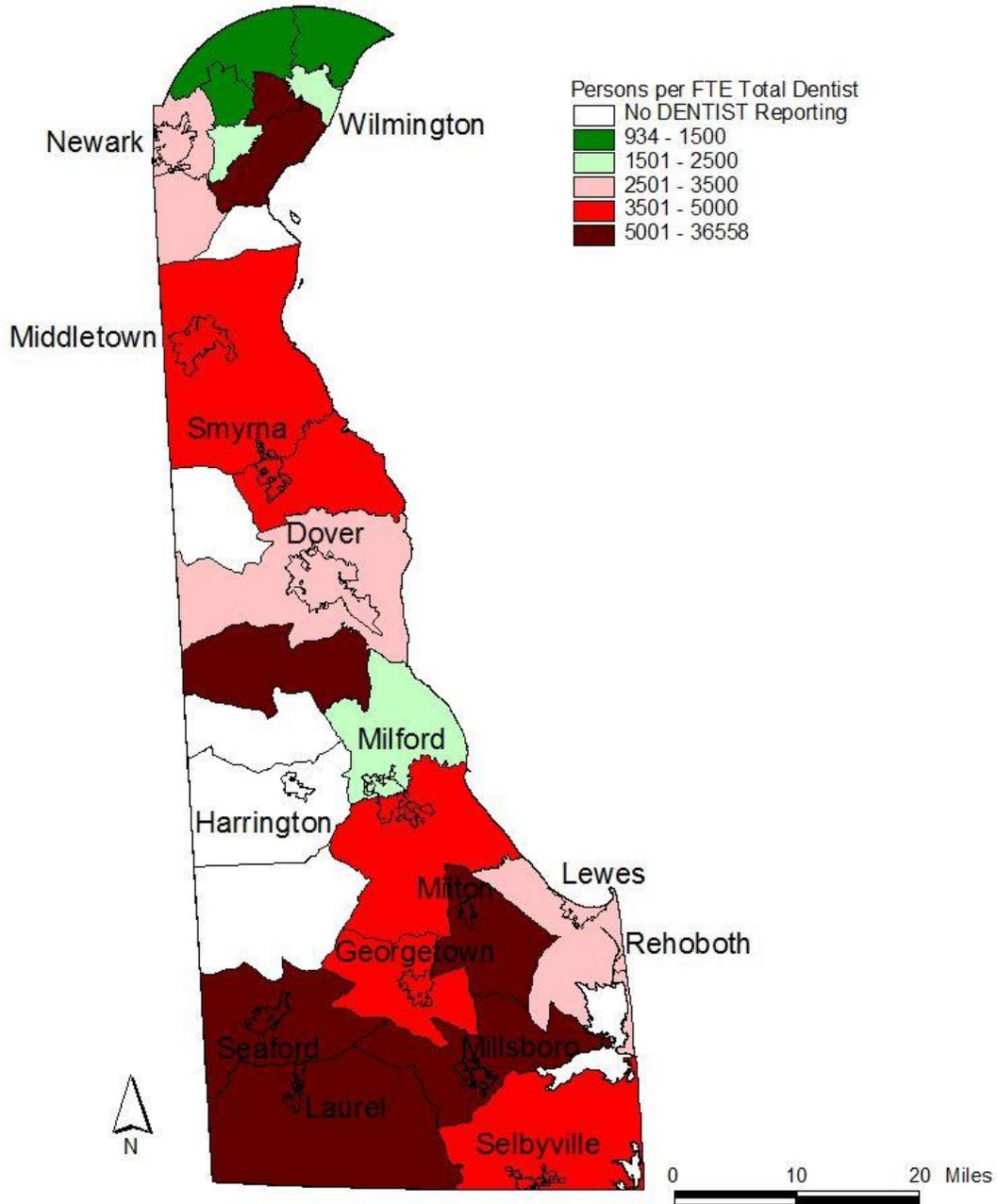
**Source:** Center for Applied Demography & Survey Research  
University of Delaware

---

In Sussex County, one out of nine census county divisions (Bridgeville Greenwood) report no dentists (down from four in 2008). Three of the areas – Milford South, Lewes and Selbyville CCDs- are on the verge of meeting the 5000:1 ratio. Five CCDs – Seaford, Laurel-Delmar, Millsboro, Georgetown, and Milton exceed the federal guideline of 5000:1. Dentists are in short supply throughout Sussex County.

In Figure 4.2, ratios are calculated by pooling the general/pediatric dentists and specialists. However, the conclusions reached by pooling both types of dentists are essentially the same. Improvements in the FTE per population ratio are observable in only five CCDs. These are Brandywine, Wilmington, Lower Christiana, Milford, and Lewes.

**Figure 4.2**  
**Persons per FTE Dentist (General/Pediatric & Specialist) in Delaware 2012**  
**by Census County Division**



**Source:** Center for Applied Demography & Survey Research  
University of Delaware

**Appendix A**  
**Survey Questionnaire**



# DELAWARE DENTIST SURVEY 2012

Commissioned by Delaware Health and Social Services

(ID)

**INSTRUCTIONS**

- **Mail your completed form** in the attached prepaid envelope or mail it to:

University of Delaware  
 CADSR - Graham Hall  
 Newark, DE 19716

- Use either a pen or pencil when completing the questionnaire.
- Follow all "SKIP" instructions after answering a question. If no instructions are provided, continue to the next question.
- If you have any questions, contact the **Center for Applied Demography & Survey Research** at the **University of Delaware** by calling **302-831-3320**.

**NOTICE OF CONFIDENTIALITY** – The information you report on this questionnaire is confidential. It will never be linked to you as a respondent. Responses will be analyzed in an aggregate form only.

**RESPONSES** – The tracking information printed on the form permits follow up contacts to ensure the highest quality data. When you return the completed questionnaire, your name will be deleted from the list and never connected to your answers in any way.

**PURPOSE** – Results from the survey will be used to help state and local governments along with employers and educational institutions to plan for an adequate supply of health professionals in the state.

**SCOPE** – All dentists licensed to practice in the State of Delaware. **Even if you do not practice in Delaware please complete the questionnaire.**

**PARTICIPATION** – Your participation is voluntary. However, your responses are important to ensure adequate health care for Delaware's residents.

If you would like to see a copy of the report based on the survey conducted in 2008, point your browser to:

<http://www.cadsr.udel.edu/searchresultopen.cfm?idd=283>

**1. Are you currently active in clinical dentistry in Delaware? (i.e.: seeing patients and/or doing things necessary for the care of patients):**

- 1  Yes, in training
- 2  Yes, working full time
- 3  Yes, working part time
- 4  No, retired (**GO TO QUESTION 33**)
- 5  No, inactive (**GO TO QUESTION 33**)
- 6  No, other (*specify*): \_\_\_\_\_ (**GO TO QUESTION 33**)
- 7  Not practicing in Delaware (**GO TO QUESTION 33**)

**IF RETIRED, INACTIVE, OTHER, OR NOT PRACTICING IN DELAWARE, PLEASE SKIP TO PAGE 4, QUESTION 33**

**2. On average, how many hours per week do you spend on each of the following activities:**

- \_\_\_\_ Hours - Direct patient care or services and related paperwork
- \_\_\_\_ Hours - Administration and related paperwork
- \_\_\_\_ Hours - Teaching medical courses
- \_\_\_\_ Hours - Research
- \_\_\_\_ Hours - Other (*specify*): \_\_\_\_\_

**3. What is the setting of your primary employment (check all that apply):**

- 1  **Clinical Care Settings:**
  - 1  Practitioner's Office (solo, partner of group practice)
  - 2  Hospital (except federal)
  - 3  Nursing Home
  - 4  Freestanding Clinic (administratively distinct from a hospital, nursing home, etc.)
  - 5  Federally Qualified Health Center
  - 6  Treatment Facility for the Handicapped or Disabled
  - 7  Public Health Dental Clinic
  - 8  Other (*specify*): \_\_\_\_\_
- 2  **Federal Health Facility:**
  - 1  Veterans' Administration (VA hospital)
  - 2  Other (*specify*): \_\_\_\_\_
- 3  **School:**
  - 1  School-of Dentistry
  - 2  Other University or College
  - 3  Other (*specify*): \_\_\_\_\_
- 4  **Miscellaneous Setting:**
  - 1  Dental Research Institution or Establishment
  - 2  Professional Association (e.g. ADA)
  - 3  Manufacturing or Industrial Establishment
  - 4  Other (*specify*): \_\_\_\_\_

**4. What is the form of your primary employment (check all that apply):**

- 1  **Self-Employed:**
  - 1  Solo Practice
  - 2  Partner of Group Practice
  - 3  Professional Corporation
  - 4  Other (specify): \_\_\_\_\_
- 2  **Salaried, Employed by:**
  - 1  Commissioned Associate
  - 2  Partnership of Group Practitioners
  - 3  Other Non-Government Employer (hospital, school, etc.)
  - 4  Federal Government
  - 5  Federally Qualified Health Center
  - 6  State Government
  - 7  Other (specify): \_\_\_\_\_

**5. What are the practice name, facility name, address and zip code for each of the locations in Delaware where you practice?**

1  **Primary Location (most time delivering care)**

\_\_\_\_\_  
Practice Name (example: Bear-Glasgow Dental)

\_\_\_\_\_  
Facility Name (People's Plaza)

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
ZIP code

2  **Secondary Location**

\_\_\_\_\_  
Practice Name (example: Bear-Glasgow Dental)

\_\_\_\_\_  
Facility Name (People's Plaza)

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
ZIP code

3  **Tertiary Location**

\_\_\_\_\_  
Practice Name (example: Bear-Glasgow Dental)

\_\_\_\_\_  
Facility Name (People's Plaza)

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
ZIP code

**6. What percentage of your working hours in Delaware do you spend at each of the locations listed above?**

- 1 \_\_\_\_\_ Percent – Primary Location
- 2 \_\_\_\_\_ Percent – Secondary Location
- 3 \_\_\_\_\_ Percent – Tertiary Location
- \_\_\_\_\_ 100 Percent – Total

**QUESTIONS BELOW PERTAIN TO YOUR PRIMARY LOCATION IN DELAWARE ONLY**

**7. How long have you been practicing at this primary Location?**

\_\_\_\_\_  
Years

**8. What type of site is at the primary location?**

- 1  Private Office
- 2  Clinic
- 3  Hospital
- 4  Other (specify): \_\_\_\_\_

**9. Using the ADA self-designated practice codes found on page 5, please identify your specialty in the space provided below. (include all specialties that apply to you)**

**Specialty Code**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**10. How many dentists (including yourself) currently practice at this site (in case of shared space count only those that are in your practice)**

\_\_\_\_\_  
Number

**11. About how many total patient encounters do you personally have per week?**

\_\_\_\_\_  
Total Number of patients per week

**How many of these patient encounters per week are with patients receiving treatment, how many with those presenting for post-treatment evaluation and how many are hygiene patients?**

_____	_____	_____
Number of patients for treatment	Number for post treatment evaluation	Number of hygiene patients

**12. Do you see pediatric patients at this site?**

- 1  Yes
- 2  No

**If YES, beginning at what age do you see patients?**

\_\_\_\_\_  
Age

**13. Do you offer Saturday and Evening hours?**

- |          |                                |
|----------|--------------------------------|
| Saturday | 1 <input type="checkbox"/> Yes |
|          | 2 <input type="checkbox"/> No  |
| Evening  | 1 <input type="checkbox"/> Yes |
|          | 2 <input type="checkbox"/> No  |

**14. When a patient calls your office to request a routine (non-emergency) appointment, what is the usual elapsed time between the request and the resulting appointment for new and established patients (days)?**

New patients  Days  Not Applicable  
 Existing Patients  Days  Not Applicable

**15. Are you currently accepting new patients?**

1  Yes  
 2  No

**16. If you are NOT accepting new patients or at a time are unable to make emergency appointments, do you provide any type of referral?**

1  Yes  
 2  No

**If YES, to what source(s) do you refer patients? (check all that apply)**

1  Private Practice Dentist  
 2  Hospital Emergency Room  
 3  Other (specify):

**17. Do you participate in dental insurance plans?**

1  Yes  
 2  No

**If YES, indicate which plans you participate in (check all that apply)**

1  Capitation  
 2  Reduced fee for service  
 3  Medicaid  
 4  Traditional insurance with balance billing  
 5  Other (specify):

**18. What are the three biggest problems your practice encounters when dealing with insurance companies?**

1   
 2   
 3

**19. Do you use Certified Dental Technology (CDT) codes when submitting bills and other related paperwork to insurance companies?**

1  Yes  
 2  No  
 3  Not Applicable

**20. How do you currently submit bills and other related paperwork to your patients' insurance companies? (check all that apply)**

1  Mail bills directly to insurance companies  
 2  Electronic Transfer  
 3  Other (specify):

**21. Does this site employ dental hygienists?**

1  Yes  
 2  No

**If YES, please indicate how many hygienists are employed and how many patients in total do all the hygienists see per week:**

Number of hygienists  
  
 Total number of patients seen by all hygienists per week

**22. Does this site employ dental assistants?**

1  Yes  
 2  No

**If YES, indicate the number of dental assistants that are part time (less than 30 hours per week) and full time (30 hours or more per week)**

Number of part time (less than 30 hrs per week) dental assistants  
  
 Number of full time (30 hrs or more per week) dental assistants

**23. Is this dental office fully staffed?**

1  Yes  
 2  No

**If NO, what positions need to be filled?**

1  Hygienist  
 2  Dental Assistant  
 3  Office Staff

**If NOT fully staffed, how long have you actively been trying to fill these positions?**

1  less than 2 months  
 2  2-4 months  
 3  more than 4 months, less than 6 months  
 4  more than 6 months

**24. When was the last time you hired a new employee?**

1  Within the past 6 months  
 2  more than 6 months but fewer than 12 months ago  
 3  more than 12 months but fewer than 24 months ago  
 4  more than 24 months ago

**25. When you hired your last employee, how long did it take you to fill the position?**

1  less than 2 months  
 2  2-4 months  
 3  more than 4 months, less than 6 months  
 4  more than 6 months

**26. In the past, which position has been the most difficult to fill?**

1  Hygienist  
 2  Dental Assistant  
 3  Office Staff

27. Do you perceive a shortage in qualified applicants for dental staff positions?

- 1  Yes
- 2  No

28. Are there people at this site who have the ability to communicate with patients in a language other than English?

- 1  Yes
- 2  No

If YES, which one (check all that apply)?

- 1  Spanish
- 2  French
- 3  Arabic
- 4  Asian
- 5  Sign Language
- 6  Other (specify):

\_\_\_\_\_

29. What percentage of your practice's gross fees are unreimbursed (includes uncollectables, not charity or discounts)? (chose one number)

- 1  0%
- 2  5%
- 3  10%
- 4  15%
- 5  20%
- 6  25%
- 7  30%
- 8  35%
- 9  40%
- 10  45%
- 11  50%

30. Do you provide charity care (no fee expected) inside your office?

- 1  Yes
- 2  No

31. Do you provide charity care (no fee expected) outside your office?

- 1  Yes
- 2  No

32. Do you offer flexible or installment payment plans, which would allow patients to pay for services over a period of time?

- 1  Yes
- 2  No

33. Do you expect to be active in clinical dentistry in Delaware 5 years from now?

- 1  Yes
- 2  No
- 3  Unsure

34. State (or country if applicable) of residence at time of high school graduation.

\_\_\_\_\_  
State (country if applicable)

35. From which dental school did you graduate?

\_\_\_\_\_  
Name of dental school

\_\_\_\_\_  
Year (YYYY)

\_\_\_\_\_  
State (country if applicable)

36. Did you complete a dental residency?

- 1  Yes
- 2  No

If YES, please indicate the states where you did your residency

\_\_\_\_\_  
State

\_\_\_\_\_  
State

\_\_\_\_\_  
State

37. If you completed a dental residency, what type of a dental residency was it (check all that apply)?

- 1  General Practice Residency (GPR)
- 2  Advanced Education in General Dentistry (AEGD)
- 3  Specialized Dental Residency (specify):

\_\_\_\_\_

4  Military Service

\_\_\_\_\_

5  Other (specify):

\_\_\_\_\_

38. In which states are you currently licensed to practice dentistry?

\_\_\_\_\_  
State

\_\_\_\_\_  
State

\_\_\_\_\_  
State

39. What is your race?

- 1  Caucasian or White
- 2  African American or Black
- 3  Native American or Alaskan
- 4  Asian or Pacific Islander
- 5  Multi-Racial

6  Other (specify):

\_\_\_\_\_

40. Are you of Hispanic origin?

- 1  Yes
- 2  No

41. Gender?

- 1  Male
- 2  Female

42. Date of Birth?

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Month (MM) Day (DD) Year (YYYY)

43. Do you have a Delaware business license?

- 1  Yes
- 2  No

44. If you have any comments, please feel free to include them in the space provided below.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for completing the Delaware Dentist Survey 2012.

Return the completed form to:  
University of Delaware, CADSR, Graham Hall,  
Newark, DE 19716

**ADA Self-Designated Practice Codes**

(Listed alphabetically by specialty name)

<b>CBMX PROS</b>	-	prosthodontics/maxillofacial prosthetic
<b>DG</b>	-	general dentistry
<b>DPH</b>	-	dental public health
<b>ENDO</b>	-	endodontics
<b>GRP</b>	-	general practice residency
<b>MX PROS</b>	-	maxillofacial prosthetic
<b>OMP</b>	-	oral and maxillofacial pathology
<b>OMS</b>	-	oral and maxillofacial surgery
<b>ORTHO</b>	-	orthodontics and dentofacial orthopedics
<b>PED DENT</b>	-	pediatric dentistry
<b>PERIO</b>	-	periodontics
<b>PROS</b>	-	prosthodontics

**Appendix B**  
**Dental Health Professional Shortage Area Designation Criteria**  
**(excerpt)**

## **Dental HPSA Designation Criteria (relevant excerpts)**

(<http://bhpr.hrsa.gov/shortage/hpsas/designationcriteria/dentalhpsacriteria.html>)

### **Part I -- Geographic Areas**

#### *A. Criteria.*

A geographic area will be designated as having a dental professional shortage if the following three criteria are met:

1. The area is a rational area for the delivery of dental services.
2. One of the following conditions prevails in the area:
  - (a) The area has a population to full-time-equivalent dentist ratio of at least 5,000:1, or
  - (b) The area has a population to full-time-equivalent dentist ratio of less than 5,000:1 but greater than 4,000:1 and has unusually high needs for dental services or insufficient capacity of existing dental providers.
3. Dental professionals in contiguous areas are overutilized, excessively distant, or inaccessible to the population of the area under consideration.

#### *B. Methodology.*

In determining whether an area meets the criteria established by paragraph A of this part, the following methodology will be used:

##### *1. Rational Area for the Delivery of Dental Services.*

- (a) The following areas will be considered rational areas for the delivery of dental health services:
  - (i) A county, or a group of several contiguous counties whose population centers are within 40 minutes travel time of each other.
  - (ii) A portion of a county (or an area made up of portions of more than one county) whose population, because of topography, market or transportation patterns, distinctive population characteristics, or other factors, has limited access to contiguous area resources, as measured generally by a travel time of greater than 40 minutes to such resources.
  - (iii) Established neighborhoods and communities within metropolitan areas which display a strong self-identity (as indicated by a homogenous socioeconomic or demographic structure and/or a traditional of interaction or intradependency), have limited interaction with contiguous areas, and which, in general, have a minimum population of 20,000.

(b) The following distances will be used as guidelines in determining distances corresponding to 40 minutes travel time:

(i) Under normal conditions with primary roads available: 25 miles.

(ii) In mountainous terrain or in areas with only secondary roads available: 20 miles.

(iii) In flat terrain or in areas connected by interstate highways: 30 miles.

Within inner portions of metropolitan areas, information on the public transportation system will be used to determine the distance corresponding to 40 minutes travel time.

## *2. Population Count.*

The population count use will be the total permanent resident civilian population of the area, excluding inmates of institutions, with the following adjustments:

(a) Seasonal residents, i.e., those who maintain a residence in the area but inhabit it for only 2 to 8 months per year, may be included but must be weighted in proportion to the fraction of the year they are present in the area.

(b) Migratory workers and their families may be included in an area's population using the following formula: Effective migrant contribution to population = (fraction of year migrants are present in area) x (average daily number of migrants during portion of year that migrants are present).

## *3. Counting of Dental Practitioners.*

(a) All non-Federal dentists providing patient care will be counted, except in those areas where it is shown that specialists (those dentists not in general practice or pedodontics) are serving a larger area and are not addressing the general dental care needs of the area under consideration.

(b) Full-time equivalent (FTE) figures will be used to reflect productivity differences among dental practices based on the age of the dentists, the number of auxiliaries employed, and the number of hours worked per week. In general, the number of FTE dentists will be computed using weights obtained from the matrix in Table 1, which is based on the productivity of dentists at various ages, with different numbers of auxiliaries, as compared with the average productivity of all dentists. For the purposes of these determinations, an auxiliary is defined as any non-dentist staff employed by the dentist to assist in operation of the practice.

**TABLE 1 - EQUIVALENCY WEIGHTS, BY AGE AND NUMBER OF AUXILIARIES**

	<55	55-59	60-64	65+
<b>No auxiliaries</b>	0.8	0.7	0.6	0.5
<b>One auxiliary</b>	1.0	0.9	0.8	0.7
<b>Two auxiliaries</b>	1.2	1.0	1.0	0.8
<b>Three auxiliaries</b>	1.4	1.2	1.0	1.0
<b>Four auxiliaries</b>	1.5	1.5	1.3	1.2

If information on the number of auxiliaries employed by the dentist is not available, Table 2 will be used to compute the number of full-time equivalent dentists.

**TABLE 2 - EQUIVALENCY WEIGHTS, BY AGE**

	<55	55-59	60-64	65+
<b>Equivalency Weights</b>	1.2	0.9	0.8	0.6

The number of FTE dentists within a particular age group (or age/auxiliary group) will be obtained by multiplying the number of dentists within that group by its corresponding equivalency weight. The total supply of FTE dentists within an area is then computed as the sum of those dentists within each age (or age/auxiliary) group.

(c) The equivalency weights specified in tables 1 and 2 assume that dentists within a particular group are working full-time (40 hours per week). Where appropriate data are available, adjusted equivalency figures for dentists who are semi-retired, who operate a reduced practice due to infirmity or other limiting conditions, or who are available to the population of an area only on a part-time basis will be used to reflect the reduced availability of these dentists. In computing these equivalency figures, every 4 hours (or 1/2 day) spent in the dental practice will be counted as 0.1 FTE except that each dentist working more than 40 hours a week will be counted as 1.0. The count obtained for a particular age group of dentists will then be multiplied by the appropriate equivalency weight from table 1 or 2 to obtain a full-time equivalent figure for dentists within that particular age or age/auxiliary category.

#### *4. Determination of Unusually High Needs for Dental Services.*

An area will be considered as having unusually high needs for dental services if at least one of the following criteria is met:

(a) More than 20% of the population (or of all households) has incomes below the poverty level.

(b) The majority of the area's population does not have a fluoridated water supply.

*5. Determination of Insufficient Capacity of Existing Dental Care Providers.*

An area's existing dental care providers will be considered to have insufficient capacity if at least two of the following criteria are met:

(a) More than 5,000 visits per year per FTE dentist serving the area.

(b) Unusually long waits for appointments for routine dental services (i.e., more than 6 weeks).

(c) A substantial proportion (2/3 or more) of the area's dentists do not accept new patients.

*6. Contiguous Area Considerations.*

Dental professional(s) in areas contiguous to an area being considered for designation will be considered excessively distant, overutilized or inaccessible to the population of the area under consideration if one of the following conditions prevails in each contiguous area:

(a) Dental professional(s) in the contiguous area are more than 40 minutes travel time from the center of the area being considered for designation (measured in accordance with Paragraph B.1.(b) of this part).

(b) Contiguous area population-to-(FTE) dentist ratios are in excess of 3,000:1, indicating that resources in contiguous areas cannot be expected to help alleviate the shortage situation in the area being considered for designation.

(c) Dental professional(s) in the contiguous area are inaccessible to the population of the area under consideration because of specified access barriers, such as:

(i) Significant differences between the demographic (or socioeconomic) characteristics of the area under consideration and those of the contiguous area, indicating that the population of the area under consideration may be effectively isolated from nearby resources. Such isolation could be indicated, for example, by an unusually high proportion of non-English-speaking persons.

(ii) A lack of economic access to contiguous area resources, particularly where a very high proportion of the population of the area under consideration is poor (i.e., where more than 20 percent of the population or of the households have incomes below the poverty level) and Medicaid-covered or public dental services are not available in the contiguous area.

## **Part II -- Population Groups**

### *A. Criteria.*

1. In general, specified population groups within particular geographic areas will be designated as having a shortage of dental care professional(s) if the following three criteria are met:
  - a. The area in which they reside is rational for the delivery of dental care services, as defined in paragraph B.1 of part I of this appendix.
  - b. Access barriers prevent the population group from use of the area's dental providers.
  - c. The ratio (R) of the number of persons in the population group to the number of dentists practicing in the area and serving the population group is at least 4,000:1.
2. Indians and Alaska Natives will be considered for designation as having shortages of dental professional(s) as follows:
  - (a) Groups of members of Indian tribes (as defined in section 4(d) of Pub. L. 94 - 437, the Indian Health Care Improvement Act of 1976) are automatically designated.
  - (b) Other groups of Indians or Alaska Natives (as defined in section 4(c) of Pub. L. 94 - 437) will be designated if the general criteria in paragraph 1 are met.

*RELEVANT EXCERPTS FROM 42 CODE OF FEDERAL REGULATIONS (CFR), CHAPTER 1, PART 5, Appendix B (October 1, 1993, pp. 34-48)  
Criteria for Designation of Areas Having Shortages of Dental Professionals [45 FR 76000, Nov. 17, 1980, as amended at 54 FR 8738, Mar. 2, 1989; 57 FR 2480, Jan. 22, 1992]*

## **Center for Applied Demography & Survey Research**

**College of Arts and Sciences**  
**University of Delaware**  
287 Graham Hall  
Newark, DE 19716

phone: **302-831-8406**      fax: **302-831-6434**

**[www.cadsr.udel.edu](http://www.cadsr.udel.edu)**

Center for Applied Demography & Survey Research (CADSR) is a project - oriented, policy analysis and survey research center. The Center's primary mission is to ensure that the best possible data and information on important public issues are developed and made available to members of the College, its clients, and, most importantly, to the policy-makers who affect the way we all live and work in Delaware. This mission is accomplished in four different ways: by acting as a clearinghouse for large data sets supplied by local, state, regional, and federal agencies; by maintaining an active survey research capability; by developing and designing custom databases of text, graphical information (including both raster and vector data), drawn from client files; and by using an array of information system technologies.



### **An Equal Opportunity/Affirmative Action Employer**

The University of Delaware is committed to assuring equal opportunity to all persons and does not discriminate on the basis of race, color, gender, religion, ancestry, national origin, sexual preference, veteran status, age, or disability in its educational programs, activities, admissions, or employment practices as required by Title IX of the Educational Amendments of 1972, Title VI of the Civil Rights Act of 1964, the Rehabilitation Act of 1973, the Americans with Disabilities Act, other applicable statutes, and University policy. Inquiries concerning these statutes and information regarding campus accessibility and Title VI should be referred to the Affirmative Action Officer, 305 Hullihen Hall, 302/831-2835 (voice), 302/831-4552(TDD).