

# The Pediatric Dental Workforce in 2016 and Beyond

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Surdu et al., *Journal of the American Dental Association*. July 2019, Vol. 150:7, pp. 609-617.

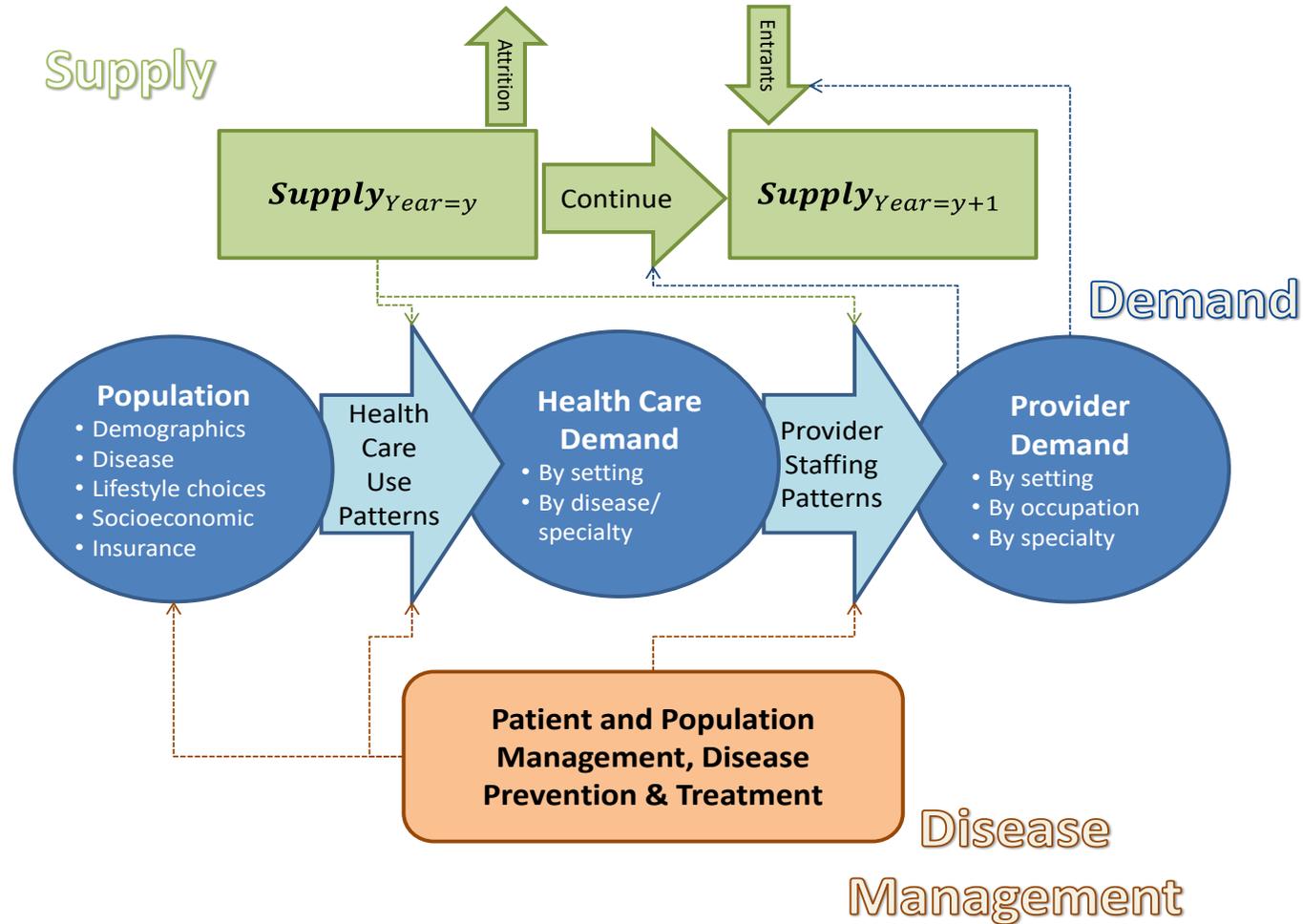
## Study Purpose, Background & Definitions

- Study purpose: assess current and anticipated future adequacy of supply of pediatric dentists
- Background
  - > Caries remains the most common chronic disease of childhood, affecting nearly one-fifth of children aged 5 years or younger and one-half of children aged 6 through 10 years
  - > Caries makes a child more vulnerable to various systemic infections that threaten oral health, overall health and quality of life
  - > Pediatric dentists play a key role in ensuring access to high-quality oral health care for children and for people with special health care needs
    - 2016 ADA Masterfile: 196,468 dentists of whom 7,583 (3.9%) were pediatric dentists—not all in active practice; 80% increase in pediatric dentist supply since 2001 (n=4,213)
- Definitions
  - > Demand—level of oral health services people are able and willing to pay for
  - > Need—clinical definition; guidelines on periodicity of examination, preventive dental services, anticipatory guidance, and oral treatment for children

## Study Methods Overview

- **Survey.** An online survey of pediatric dentists was fielded in 2017 to all members of the AAPD with a US address
  - > 2,546 surveys completed for a response rate of 39.1%
  - > Sample weighting applied to ensure representativeness
- **Modeling.** Future supply & demand projected using health workforce simulation model
  - > Simulation model has been used for studies with federal and state governments, associations and health plans
- **Literature review.** Examined topics related to children's oral health need, utilization and care delivery
- **Interviews.** Conducted phone interviews with sample of pediatric dentists

# Integrated Workforce Microsimulation Model



## Supply Modeling

- Estimated 6,530 pediatric dentists in US in 2016, reflecting AAPD membership and ~6% of PDs not AAPD members
- Modeled 448 people enrolled in PD programs/year; 63.6% female
- 2017 Practice Survey of Pediatric Dentists (PD)
  - > Weekly patient hours worked, modeled by PD age and gender
  - > Age of retirement/intention to retire, modeled by PD age, plus mortality rate to estimate workforce attrition
- Modeled cross-state migration (little migration after completing training)
- Modeled alternative supply scenarios under different assumptions
  - > Status quo—continuation of current training pipeline, hours worked and retirement intention patterns
  - > 10% increase and 10% decrease in number of PDs trained annually
  - > Retire 2 years earlier, 2 years later than indicated by retirement intention
- Defined **full time equivalent** (FTE) PD as working 32.6 hours/week in patient care activities—average based on survey responses

## Demand Scenarios Modeled

- > Status Quo, assumes current patterns of dental care use and delivery continue
  - PDs provide approximately 43% of the dental care provided to children under age 2, 40% of the care provided to children age 2 to 4, 23% of the care provided to children over age 5 (approximately 26% of all the dental care provided to children)
  - Remainder of care provided to children is provided by general dentists
- > Increased PD Market Share. With input from the project advisory group, modeled
  - PDs provided 80% care to children ages 5 to 12, 20% of care for children ages 13 to 17 (approximately 62% of care to children would be provided by PDs)
- > Access Barriers Removed
  - Modeled PD demand assuming disadvantaged populations have dental care utilization patterns similar to a population with fewer access barriers (ie, white, non-Hispanic, with insurance, and in the highest income bracket).
  - Scenario approximates a needs-based scenario

# Differences in Dentists' Perceptions of Pediatric Dental Workforce Shortages by Type of Geography

- Dentists with practice locations in the Midwest were more likely to indicate perception of a shortage of pediatric dentists or adequacy of current supply in the local area than were dentists in other regions of the US.

**Dentists' Rating of the Current Supply of Pediatric Dentists in Practice Area by Region in US, 2016**

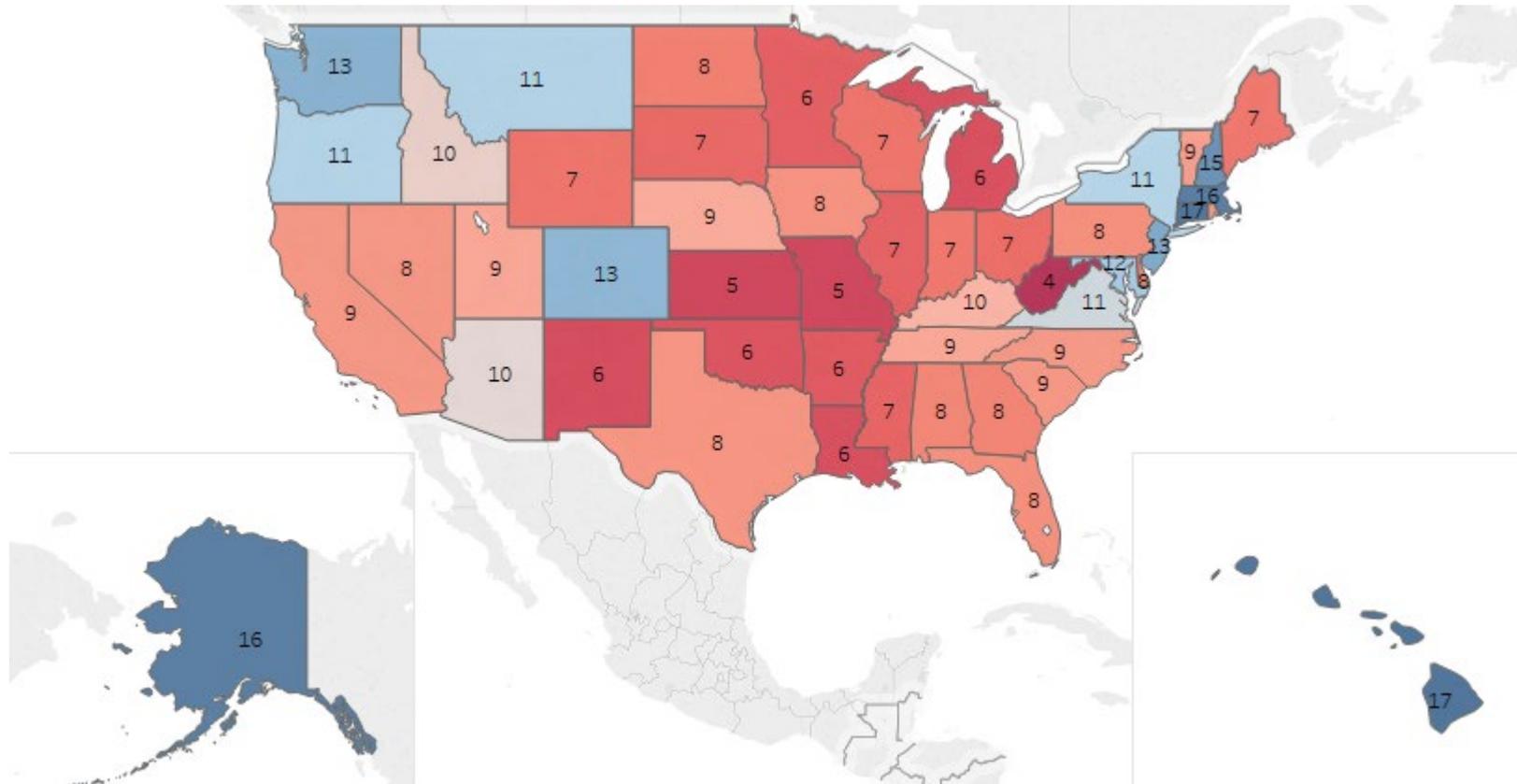
| Dentists' ratings of the current supply of pediatric dentists in their local area | Northeast Region | Midwest Region | South Region | West Region  | Nationwide |
|---|------------------|----------------|--------------|--------------|------------|
| There is a shortage   | 11.9%            | <b>16.1%</b>   | 8.9%         | 6.1%         | 10.1%      |
| The current supply is adequate  | 39.9%            | <b>60.9%</b>   | 44.7%        | 39.5%        | 45.2%      |
| There is an oversupply  | <b>48.2%</b>     | 23.0%          | 46.4%        | <b>54.4%</b> | 44.7%      |
| Total N   | 347              | 299            | 619          | 437          | 1,701      |

- Pediatric dentists with primary work settings in counties with populations of 275,000 or fewer people were more likely to indicate being aware of concerns in their state about the availability of pediatric dentists in less populated areas than were dentists practicing in larger population counties.

**Dentists' Awareness of Concerns about the Availability of Pediatric Dentists in Less Populated Areas of Their State of Practice, 2016**

| Concerns about the availability of pediatric dentists in less populated areas | 88,000 or less | 88,001 to 275,000 | 275,001 to 675,000 | 675,001 to 1,500,000 | 1,500,001 or more |
|---|----------------|-------------------|--------------------|----------------------|-------------------|
| Yes   | <b>68.6%</b>   | <b>56.9%</b>      | 53.5%              | 46.9%                | 54.9%             |
| No  | 20.8%          | 26.0%             | 30.0%              | 28.3%                | 19.6%             |
| Don't know  | 10.6%          | 17.2%             | 16.5%              | 24.8%                | 25.6%             |
| Total N   | 127            | 297               | 347                | 444                  | 353               |

## FTE Pediatric Dentists per 100,000 Children, 2016 (national average is 9 per 100,000)



## Perceptions of Practice Busyness Varied by Employment Situation

- Perceptions of practice busyness among pediatric dentists changed between 2011 and 2016. The proportion of pediatric dentists who treated all patients but felt overworked decreased from 16.2% in 2011 to 15.2% in 2016 while those who treated all patients but were not overworked increased from 49.3% in 2011 to 57.9% in 2016.

**Perceptions of Busyness by Employment Situation and Gender, 2011 and 2016**

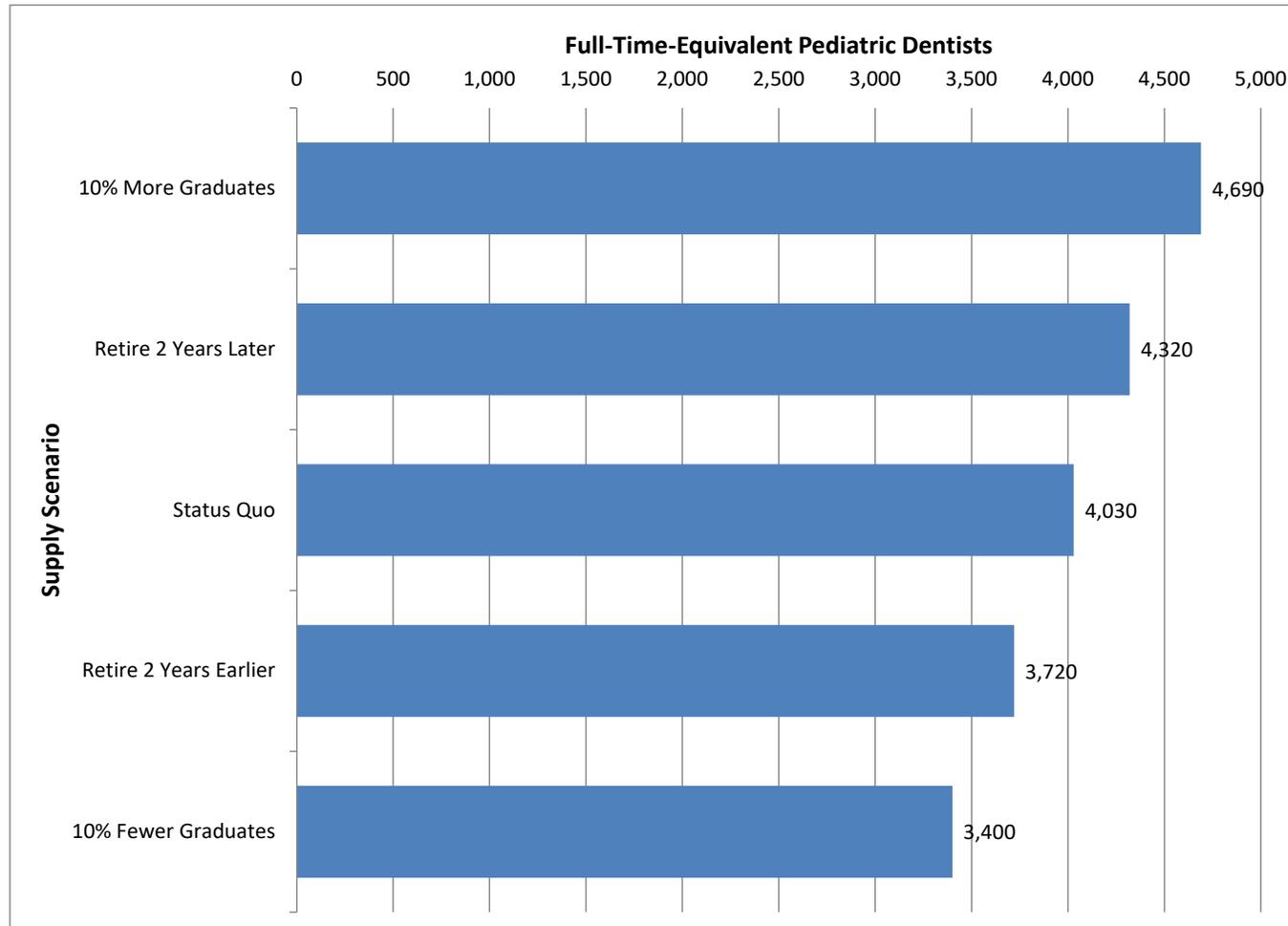
| Pediatric Dentists          | 2011                       |                                | 2016                       |                                |
|-----------------------------|----------------------------|--------------------------------|----------------------------|--------------------------------|
|                             | Treated all but overworked | Treated all but not overworked | Treated all but overworked | Treated all but not overworked |
| <i>Employment Situation</i> |                            |                                |                            |                                |
| All owners                  | 16.6%                      | 48.8%                          | 14.7%                      | 56.9%                          |
| Solo practitioners          | 15.1%                      | 46.5%                          | 15.4%                      | 53.5%                          |
| Non-solo owner              | 18.2%                      | 51.4%                          | 13.2%                      | 64.7%                          |
| Employed                    | --                         | 47.9%                          | 15.9%                      | 59.6%                          |
| <i>Gender</i>               |                            |                                |                            |                                |
| Male                        | 16.3%                      | 49.9%                          | 14.4%                      | 56.8%                          |
| Female                      | 16.1%                      | 48.2%                          | 15.9%                      | 59.0%                          |
| All pediatric dentists      | <b>16.2%</b>               | <b>49.3%</b>                   | <b>15.2%</b>               | <b>57.9%</b>                   |

- Pediatric dentists practicing in counties where the population was 88,000 or less were more likely to indicate they were too busy to treat all patients (15.7%) than dentists in more populated counties.

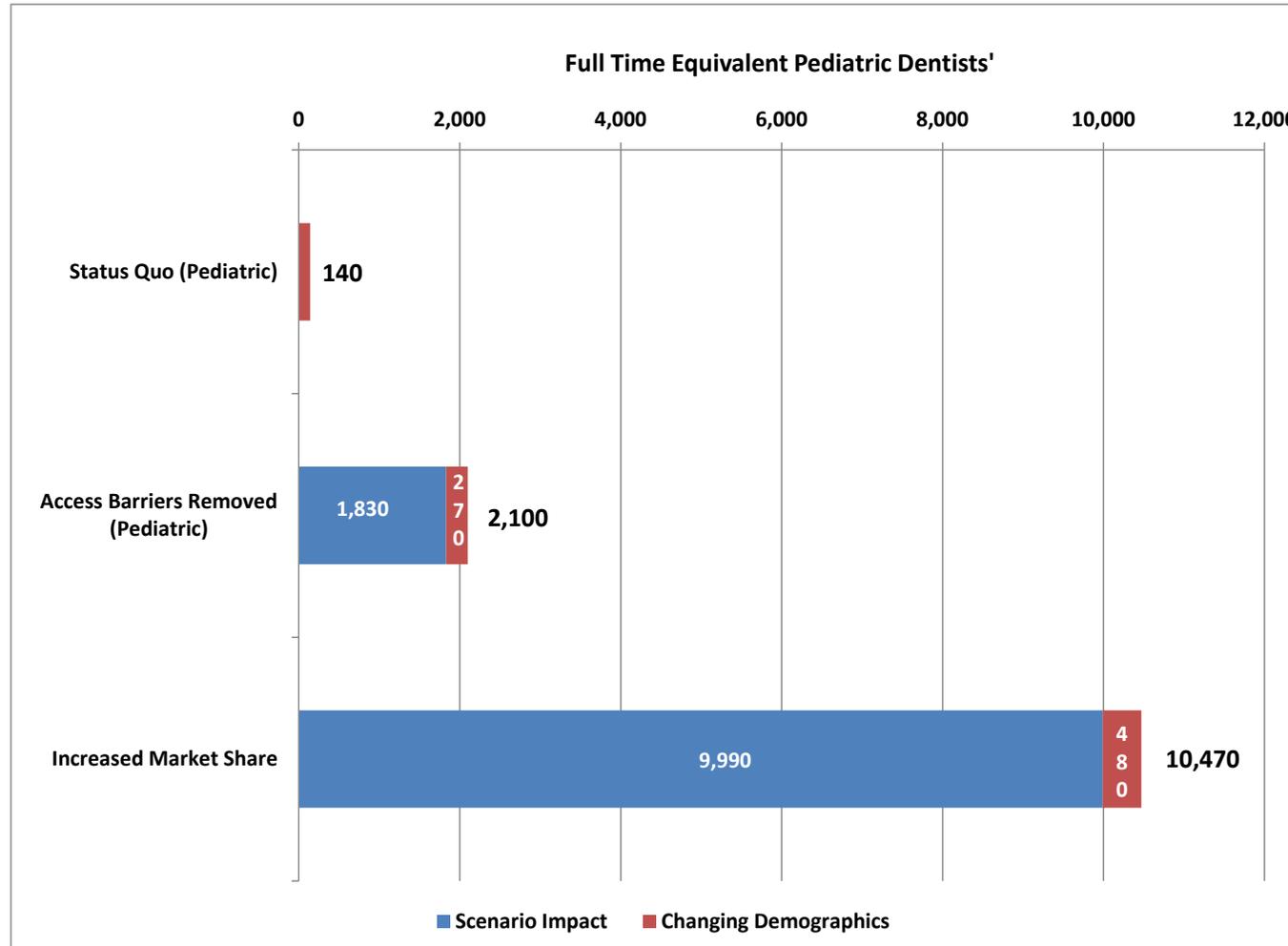
**Perceptions of Busyness By Size of County in Which Primary Work Setting Was Location, 2016**

| Which of the following best describes you in your primary setting during 2016? | 88,000 or less | 88,001 to 275,000 | 275,001 to 675,000 | 675,001 to 1,500,000 | 1,500,001 or more |
|--|----------------|-------------------|--------------------|----------------------|-------------------|
| Provided care to all who requested appointments but was not overworked         | 58.0%          | 59.7%             | 58.4%              | 57.4%                | 56.1%             |
| Provided care to all who requested appointments but was overworked             | 14.3%          | 17.2%             | 15.3%              | 14.9%                | 14.0%             |
| Too busy to treat all people requesting appointments                           | <b>15.7%</b>   | 11.8%             | 6.4%               | 9.5%                 | <b>5.5%</b>       |
| Not busy enough, could have treated more patients                              | <b>12.1%</b>   | 11.3%             | 19.9%              | 18.3%                | <b>24.5%</b>      |
| Total N  | 151            | 345               | 416                | 508                  | 415               |

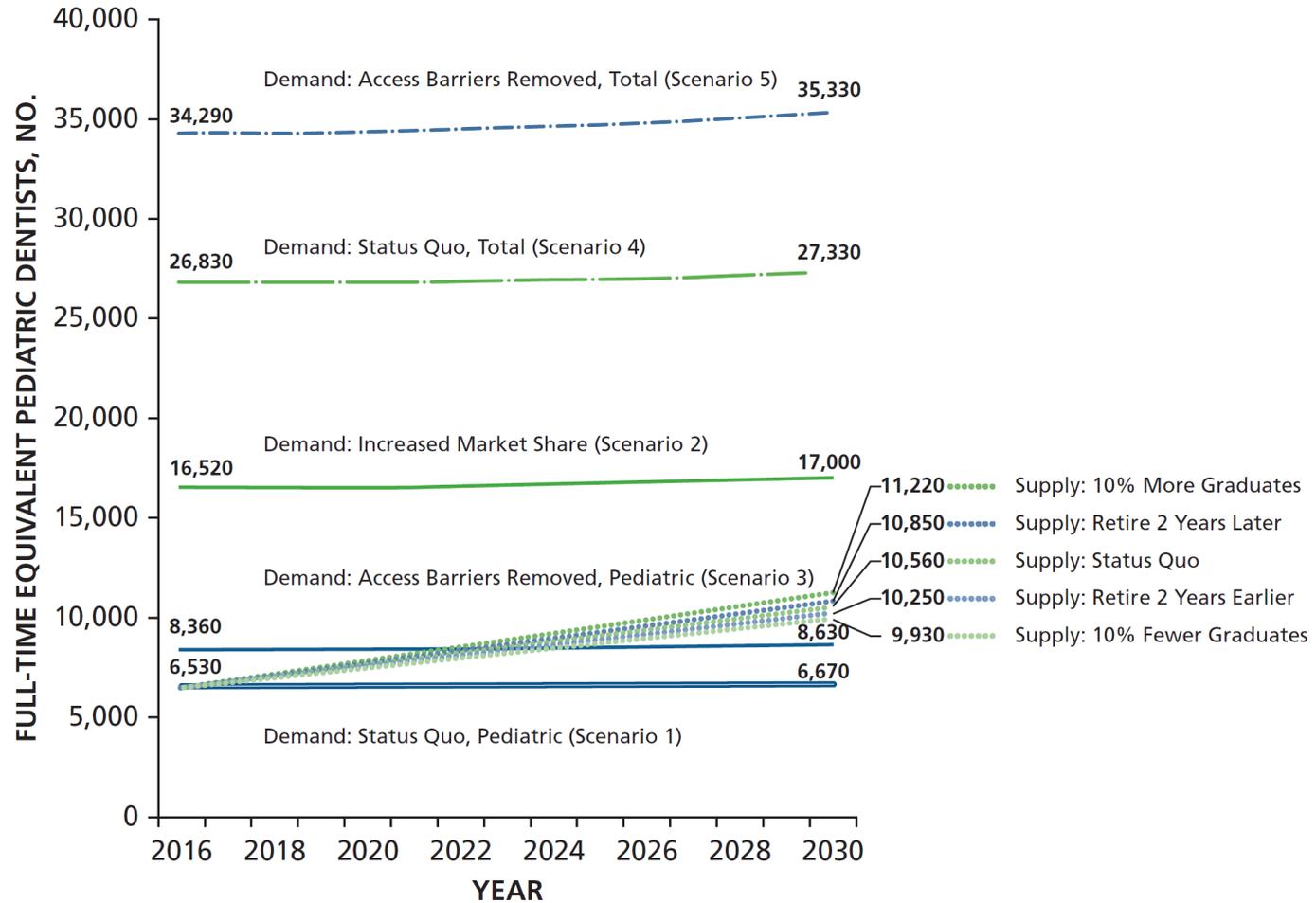
# Projected Growth in Pediatric Dentist Supply, 2016-2030



# Projected Change in Pediatric Dentist Demand, 2016-2030



# Supply and Demand: 2016 to 2030



## Conclusions

- Modeling
  - > Supply of pediatric dentists continues to grow rapidly
  - > Demand for dental care for children will grow slowly, reflecting low population growth
  - > How might demand for pediatric dentists grow at a faster rate than growth in number of children? (grow the pie, or redistribute the pie)
    - Achieve national goals of improving access to care—either than new policies or programs, or reducing financial & other barriers to care
    - Percentage of oral health services to children provided by PDs grows; percentage provided by general dentists declines
  - > The national supply of pediatric dentists appears adequate to meet current demand for services; however, the geographic distribution of dentists is uneven based on region and population density
- Key findings from survey
  - > The oral health care delivery system is changing; the profession appears to be accommodating change through practice consolidations to gain efficiencies of scale
  - > The changing gender composition of the workforce may further impact distribution recognizing an apparent preference among women dentists for practice in larger population areas
  - > The profession is poised to meet the challenges of providing low-income children with a dental home but professionals are concerned about trends related to public insurance and the impact of reduced payments on practice sustainability