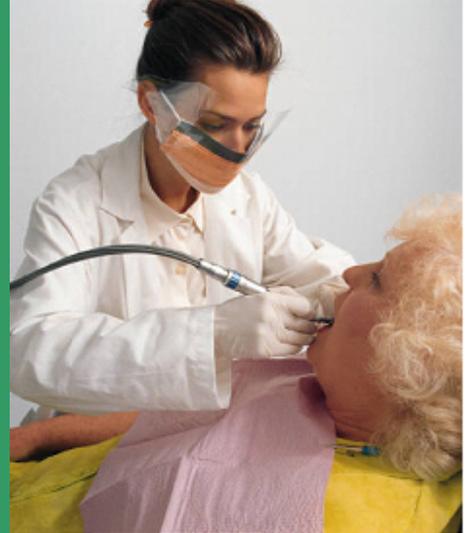


# Dentists in Delaware 2008

by Tibor Tóth, Ph.D.

Center for Applied Demography &  
Survey Research  
University of Delaware



**Dentists in Delaware  
2008**

prepared for

**Delaware Department of Health and Social Services  
Division of Public Health**

by

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## TABLE OF CONTENTS

	<b>Page</b>
List of Figures .....	v
Summary.....	1
Overview.....	3
Demographics .....	7
Practice Characteristics .....	19
Spatial Distribution .....	37
APPENDIX.....	42

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## LIST OF FIGURES

<b>Figure</b>	<b>Page</b>
1 Delaware Dentists 2008 Delaware and Counties .....	5
2 Delaware Population to Dentist Ratios 1998 and 2008 Delaware and Counties .....	6
2.1 Gender of Delaware’s Dentists 2008 Delaware and Counties .....	7
2.2 Race of Delaware’s Dentists 2008 Delaware and Counties .....	8
2.3 Hispanic Origin of Delaware’s Dentists 2008 Delaware and Counties .....	9
2.4 Age of Delaware’s Dentists 2008 Delaware and Counties .....	10
2.5 Age Distribution of Delaware’s Dentists Delaware and Counties .....	10
2.6 Number of Delaware’s Dentists 2008 Active in Five Years Delaware and Co. ....	11
2.7 Percentage of Delaware’s Dentists 2008 Active in Five Years Delaware and Co. ....	12
2.8 State of High School Graduation of Delaware’s Dentists 2008 Delaware and Co. ....	13
2.9 State of Dental School Attendance of Delaware’s Dentists 2008 Delaware and Co. ....	14
2.10 State of Dental Residency Program of Delaware’s Dentists 2008 Delaware and Co. ....	15
2.11 Dental Residency Program Completion by Delaware’s Dentists 2008 Delaware and Co. ....	16
2.12 Type of Dental Residency Program by Delaware’s Dentists 2008 Delaware and Co. ....	16
2.13 Delaware’s Dental Specialists 2008 State and Counties .....	18
3.1 Type of Practice of Delaware’s Dentists 2008 Delaware and Counties.....	19
3.2 Average Number of Delaware’s Dentists at the Primary Site 2008 Delaware and Co. ....	20
3.3 Average Weekly Patient Encounters of Delaware’s Dentists Delaware and Counties.....	21
3.4 Use of Non-Dentist Resources by Delaware’s Dentists 2008 Delaware and Counties.....	22
3.5 Languages Other than English Spoken at Delaware Dentists’ Practices 2008 Delaware and Counties.....	23
3.6 Saturday and/or Evening Hours of Delaware’s Dentists 2008 Delaware and Counties ....	24
3.7 Delaware’s Dentists Accepting New Patients 2008 Delaware and Counties .....	25
3.8 Average Wait Time for New and Established Patients for Delaware’s Dentists 2008 Delaware and Counties .....	26
3.9 Delaware’s Dentists Serving Pediatric Patients 2008 Delaware and Counties .....	27
3.10 Age of Youngest Pediatric Patients Treated by Delaware’s Dentists 2008 Delaware and Counties .....	28
3.11 Participation in Medicaid by Delaware’s Dentists 2008 Delaware and Counties .....	29
3.12 Dental Insurance Plan Participation by Delaware’s Dentists 2008 Delaware and Co. ....	30
3.13 Delaware’s Dentists Providing Flexible Payment Plans 2008 Delaware and Counties .....	31
3.14 Delaware’s Dentists Providing Charity Care In/Out of Office 2008 Delaware and Co. ...	32

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

<b>Figure</b>	<b>Page</b>
3.15 Percent of Gross Fees Unreimbursed of Delaware’s Dentists 2008 Delaware and Co. ....	33
3.16 Delaware’s Dentists Indicating Fully Staffed Offices 2008 Delaware and Counties .....	34
3.17 Delaware’s Dentists Indicating Shortage of Qualified Dental Staff 2008 Delaware and Counties .....	35
3.18 Most Difficult Positions to Fill Identified by Delaware’s Dentists 2008 Delaware and Counties .....	36
4.1 Persons per FTE General/Family/Pediatric Dentist in Delaware 2008 by Census County Division.....	38
4.2 Persons per FTE Dentist in Delaware 2008 by Census County Division .....	39

## SUMMARY

The Survey of Delaware Dentists 2008 follows its predecessors fielded in 2005 and 1998. It is intended to provide information that is needed to guide policy-makers in the State of Delaware. The results of the survey indicate that Delaware has 331 dentists working in general or family practice and 65 dentists in specialties. In addition to the above findings, the following can be drawn from the data.

- The population to dentist ratio improved from 3,100 persons per full-time equivalent dentist in 2005 to 2,300 persons per full time equivalent in 2008.
- Overall the number of active dentists has increased since 2005. The number of general dentists increased from 261 to 331, while the number of specialists has decreased from 71 to 65 in 2008.
- While the number of general dentists has increased and the persons per dentist ratios have improved since 2005, there are Census County Divisions in Delaware where the persons per dentists are high (above 5,001 persons per general dentists) - Wilmington, Lower Christiana and Central Kent, or where no general dentist are reported - Red Lion, Kenton, Felton, Harrington, Bridgeville-Greenwood, Milton, Millsboro and Laurel Delmar.
- The full time equivalent general dentist count increased from 275 in 2005 to 379 in 2008 and decreased for specialists from 56 in 2005 to 50 in 2008.
- If entire counties are considered rational service areas, then neither one of the three counties would be considered an underserved area. However, the distribution of dentists within counties is uneven. This is especially the case in Sussex County.
- There may be a need to encourage more African American and Spanish speaking dentists and/or staff, as the population becomes more diverse, particularly in Sussex County. However, the dentist community has become more diverse since both 1998 and 2005.
- More than 20% of Delaware's dentists will either not be active in five years or are at this point unsure.

- There are distinct patterns in both the state in which the dentist graduated from high school and dental school, and the state in which he/she currently practice. Similar patterns are found with respect to the state where they completed residency programs.
- More than 97% of general dentists and 95% of specialists statewide are accepting new patients.
- General dentists in Kent and Sussex counties see more patients per week than their colleagues in New Castle County. Weekly patient encounters for general dentists in Kent County are 146 patients per week and 102 patients per week in Sussex County while general dentists in New Castle County see 93 patients per week.
- Waiting times for new patients seeking an appointment with a general dentist are more than twice as long in Sussex (18 days) and Kent (16 days) counties compared with New Castle County (6 days). Patients seeking an appointment with a specialist for a first time in Kent or Sussex counties will have to wait 22 days before seeing a specialist as new patients. The wait for an appointment with a specialist in New Castle County for a new patient is 9 days.
- Most dentists in Delaware participate in dental insurance plans, offer flexible payment plans, and provide charity care.
- Medicaid is accepted by 46% of general dentists and 79% of specialist.
- Almost all dentists use non-dentist 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 dentists are more likely to offer such hours than are specialists. Such hours are more likely to be found in New Castle County.

## 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. The objective was to identify underserved areas and to understand any existing or developing trends that could impact the supply of dental services. In 2008, the survey was fielded again replicating much of the instrument used in 2005. 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 448 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, 438 dentists had been contacted. Responses were received from 271 dentists. Of those responding, 228 dentists (84%) were practicing dentistry either full or part-time.

Delaware currently (March 2008) has licensed 448 dentists to practice dentistry in Delaware. Of those, 376 have a Delaware address, but it 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 with an active practice in Delaware is approximately 396. This total is used to produce all estimates presented throughout this report.<sup>1</sup>

This report focuses on all dentists. This population includes dentists practicing general dentistry and pediatric dentistry along with specialists in nine areas. Using the survey data received to date, it is estimated that today there are 331 dentists working in general or family practice and 65 dentists practicing in one of the nine specialties. In the balance of this report, most responses will be reported for these two major groups

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<sup>1</sup> On occasion, the data in the tables may not add to the total of 396 dentists because some information was not reported.

Not all dentists practice full-time. To give a more realistic view and to allow for year to year comparisons, further adjustments are required. First, the full-time equivalent (FTE) number of dentists was calculated. A dentist who was engaged in delivering care directly to patients 40 or more hours per week was defined as a full-time dentist. Anything less than 40 hours was considered as less than full-time. For each four hours less than 40 hours, 0.1 FTE was deducted. Anything more than 40 hours was considered only as full-time.<sup>2</sup> In other words, a dentist delivering 60 hours per week of care was still counted as one full-time equivalent dentist.

Second, the federal government also applies a productivity factor in determining full-time equivalency. They increase the FTE according to the number of dental hygienists and dental assistants employed.<sup>3</sup> Further, they begin to decrease the FTE as the dentist reaches the age of 55. 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).

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 number of full-time equivalent number of those who practice general dentistry.

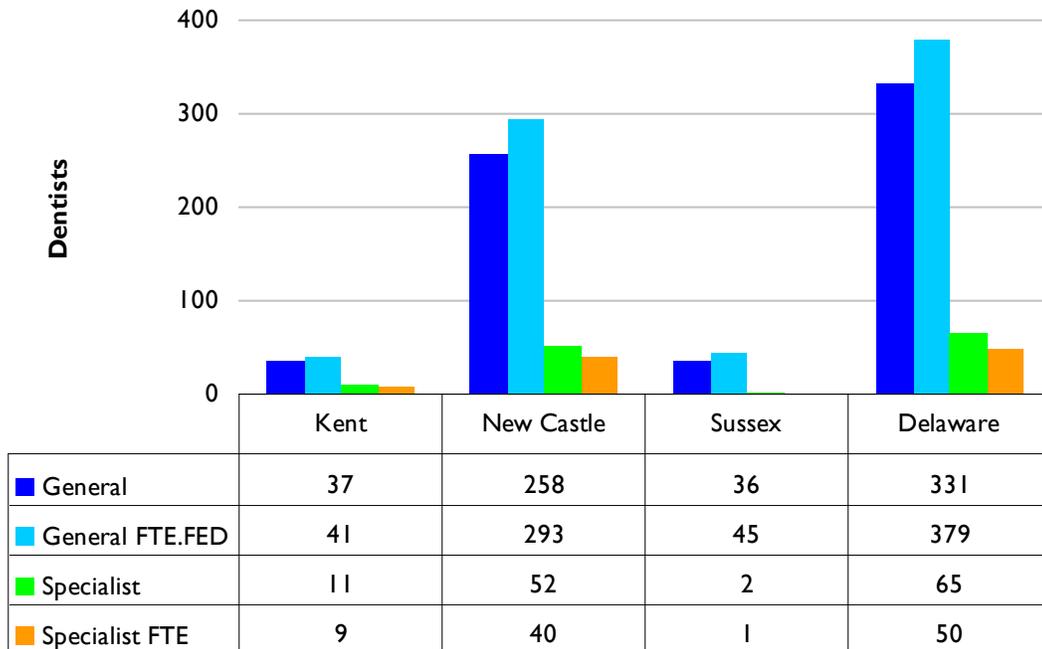
Figure 1.1 summarizes the current number of dentists practicing in Delaware by county of practice. The number of active dentists is provided in Figure 1.1 along with estimates of full-time equivalents. The category labeled **General** includes only those dentists practicing general/family dentistry or pediatric dentistry; and the FTE.FED is calculated using the federal guidelines. 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.

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<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.

<sup>3</sup> For some sites it was impossible to determine if the reported auxiliaries were supporting multiple dentists. An alternative calculation suggests 3 less FTE dentists statewide.

**Figure 1.1**  
**Delaware Dentists 2008**  
**Delaware and Counties**



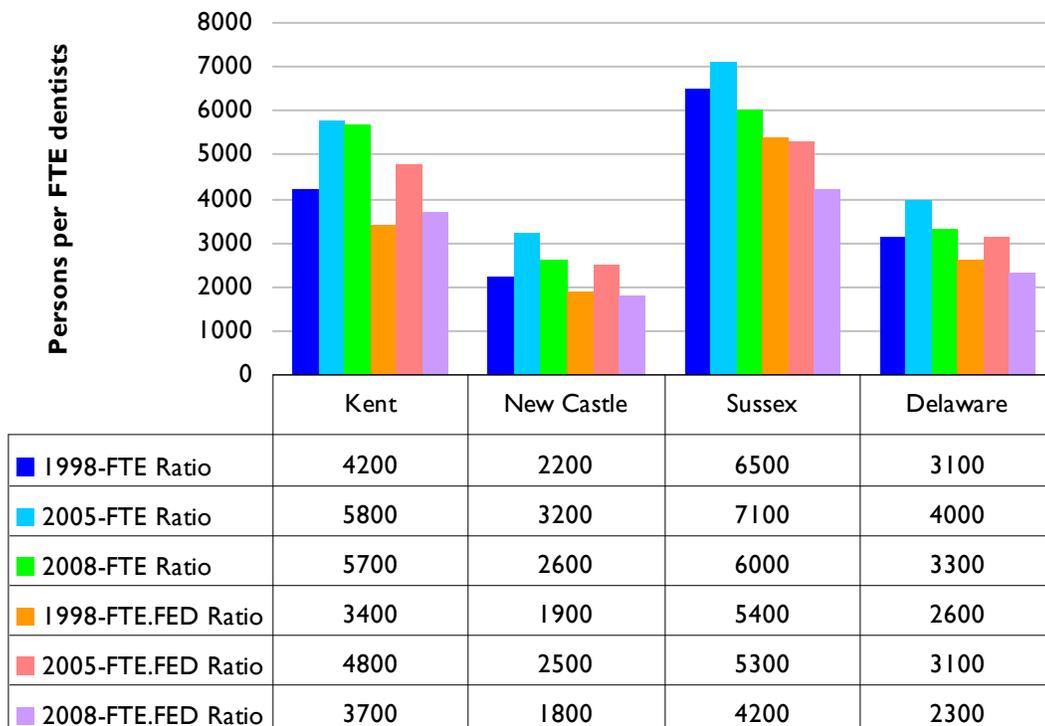
**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

Given Delaware's 2008 population of 873,772<sup>4</sup>, there are about 2,300 persons served by each FTE dentist, which is an improvement of 800 persons per FTE dentist since 2005. (**Fed Ratio** in Figure 1.2). **These ratios reflect only those dentists in general/family or pediatric practice.** For the three counties, the estimates are 3,700 persons for each FTE dentist in Kent County (down from 4,800 in 2005), 1,800 for New Castle County (down from 2,500 in 2005), and 4,200 for Sussex County (down from 5,300 in 2005). The federal government defines a dentally underserved area as one with more than 5,000 persons per FTE dentist.

In 2008, none of the state's three counties falls into underserved area designation. The population per FTE dentist has improved in all counties. However, the situation in Sussex

County as measured by the FTE ratio warrants some attention. The data labeled simply **FTE Ratio** represents full-time equivalencies without making the federal productivity adjustments for age and auxiliaries. Only the hours of direct patient care are considered. In general, both ratios are smaller than in 2005 because the number of dentists increased faster than the population. The data items labeled as **FTE.FED Ratio** represent full-time equivalencies with adjusted ratios for age and auxiliaries.

**Figure 1.2**  
**Delaware Population to Dentist Ratios 1998 and 2008 Delaware and Counties**



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

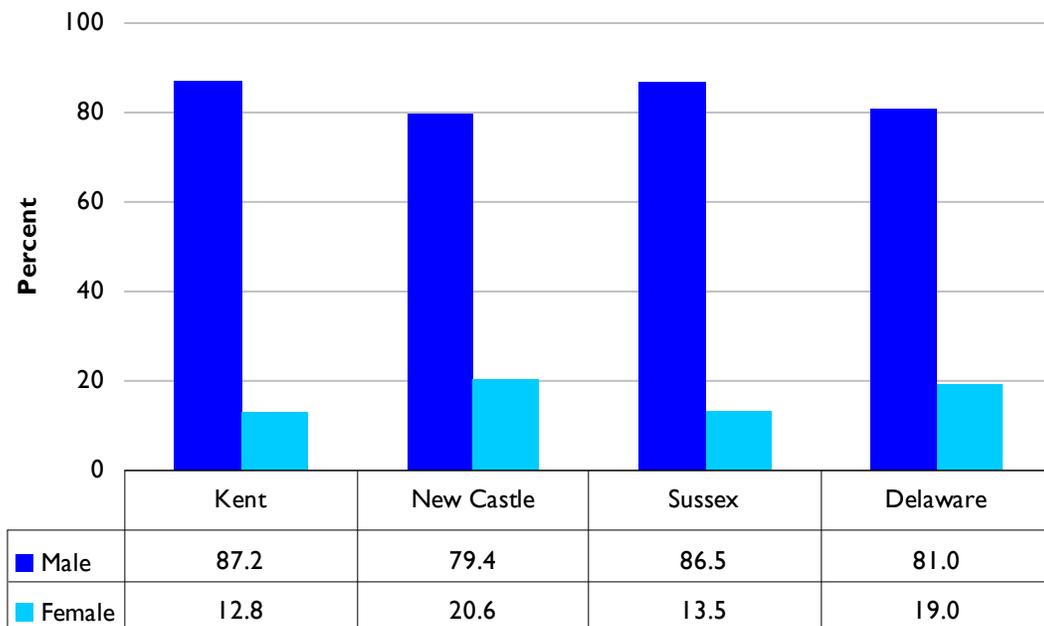
In the remainder of this report, different aspects of dentists practicing in Delaware and his/her practices will be examined. Overall the objective is to touch on those attributes that affect the availability of dental services.

<sup>4</sup> Annual Population Projections, Delaware Population Consortium, October 23, 2007, v 2007.0, Delaware

## Demographics

The topic of demographic diversity within the dental community may seem irrelevant. However, some patients may feel more comfortable with and are able to communicate better with dentists having particular characteristics.

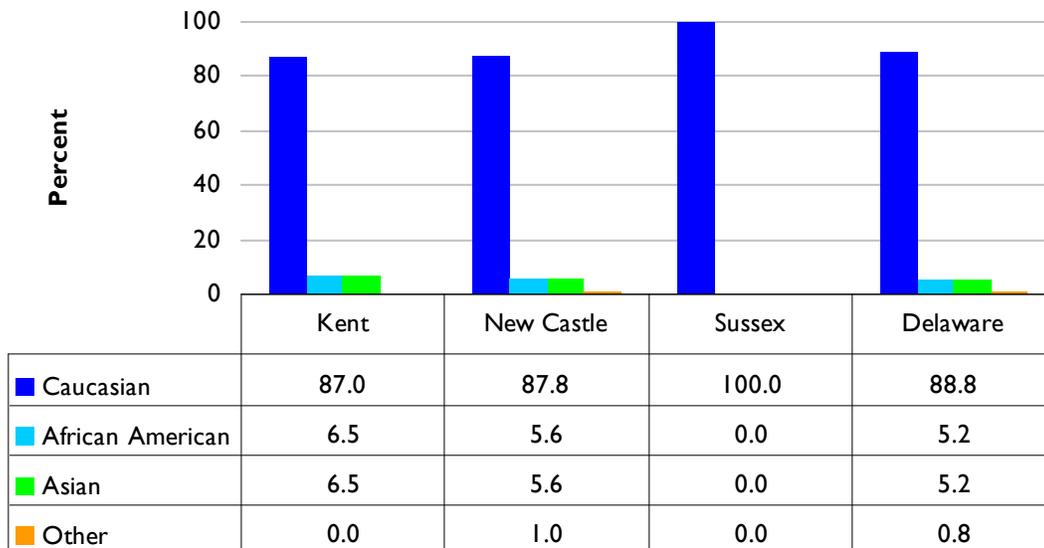
**Figure 2.1**  
**Gender of Delaware’s Dentists 2008**  
**Delaware and Counties**



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

The dental community in Delaware is 81% male (Figure 2.1). There is however some variation among the counties. Kent County has about 6% points fewer female dentists than the state overall. The proportion of female dentists in New Castle County is significantly higher than that found in either of the two lower counties.

**Figure 2.2**  
**Race of Delaware's Dentists 2008**  
**Delaware and Counties**



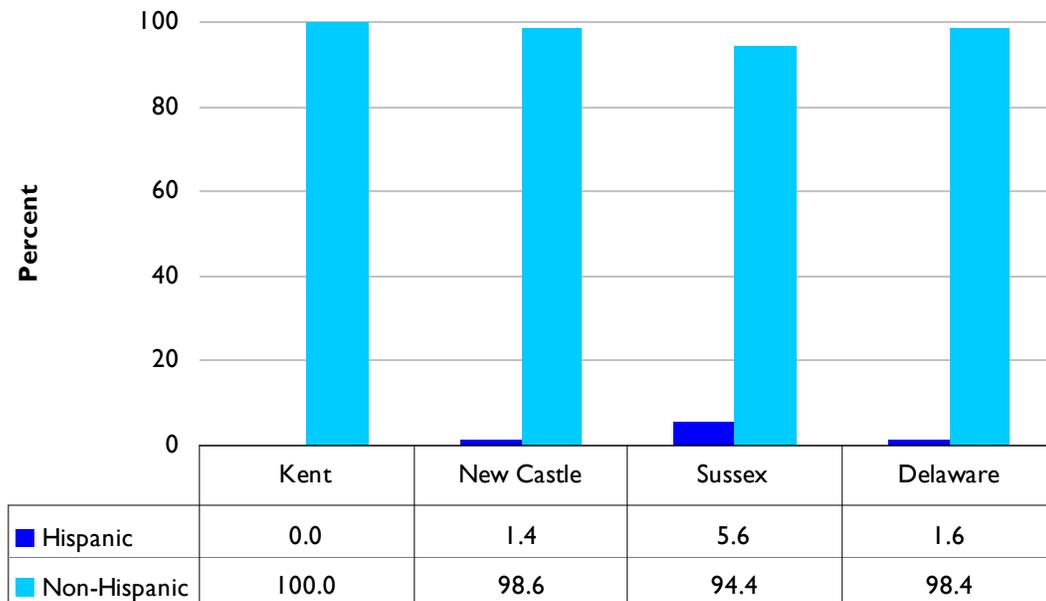
**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

The racial distribution of dentists by county is shown in Figure 2.2. Probably the most interesting aspect of this table is the lower proportion of African American dentists relative to the proportion of African Americans in Delaware. African Americans account for more than 17% of Delaware's population, yet only 5.2% of Delaware's dentists are African American. However, since the last survey in 2005, the percentage of African American dentists has increased some (from 4.9% in 2005 to 5.2% in 2008). An increase has also been seen in the proportion of Asian dentists. In 2005, their proportion was so low that they had to be reported under the "Other" category. This year their proportion stands at 5.2%.

Hispanic origin is of particular interest in Delaware given the rapid growth of that population in the 1990s, particularly in Sussex County. The distribution of dentists by Hispanic Origin is found in Figure 2.3. In 2008, Delaware's population is approximately 6% Hispanic while the dentist population is about 2%. The highest proportion of Hispanic dentists is found in Sussex County (5.6%) where nearly 7% of the population is now Hispanic. Overall, just under 49% (an increase from 44% in 2005) of the practice sites in the state had someone available who

could speak another language, and Spanish was the language reported most often. That proportion was highest in New Castle County at 52% and also high Sussex County where 45% of the sites reported speaking another language.

**Figure 2.3**  
**Hispanic Origin of Delaware’s Dentists 2008 Delaware and Counties**

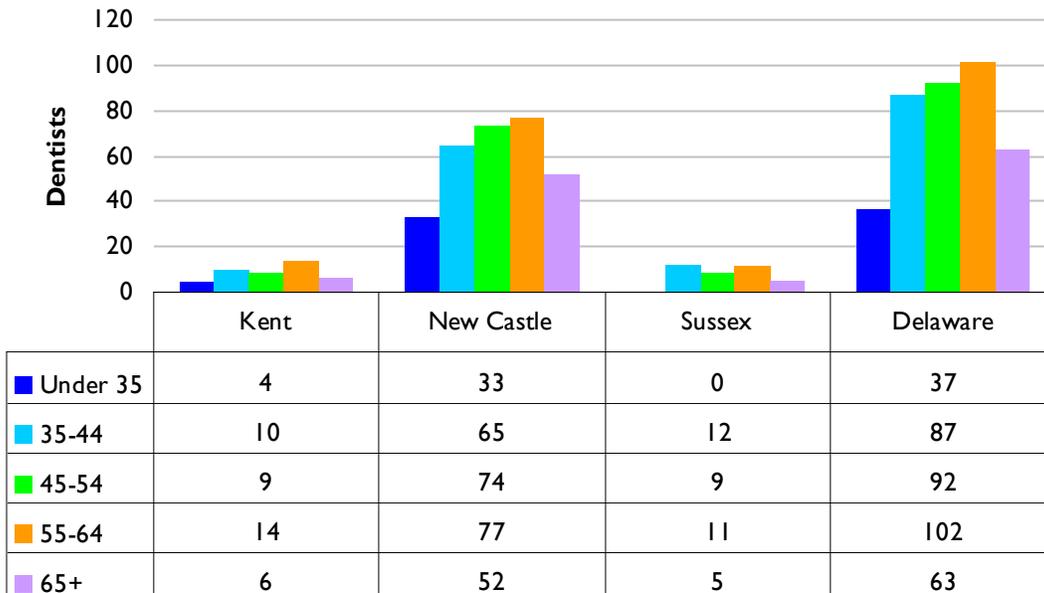


**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

The age of dentists is a factor in their availability. In calculating the productivity of dentists, the federal government begins reducing the full-time equivalency after age 55. The number of dentists by age and county is shown in Figure 2.4 followed by the age distribution in Figure 2.5.

While in 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. On the contrary, none of Sussex County’s dentists report to be younger than 35. However, the proportion of the next age group (35-44 years) is the highest in Sussex County. Today, New Castle County has the highest proportion of dentists in the 65+ age group who are less likely to remain active.

**Figure 2.4**  
**Age of Delaware's Dentists 2008 Delaware and Counties**



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

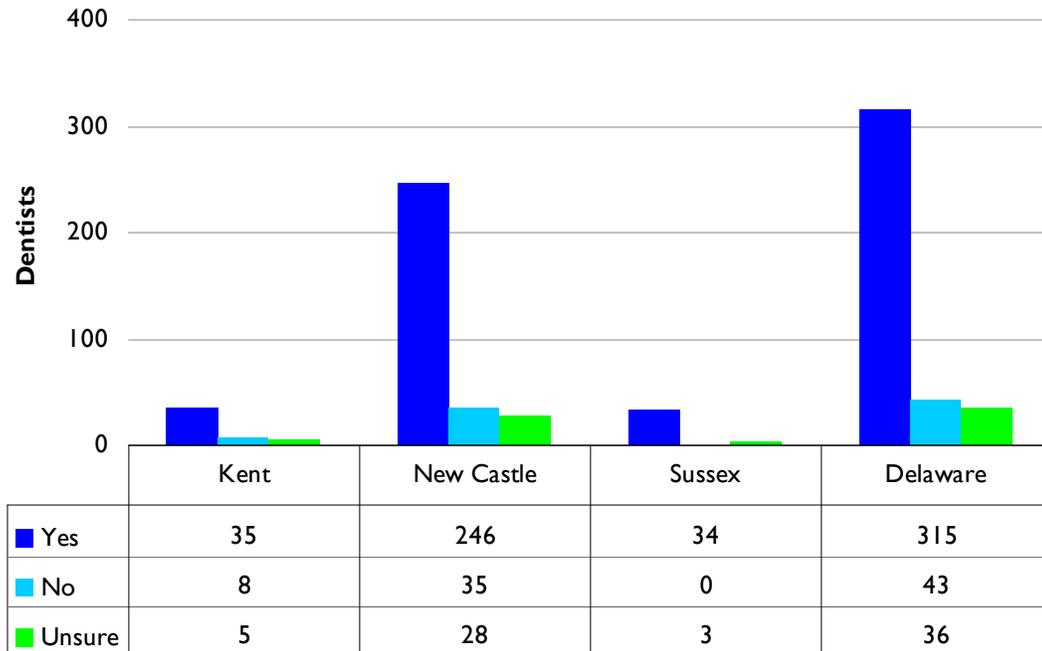
**Figure 2.5**  
**Age Distribution of Delaware's Dentists Delaware and Counties**



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

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. New Castle County has the highest number of dentists indicating being unsure or definitely planning to be inactive in five years.

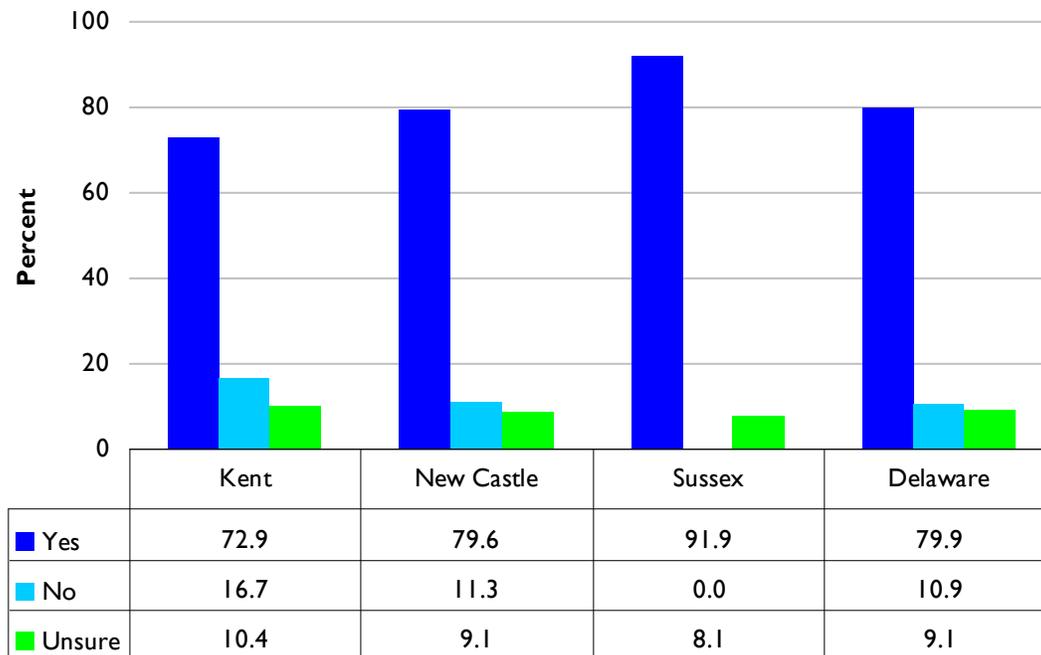
**Figure 2.6**  
**Number of Delaware's Dentists 2008 Active in Five Years**  
**Delaware and Counties**



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

New Castle County dentists are the least sure about their plans (just like in 2005 – not pictured here) with more than 10% (Figure 2.7) expressing some reservation. On the other hand, Sussex County's dentists are least likely to indicate that they will not be active (0%) or that they are unsure (8%) about practicing five years from today. Kent County has the highest proportion of dentists (27%) indicating being unsure or definitely not practicing in five years.

**Figure 2.7**  
**Percentage of Delaware's Dentists 2008 Active in Five Years**  
**Delaware and Counties**



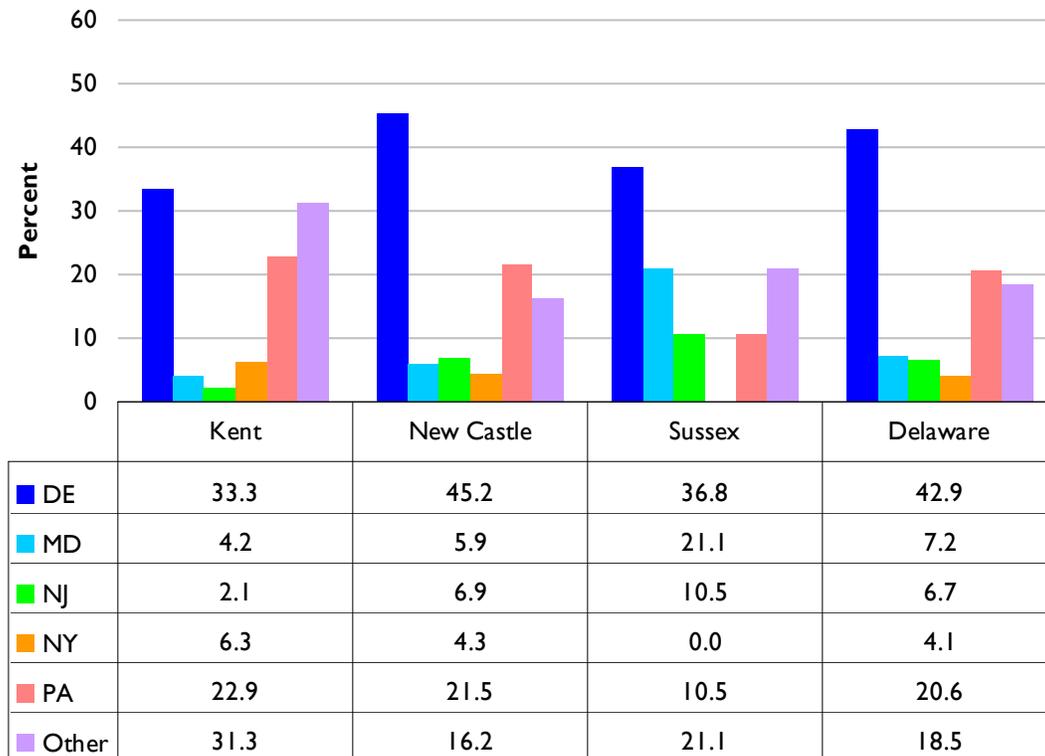
**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

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. The way this choice is made determines the adequacy of the supply for serving Delaware's 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?

In Figure 2.8, the distribution of the state of the dentists' high school graduation is shown. The first interesting aspect of this figure is that 82% of Delaware's dentists grew up in the region and approximately 43% (down from 52% in 2005) are from Delaware. There also appears a different orientation by county as well. Dentists who grew up in Maryland are more likely to locate in Sussex County. In contrast, dentists from Pennsylvania are more oriented

toward New Castle or Kent counties. 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 can hypothetically contribute to this finding.

**Figure 2.8**  
**State of High School Graduation of Delaware’s Dentists 2008**  
**Delaware and Counties**

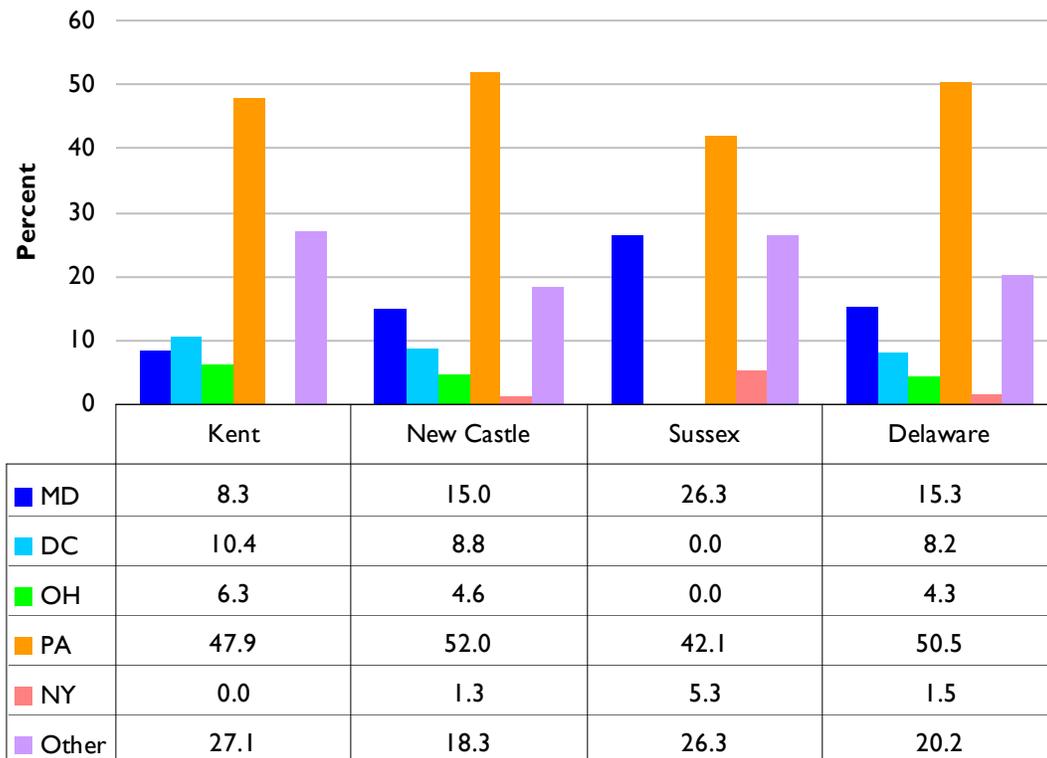


**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

Half of Delaware dentists come from dental schools in Pennsylvania (see Figure 2.9). The distribution among the other states is not all that different among the counties. The same cannot be said for the state of dental residency (see Figure 2.10). Kent County dentists exhibit a very different pattern. Fifty-eight percent of Kent County’s dentists did their residency in the region and 25% did their residency in Delaware, much less than in the other counties. In contrast, dentists in New Castle and Sussex counties are much more alike with respect to this attribute.

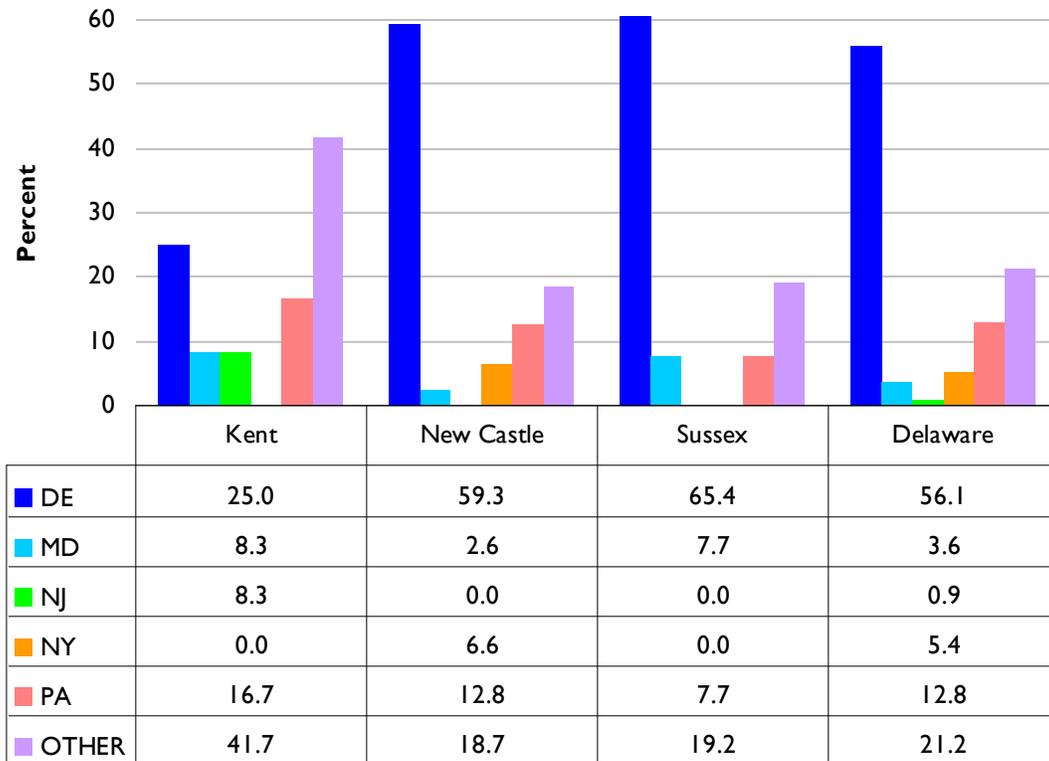
There clearly is a geographic orientation exhibited by these responses. It is plausible to suggest that similar patterns might emerge with the state of the dentist’s residency. In fact, that relationship might be even stronger. However, all of these findings also reflect the fact that most people go 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. More than eighty percent 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 for Delaware.

**Figure 2.9**  
**State of Dental School Attendance of Delaware’s Dentists 2008**  
**Delaware and Counties**



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

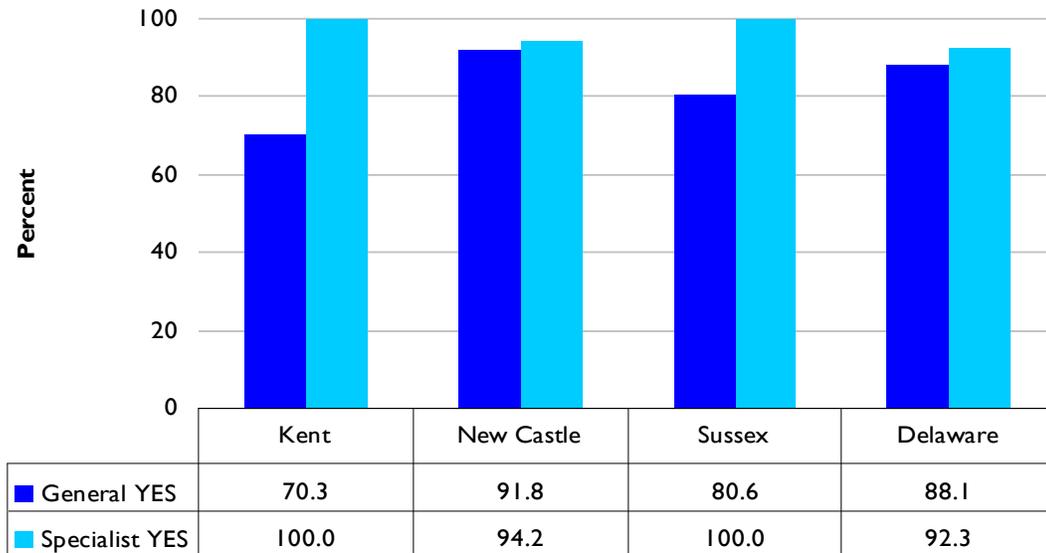
**Figure 2.10**  
**State of Dental Residency Program of Delaware’s Dentists 2008**  
**Delaware and Counties**



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

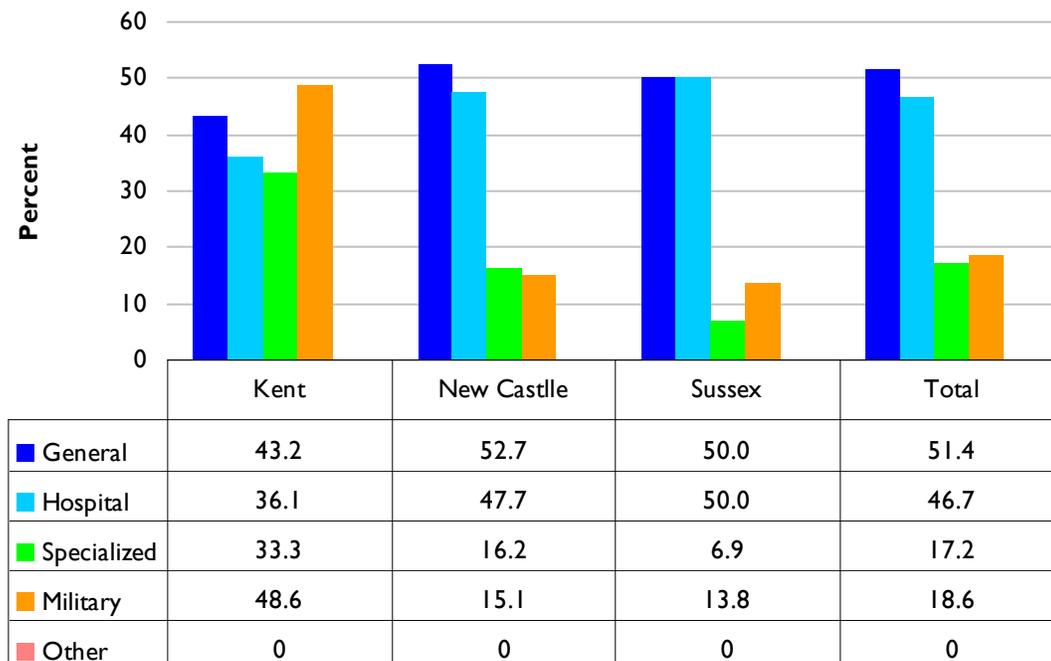
Finally, the respondents provided other details about their dental residency program. Not all dentists have completed a residency. This might seem inaccurate since Delaware law requires that licensees have done so. However, there are two exceptions. Dentists that have practiced for three years elsewhere may be granted a waiver. In addition, there was a waiver for those that practiced dentistry for two years while on active military duty. That explains in part, the 88% completion rate among non-specialists reported in Figure 2.11.

**Figure 2.11**  
**Dental Residency Program Completion by Delaware's Dentists 2008**  
**Delaware and County**



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

**Figure 2.12**  
**Type of Dental Residency Program by Delaware's Dentists 2008**  
**Delaware and County**



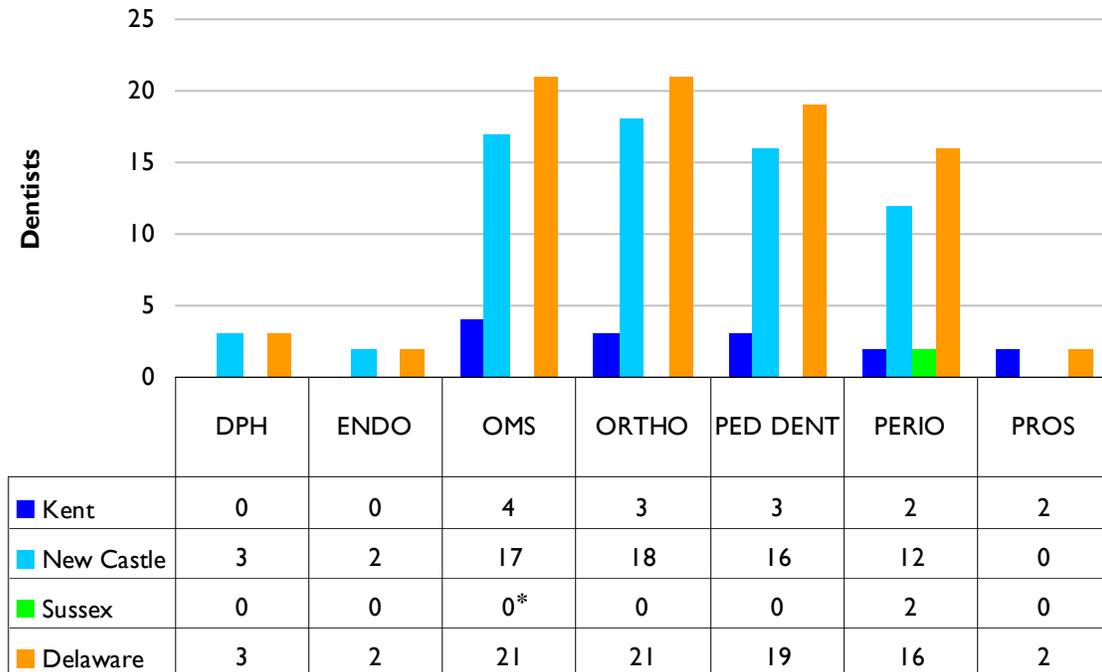
**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

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The types of residency programs respondents reported having completed are found in Figure 2.12. The totals will not add to 100% because some dentists reported more than one type of residency. This was particularly true for those with military service. The distribution of types of residency programs dentists reported having completed by county is different in several ways. First, fewer dentists in Kent County reported doing a general/family 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's dentists are least likely (7%) to indicate having completed a specialized residency program compared to 33% in Kent and 15% in New Castle County.

The number of dentists by specialty, excluding those engaged in general dentistry, is found in Figure 2.13. (Those with a specialty in pediatric dentistry are shown here even though they are included in the general category for FTE calculation purposes). While the figure indicates that there are no oral surgeons in Sussex County, the Delaware Dental Society reports that there are three oral surgeons in that county. The discrepancy between the Dental Society's records and the numbers reported here are attributed to survey response from Sussex County. Please note, this difference does not change the magnitude difference between the number of oral surgeons in New Castle County, Sussex and Kent Counties – oral surgeons are more likely to locate in New Castle County than in the 2 lower counties of Delaware.

**Figure 2.13**  
**Delaware’s Dental Specialists 2008 Delaware and Counties**



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

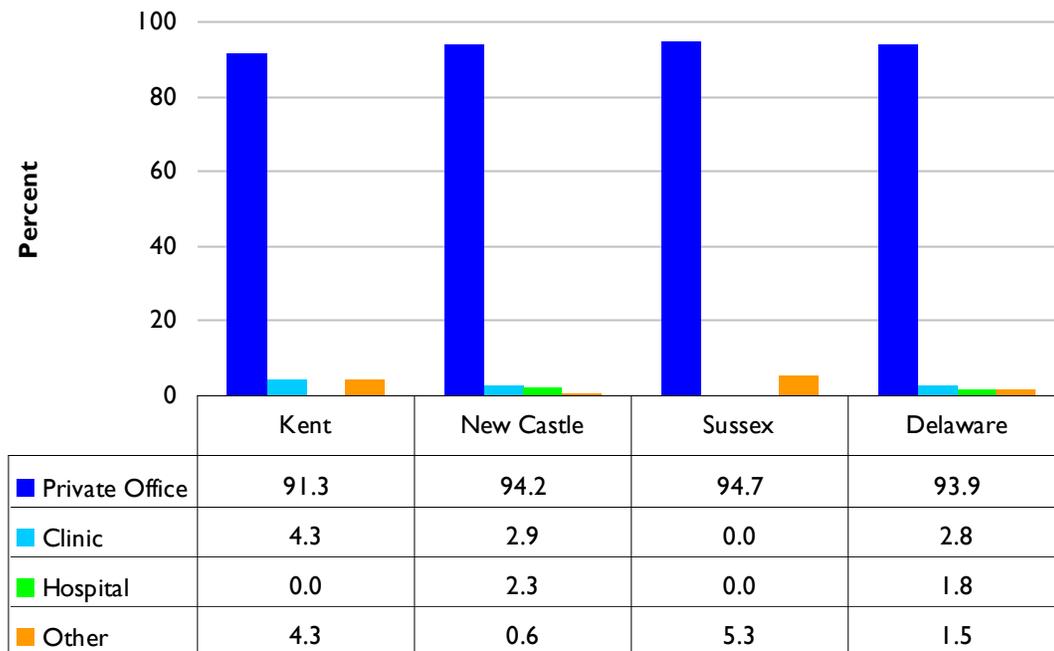
**\* Important:** While the figure indicates that there are no oral surgeons in Sussex County, the Delaware Dental Society reports that there are three oral surgeons in that county. The discrepancy between the Dental Society’s records and the numbers reported here are attributed to survey response from Sussex County. Please note, this difference does not change the magnitude difference between the number of oral surgeons in New Castle County, Sussex and Kent Counties.

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

## Practice Characteristics

In this section, the practice characteristics of the 396 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’s Dentists 2008**  
**Delaware and Counties**

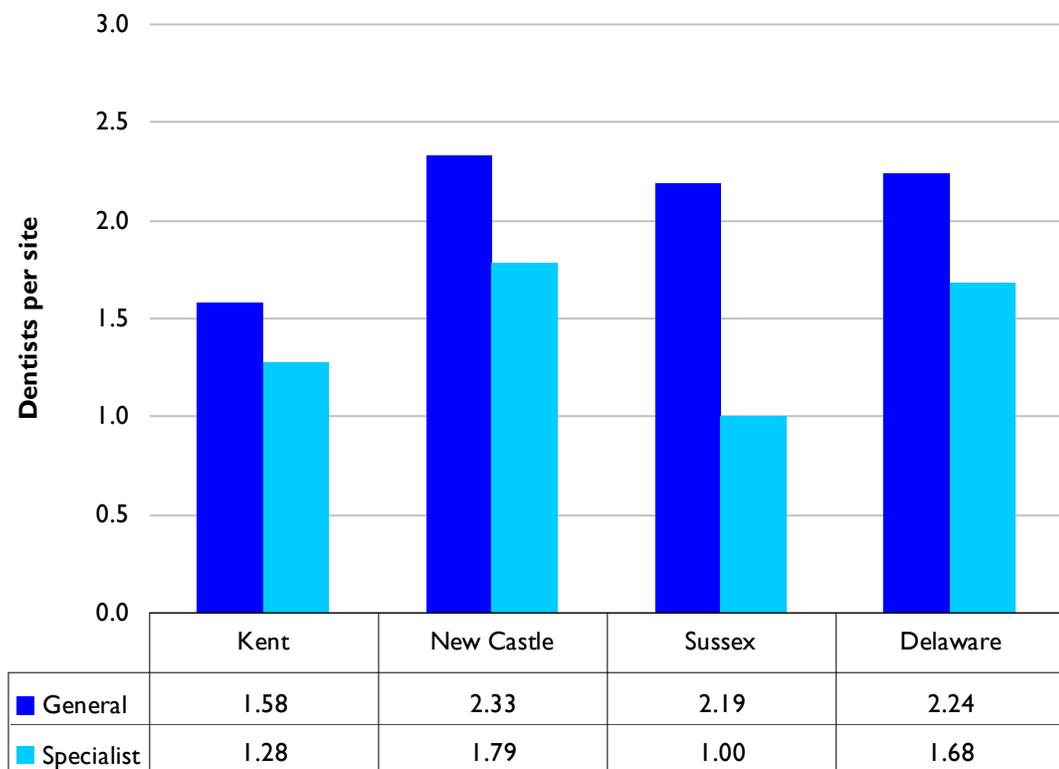


**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

Respondents were asked about the setting of their primary employment. Those responses are summarized in Figure 3.1. The overwhelming majority of dentists were operating in private practitioner’s 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 Sussex County when compared to New Castle County.

Dentist practices are generally small, at least in terms of the number of dentists located at the practice site (see Figure 3.2). In general, one would expect to find one or two dentists in most practices. Forty-one percent of the practices in Kent County have more than one dentist. That percentage is higher in New Castle County (52%) and even higher in Sussex County (65%, this was 42% in 2005).

**Figure 3.2**  
**Average Number of Delaware's Dentists at the Primary Site 2008 Delaware and Counties**



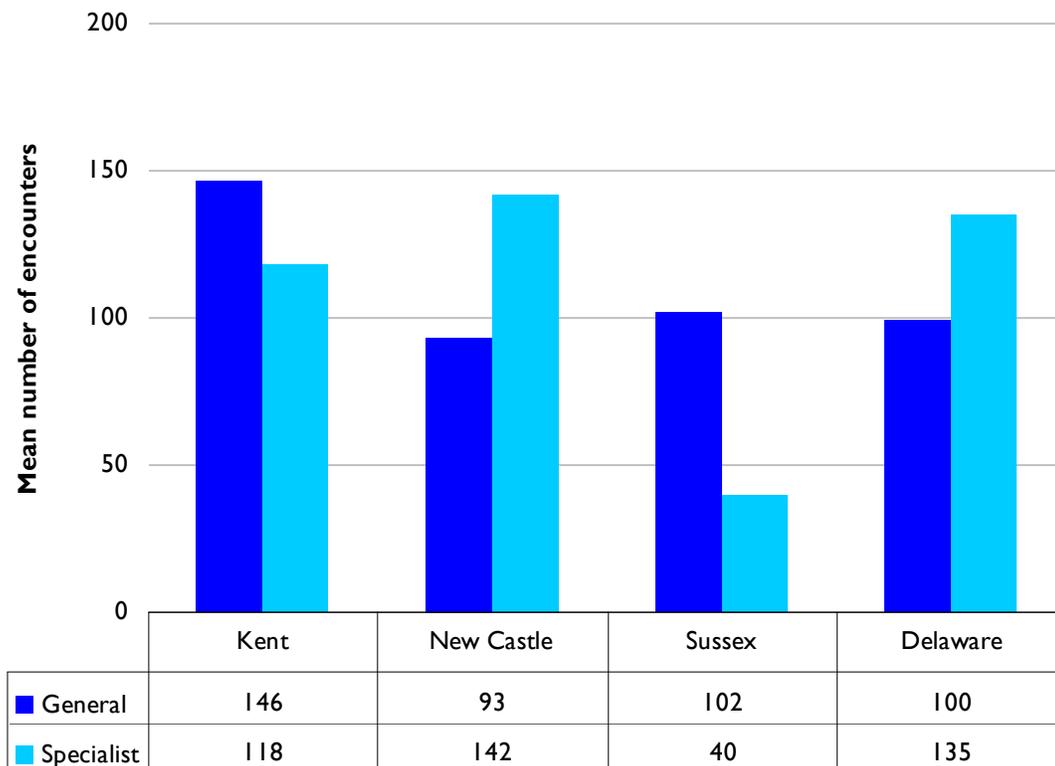
**Source:** Center for Applied Demography & Survey Research  
University of Delaware

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, for post treatment evaluation and number of hygiene patients. For all of these, the results basically mirror the results for number of patient encounters found in Figure 3.3.

On average, the typical dentist sees more than one hundred patients per week. One of the more interesting features of Figure 3.3 is that the patient encounters are higher in Kent and Sussex counties (this was also true in 2005) where the dentist to population ratio is more than double that found in New Castle County (see Figure 1.2). This information also suggests that dentists operating in Kent and Sussex counties are more likely to be operating closer to their maximum capacity for service delivery.

The same relationships do not hold for specialists. Specialists seem to have smaller practices in Kent and Sussex counties, at least relative to New Castle County. However, this result is probably also related to differences in the types of dental specialties in each county.

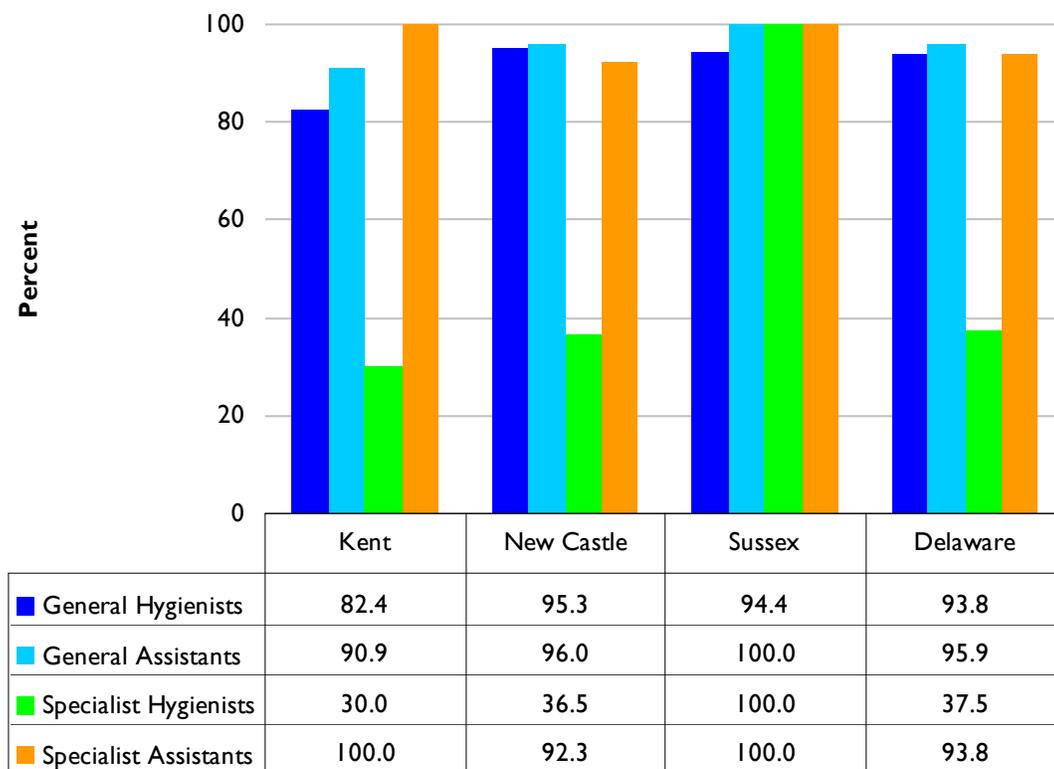
**Figure 3.3**  
**Average Weekly Patient Encounters of Delaware's Dentists**  
**Delaware and Counties**



**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 non-dentist resources are used to provide services that might 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’s Dentists 2008**  
**Delaware and Counties**



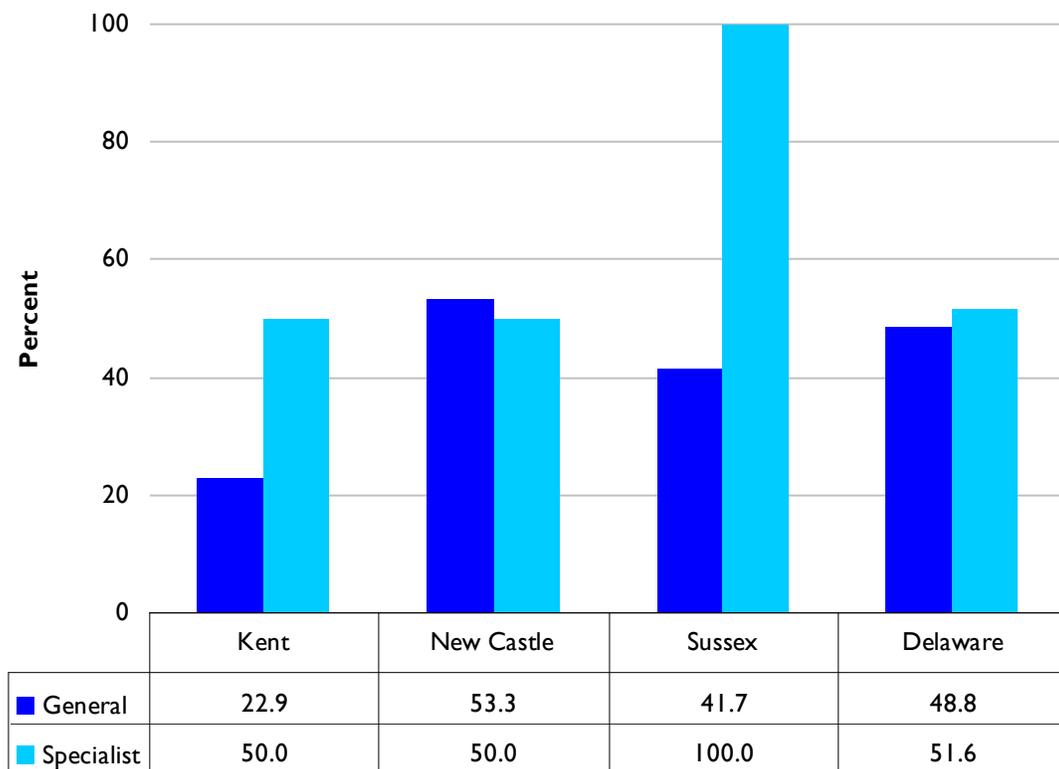
**Source:** Center for Applied Demography & Survey Research  
University of Delaware

More than 90% of those practicing general dentistry in New Castle and Sussex counties use both dental assistants and hygienists to provide the necessary services expected of a general practitioner. In fact there is little, if any, difference in the distributions between those counties. The result for Kent County in both categories suggests a lower utilization rate by general

dentists for both categories of employees. However, Kent County’s utilization rate of non dentist resources has increased considerably since 2005.

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 dentistry.

**Figure 3.5**  
**Languages Other than English Spoken at Delaware Dentists’ Practices 2008**  
**Delaware and Counties**



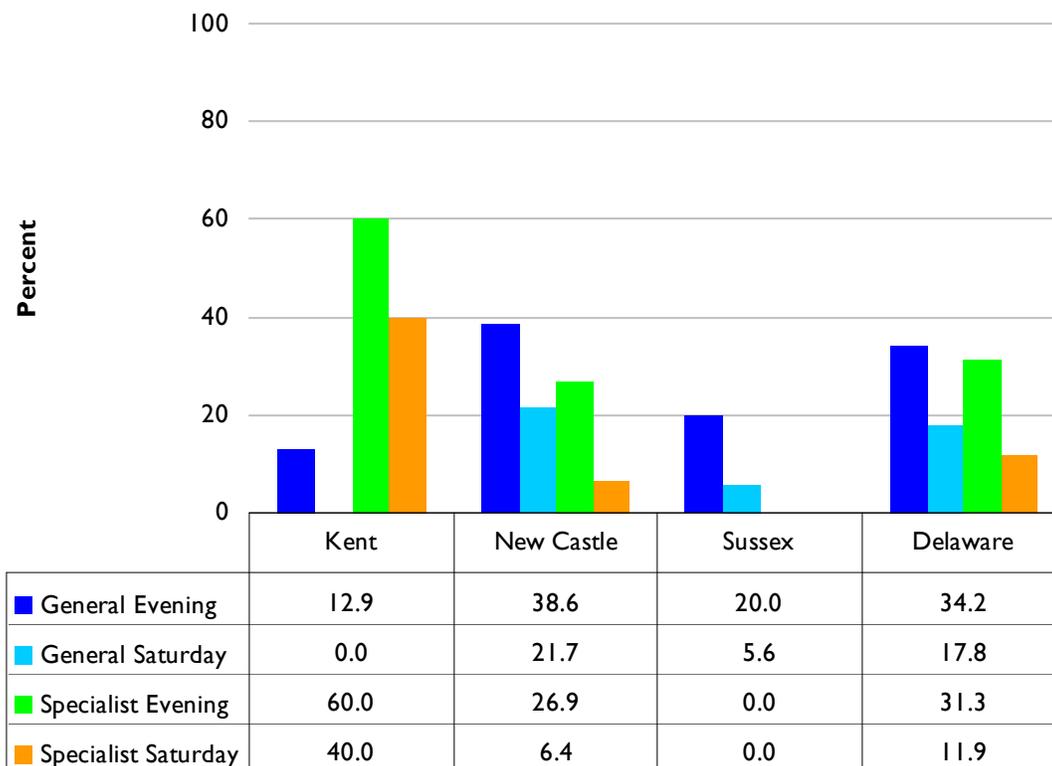
**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

The population of Delaware is becoming more diverse. For example, there has been a significant increase in the number of Hispanic Delawareans, particularly in Sussex County. 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 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.

Across the state, fifty percent of general dentists and dental specialists have the capability of dealing in a language other than English. Spanish was the most frequently mentioned language. Differences exist between counties. Sussex County has the largest need, and dentists in Sussex have reacted to that need particularly among specialists. Kent County has a much smaller population of Hispanics and their growth rate is much lower than that observed in Sussex County. For that reason, far fewer general dentists provide that capability.

**Figure 3.6**  
**Saturday and/or Evening Hours of Delaware's Dentists 2008**  
**Delaware and Counties**

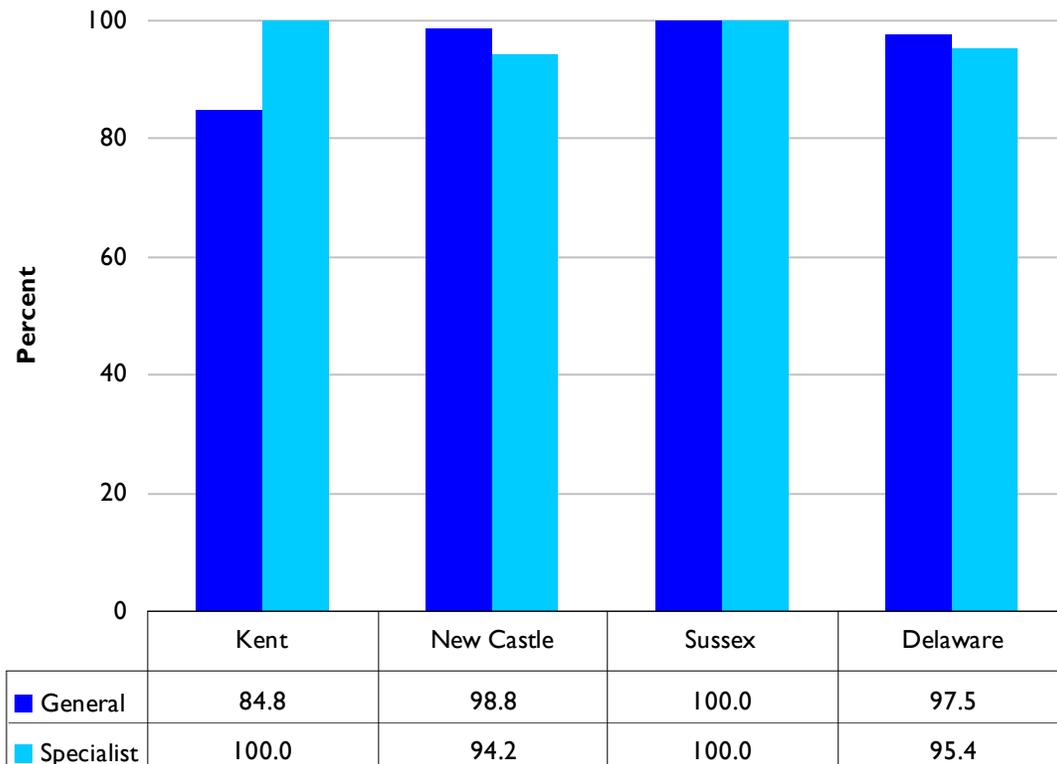


**Source:** Center for Applied Demography & Survey Research  
University of Delaware

Accessibility to dental services has many dimensions. One of those dimensions is flexible office hours, i.e. hours other than the typical hours that people are working. Respondents were asked if they provided either Saturday or evening office hours. Their responses are tabulated in Figure 3.6.

General dentists are more likely to offer flexible office hours than specialists. Offering evening hours is roughly twice as popular as providing Saturday hours. Dentists in New Castle County are much more likely to offer flexible hours than dentists located in Kent or Sussex counties. This difference is probably driven by capacity. The weekly encounters for general dentists are much higher downstate and the population ratios are certainly less favorable than those found in New Castle County.

**Figure 3.7**  
**Delaware’s Dentists Accepting New Patients 2008 Delaware and Counties**

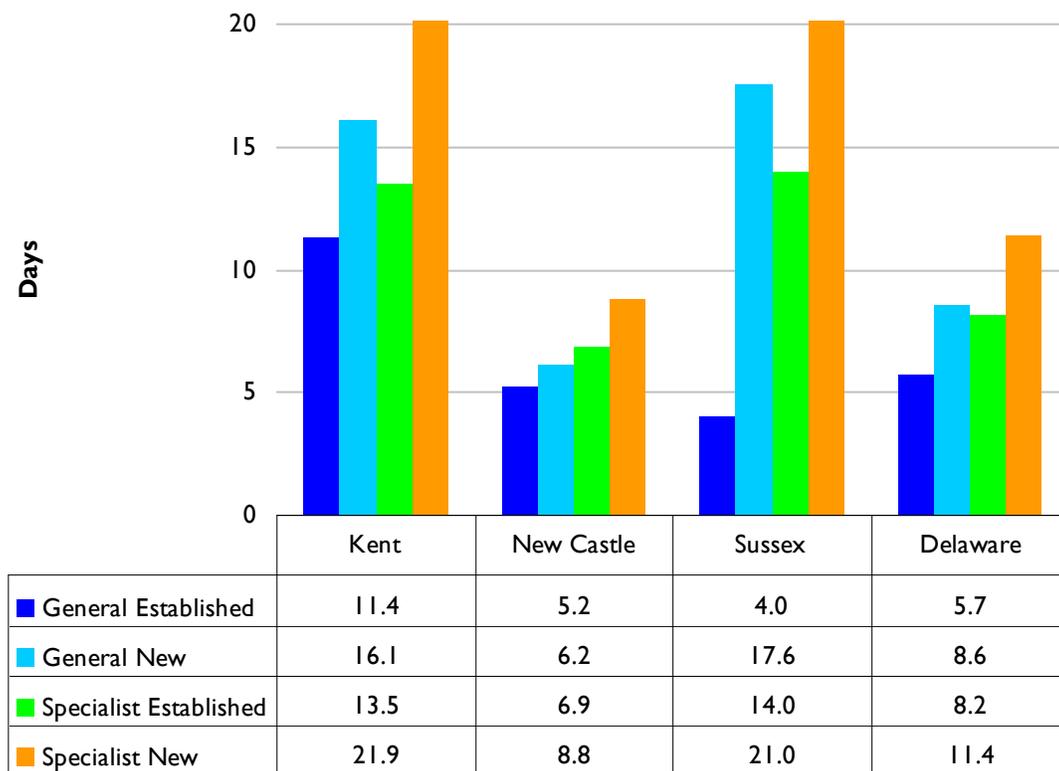


**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

A more direct measure of accessibility is whether dentists are accepting new patients. Respondents were asked this question and the results are found in Figure 3.7.

Almost all dental generalists and specialists are accepting new patients. However, the situation for general dentists has worsened since 2005. Today, only 85% of general dentists in Kent County accept new patients. Sussex County’s dentists indicate that they all accept new patients.

**Figure 3.8**  
**Average Wait Time for New and Established Patients for Delaware’s Dentists 2008**  
**Delaware and Counties**



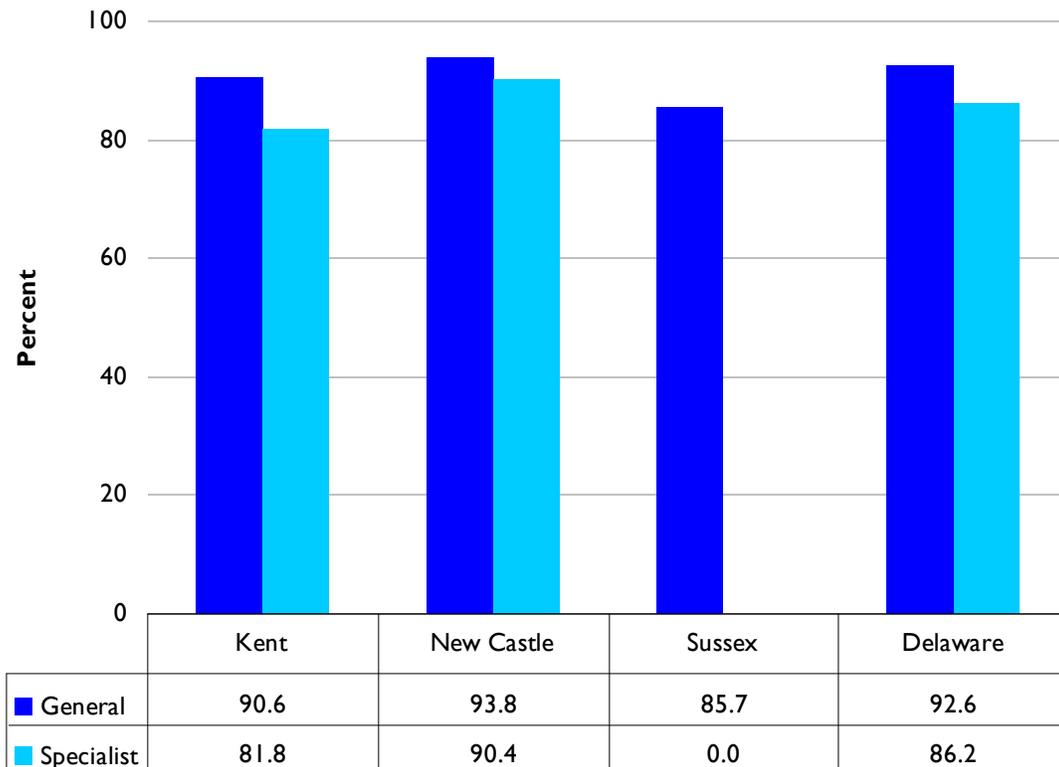
**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

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 can be 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 found in Figure 3.8.

In 2008 **Wait times** are in general less for general dentists than they are for specialist dentists. However, in Sussex County new patients seeking an appointment with a dentist providing general dental care will wait almost 18 days, compared to 6 days in New Castle County. Kent County is not far behind Sussex County with the average waiting time for new patients for general dentists being around 16 days. Again, for new patients seeking specialist dental care in Kent and Sussex Counties, they will have to wait around 21 days compared with 9 days in New Castle County.

**Figure 3.9**  
**Delaware’s Dentists Serving Pediatric Patients 2008**  
**Delaware and Counties**

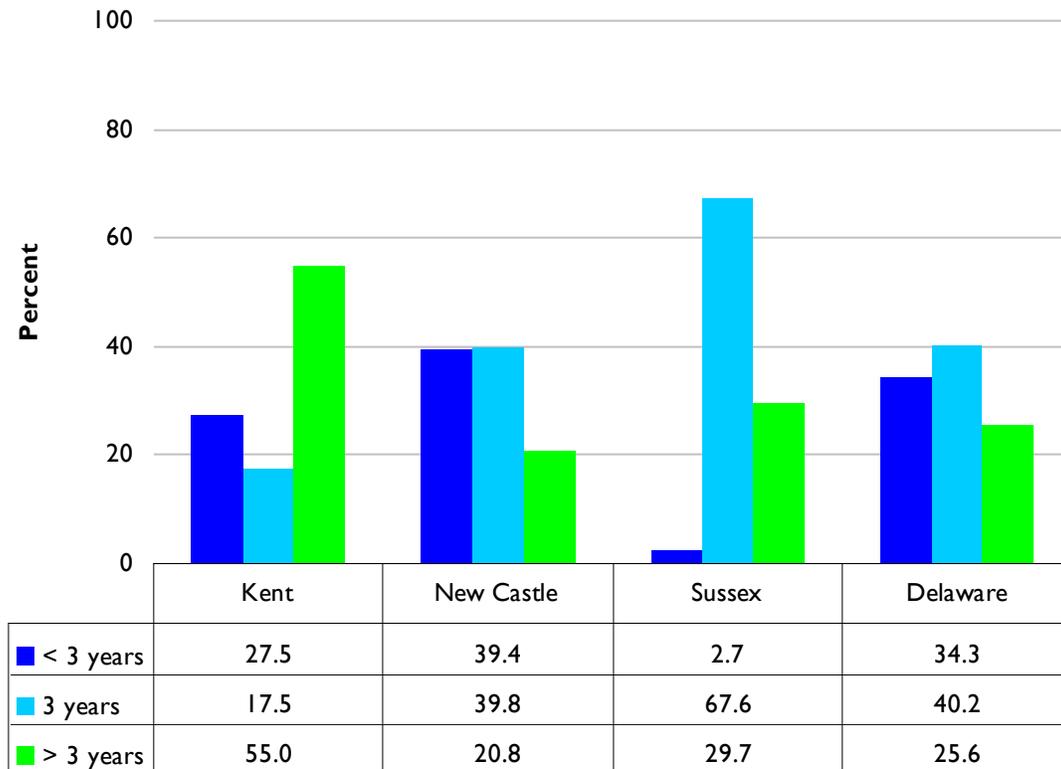


**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

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 – none of the dentists in Sussex County indicate seeing pediatric patients. Please note that the data tabulated here are estimates based on survey response with about 40% response rate for Delaware. Also, the results presented for Sussex County need to be considered within the context of the number of dentists in that county.

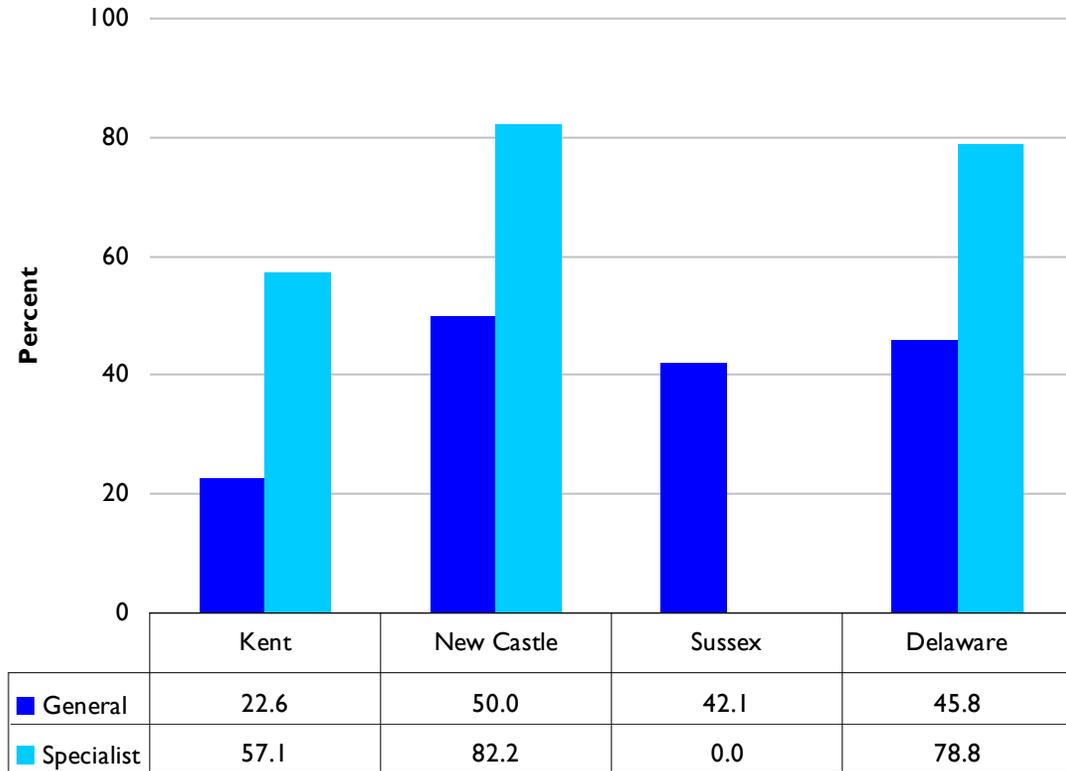
Also, Sussex County’s result showing a somewhat lower percentage among general dentists probably reflects the smaller percentage of children in the county. The age of the child is important, as is shown in Figure 3.10. About 34% of dentists (down from 38% in 2005) will serve a child under three years of age. The distribution is variable among the counties.

**Figure 3.10**  
**Age of Youngest Pediatric Patients Treated by Delaware’s Dentists 2008**  
**Delaware and Counties**



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

**Figure 3.11**  
**Participation in Medicaid by Delaware’s Dentists 2008**  
**Delaware and Counties**



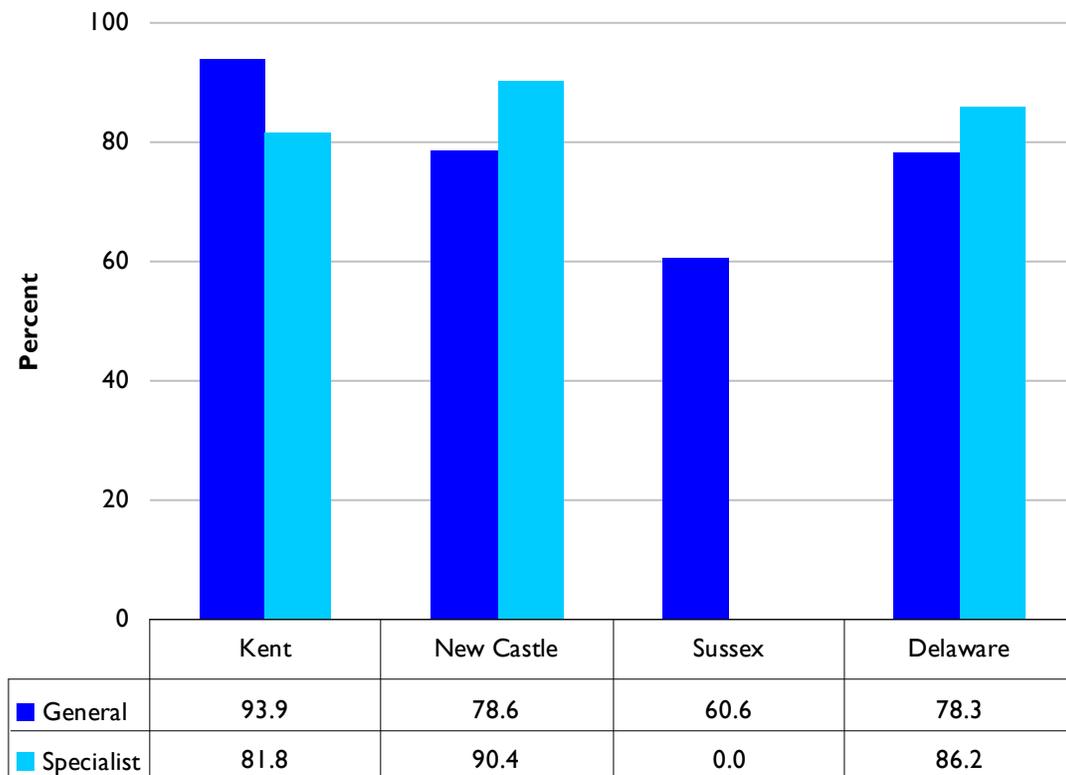
**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

Accessibility of dental services can also be affected by the way the patient pays for services rendered. This has been an issue for those qualifying for Medicaid dental coverage that have traditionally had difficulty in accessing dental care. For that reason (just like in 2005), respondents were asked what types of insurance plans they accepted. One of the potential responses was Medicaid. The results are shown in Figure 3.11.

At the time of the first survey in 1998, less than 4% of general dentists statewide indicated they accepted Medicaid, in 2005 the survey reveals that more than a third of dentists accepted Medicaid payments. Today, 51% of dentists across the state indicate accepting Medicaid patients. No specialists in Sussex County indicated accepting Medicaid patients. Please note that the data tabulated here are estimates based on survey response with about 40%

response rate for Delaware. Also, the results presented for Sussex County need to be considered within the context of the number of dentists in that county.

**Figure 3.12**  
**Dental Insurance Plans Participation by Delaware's Dentists in 2008**  
**Delaware and Counties**



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

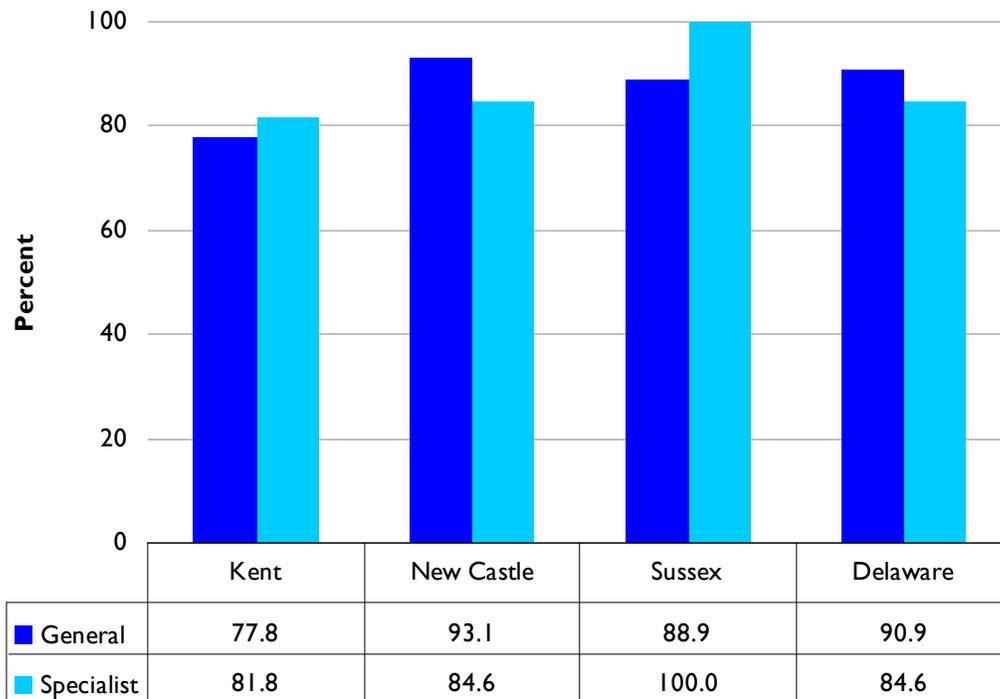
Accessibility can also be affected by the acceptance of dental insurance plans. Respondents were asked if they participated in such plans. The responses are found in Figure 3.12.

Overall in Delaware, 80% of dentists indicate participating in dental insurance programs. For dentists providing general dental care in Kent and New Castle Counties, the situation has improved since 2005. Kent County's rate improved almost 20 percentage points, while New Castle County's improved almost 9 percentage points. While the population to dentist ratio has improved between 2005 and 2008, a significant decrease in the percentage of dentists accepting

insurance has been shown for Sussex County. Today, only 61% (compared with 77% in 2005) of Sussex County’s dentists accept dental insurance. No specialist in Sussex County indicates accepting dental insurance. Please note that the data tabulated here are estimates based on survey response with about 40% response rate for Delaware. Also, the results presented for Sussex County need to be considered within the context of the number of dentists in that county.

Respondents were also asked if they provided flexible payment plans. Those responses are summarized in Figure 3.13. Specialists in Kent and Sussex Counties are more likely to offer such plans than are general dentists. This is different in New Castle County, where a higher proportion of general dentists offer flexible payments. However over 90% of all dentists provide this option.

**Figure 3.13**  
**Delaware’s Dentists Providing Flexible Payment Plans 2008**  
**Delaware and Counties**

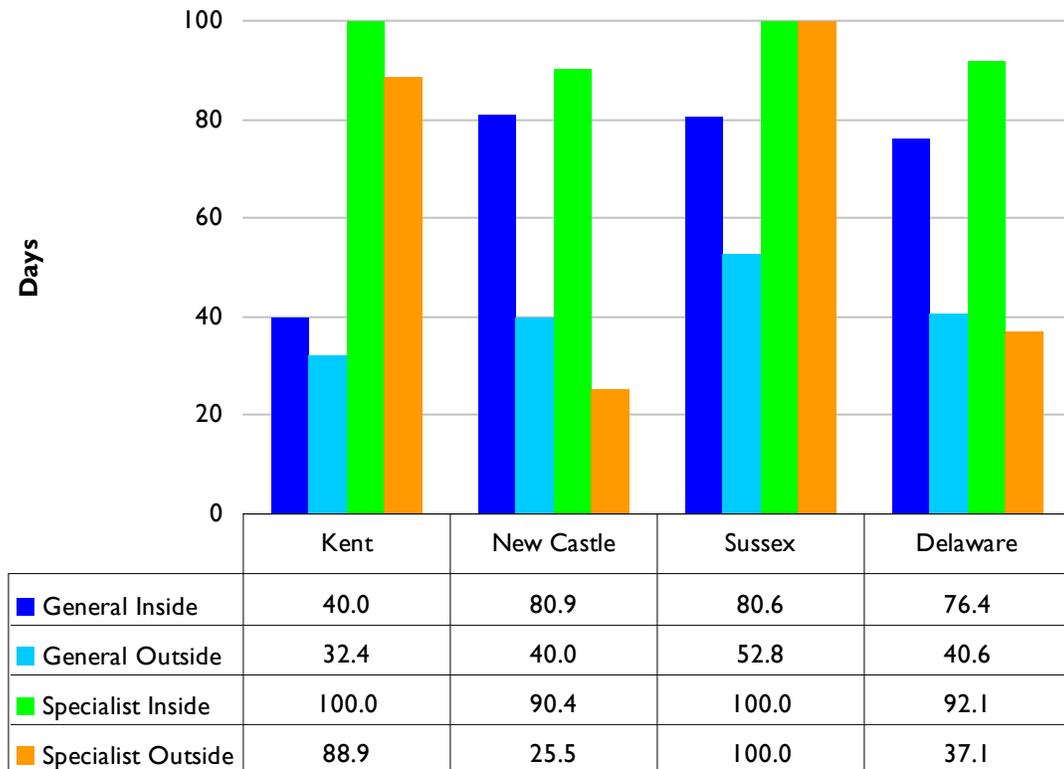


**Source:** Center for Applied Demography & Survey Research  
 University of Delaware

While dental care is usually much more of an elective procedure than many medically related problems, there will still be people who need services and cannot pay for them. Respondents were asked if they provided any type of charity care. Charity care was 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 found in Figure 3.14.

Almost 80% (up from 75% in 2005) of all dentists provide some charity care in their offices. This holds true for general dentists and dental specialists. About 40% of dentists provide some charity care outside of their offices, presumably in clinics and other like settings. The pattern is similar across the counties with the proportions generally lower in Kent and New Castle counties.

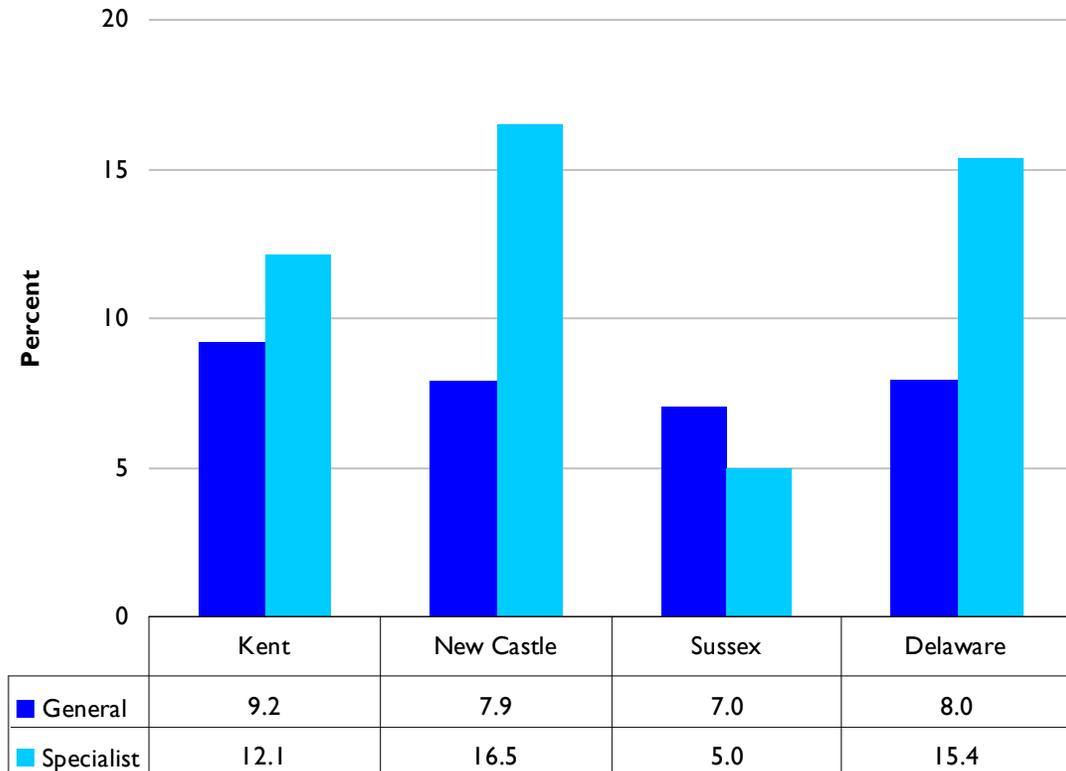
**Figure 3.14**  
**Delaware's Dentists Providing Charity Care In/Out of Office 2008**  
**Delaware and Counties**



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

Respondents were asked what proportion of their gross fees were unreimbursed. 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.

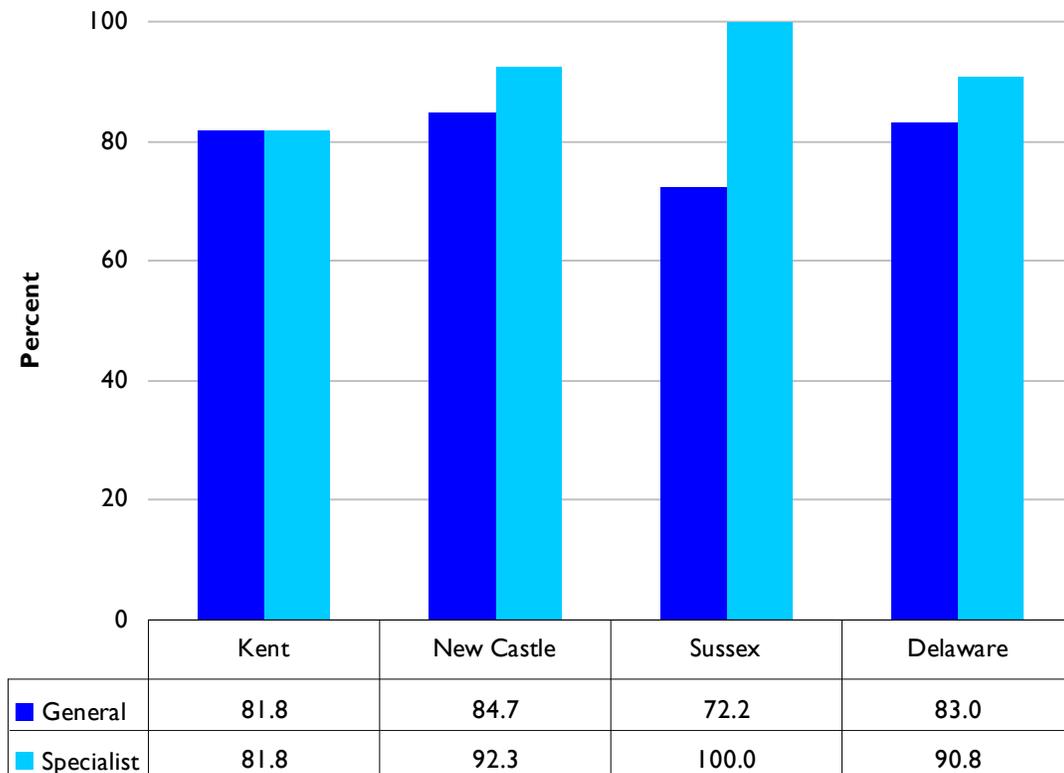
**Figure 3.15**  
**Percent of Gross Fees Unreimbursed of Delaware’s Dentists 2008**  
**Delaware and Counties**



**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. To ascertain the sufficiency and availability of staff, several questions were added to the 2005 survey and repeated in 2008. 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.

**Figure 3.16**  
**Delaware's Dentists Indicating Fully Staffed Offices 2008**  
**Delaware and Counties**



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

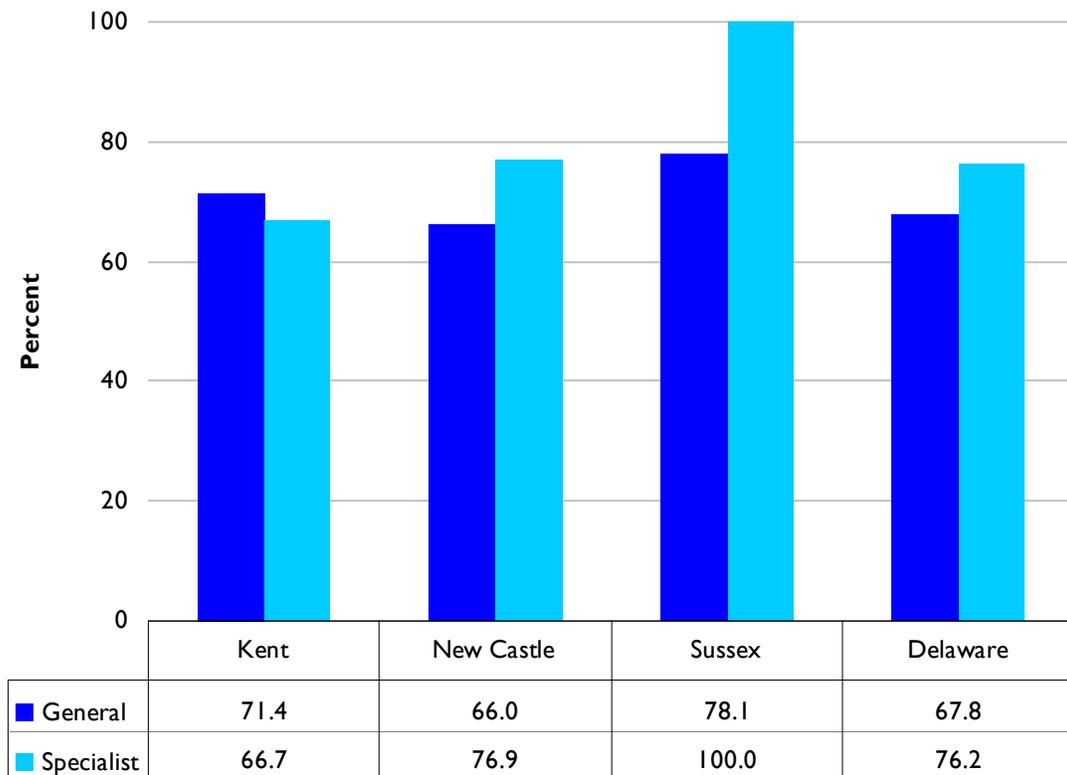
About 83% (increase of 4 percentage points) of general dentists feel that their offices are fully staffed. It would appear that the staffing problems exist among Sussex County's general dentists where the percentage reporting being fully staffed stands at 72%. Specialists report better staffing levels than the general dentists with more than 90% believing they are fully staffed. One needs to remember that the staffing needs are different for specialists and general dentists.

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.

There is broad agreement among both general dentists and specialists that there is a shortage of qualified applicants for dental staff positions (dental hygienists, dental assistants) . In

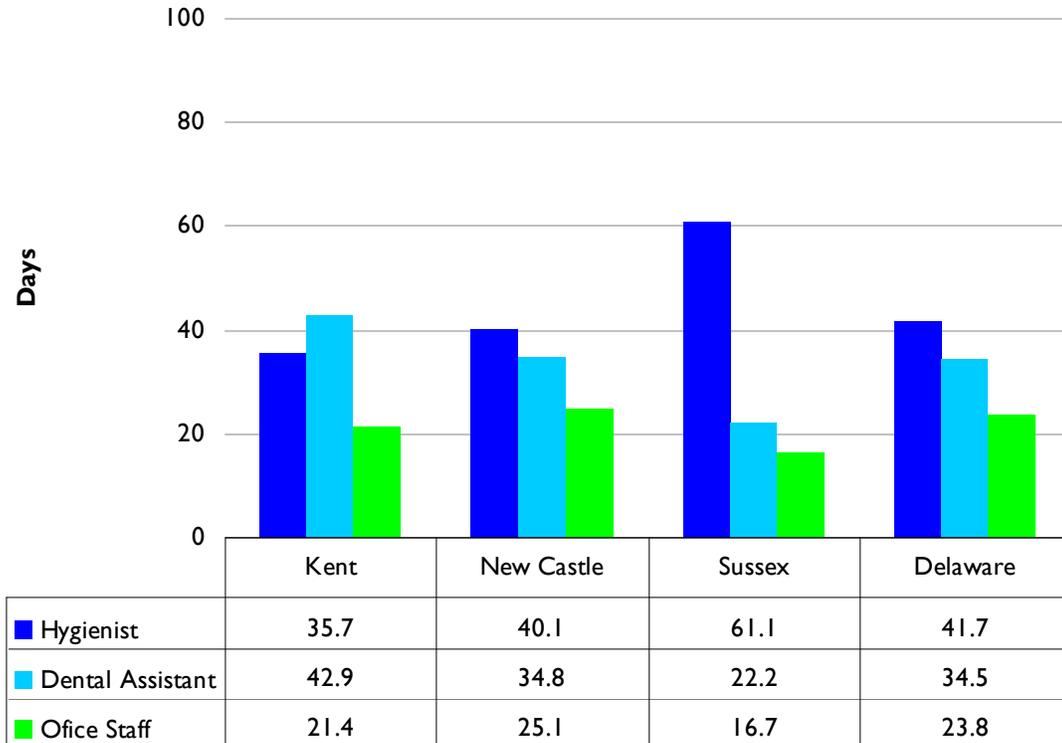
the case of general dentists, 68% of them report a perceived shortage, and 76% of specialists report a scarcity of dental staff applicants. The proportion of dentists reporting a shortage is highest (80%) in Sussex County.

**Figure 3.17**  
**Delaware’s Dentists Indicating Shortage of Qualified Dental Staff 2008**  
**Delaware and Counties**



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

**Figure 3.18**  
**Most Difficult Positions to Fill Identified by Delaware's Dentists 2008**  
**Delaware and Counties**



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

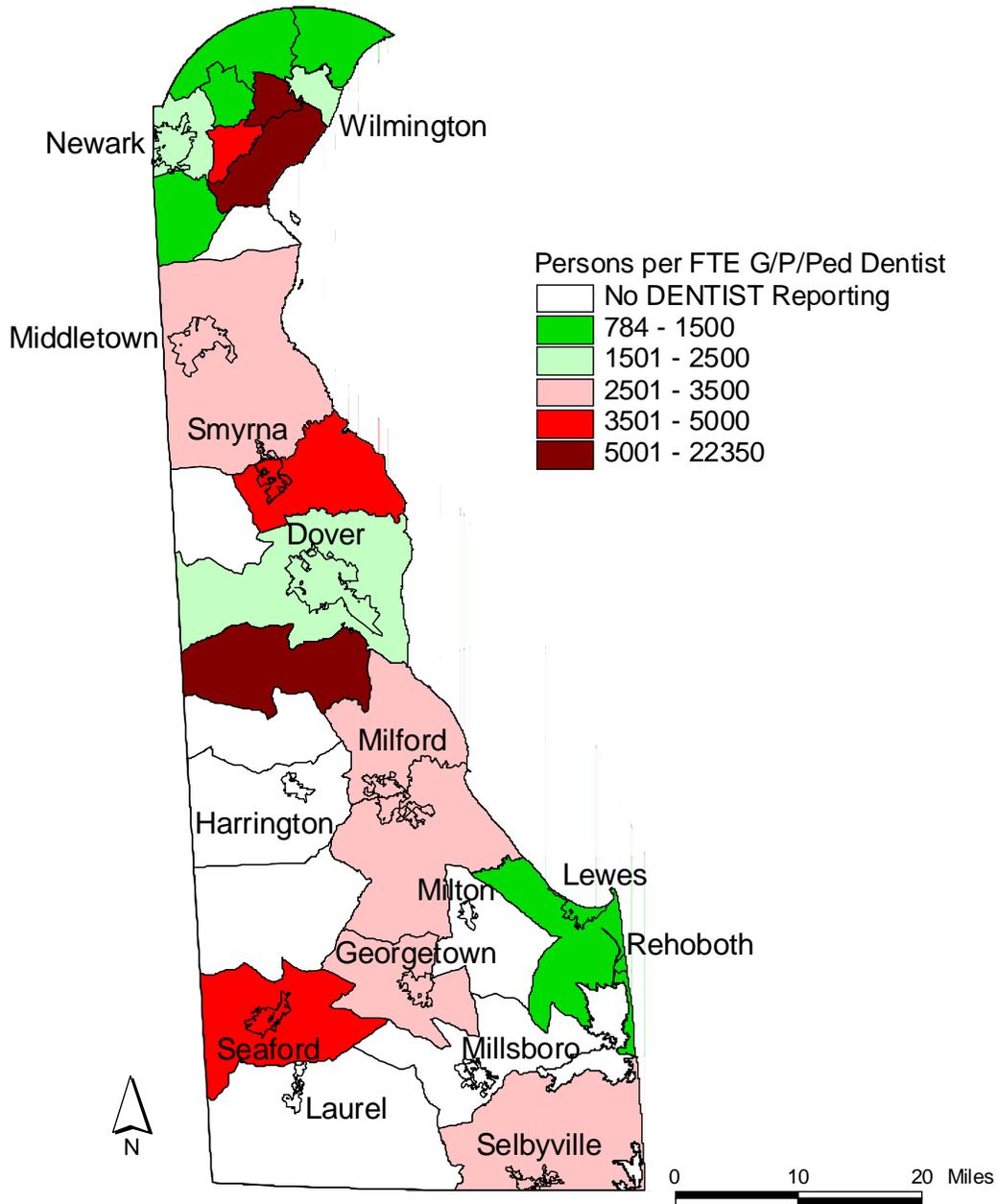
The final issue addressed in the survey was the degree of difficulty in filling different categories of non-dentist positions. The respondents' perceptions are provided in Figure 3.18. There is a good deal of variation in the responses. The data show that many (61%) dentists point out a shortage of hygienists in Sussex County, followed by a shortage of dental assistants in Kent County (43%) and a perceived shortage of Hygienists in New Castle County.

## Spatial Distribution

In the first section of this report, Sussex County was identified as an area having the worst population to FTE dentist ratio, with Kent County following close behind. In all of Delaware's counties, the population to FTE dentist ratio improved since 2005. However, the dentists are still unevenly distributed in relation to the population.

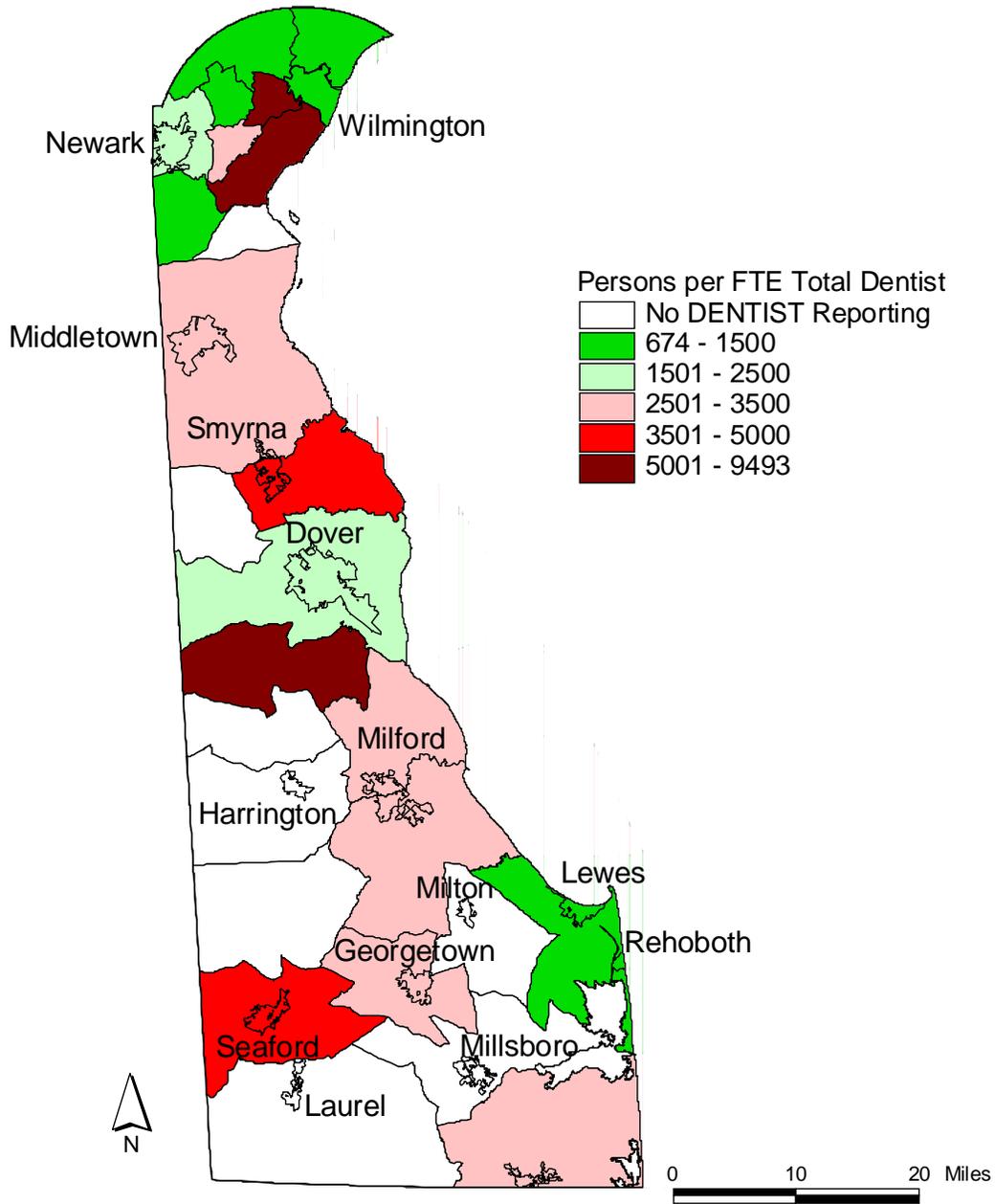
The federal government recognizes the importance of having an adequate number of dentists in areas smaller than states or even counties. In their program for dentally underserved areas and populations, "rational areas for the delivery of primary dental care services" can be counties, parts of counties, and even neighborhoods within metropolitan areas with a strong identity and a population of 20,000. In general, an underserved area will have a ratio of 5000:1 (in special cases 4000:1) or higher to qualify. In 2008, none of Delaware's counties would qualify as a shortage area if they were the spatial area considered. 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. Still, 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.

**Figure 4.1**  
**Persons per FTE General/Family/Pediatric Dentist in Delaware 2008**  
**by Census County Division**



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

**Figure 4.2**  
**Persons per FTE Dentist in Delaware 2008**  
**by Census County Division**



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

The spatial distribution of general/family/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 red 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. Every area, which is potentially short of dentists, is adjacent to one that has an abundance of dentists. 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 areas in burgundy red are above the 5000:1 ratio indicating a potential dental shortage area. One of the areas, the Red Lion census county division, currently has a population of about 6,000 people with no dentists reporting, but that population is too few to be considered a rational dental service area. All of the other divisions meet the 20,000+ population criteria. In 2005, no dentists responded from the Lower Christiana CCD. This year, dentists responded from that area and estimates show that four dentists serve that population.

This does not mean that there may not be isolated pockets within the other census county divisions that are dentally underserved. Wilmington, for example, 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. Most of the dentists appear to be focused around Smyrna, Dover and Milford North. None of the dentists surveyed reported working in three (up from two in 2005) of the census county divisions (Kenton, Harrington and Felton). With the exception of Dover (the green area in the middle of Kent County with a population of around 70,000) and Central Kent (the burgundy red area south of Dover with around 20,000), none of the other census county divisions reach a population of 20,000; thus they would not meet the criteria for a rational service area.

In Sussex County, four out of nine census county divisions report no dentists. One of the areas – the Seaford CCD – is on the verge of meeting the 5000:1 ratio. The shortage appears to be in the western part of Sussex County from Bridgeville to Laurel where the ratios exceed even the federal guideline of 5000:1.

With the exception of Lewes (in 2005 it was Lewes and Georgetown), dentists are in short supply throughout Sussex County. While the Lewes CCD has an adequate supply, the significant part-year resident population has not even been considered. Under normal circumstances, the Millsboro and Selbyville CCD's might not be considered a problem since they are adjacent to both Georgetown and Lewes. However, that ignores the part-year resident population problem as well.

In Figure 4.2, ratios are calculated by pooling the generalists and the 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 two CCDs only. These are upper Christiana and Wilmington.

## **APPENDIX**



# DELAWARE DENTIST SURVEY 2008

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 physicians 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 2005, point your browser to:

<http://www.cadsr.udel.edu/DOWNLOADABLE/DOCUMENTS/den058.pdf>

**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 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  Yes
- 2  No
- Evening 1  Yes
- 2  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

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 medical 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 or Family Dental Residency
- 2  Hospital Dental Residency
- 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 2008.**

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

**Center for Applied Demography & Survey Research**  
**College of Human Services, Education & Public Policy**  
**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)**

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