

# Impact Of Gender Diversification In Dentistry On Dental Services Delivery

## Presented by:

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- OHWRC is based at the **Center for Health Workforce Studies (CHWS)**, School of Public Health, University at Albany, State University of New York (SUNY), and is the only research center **uniquely focused on the oral health workforce**
- The authors wish to acknowledge the contributions of the **Health Policy Institute team** at the **American Dental Association (ADA)** to the current research
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- *The content and conclusions of this presentation are those of OHWRC and do not necessarily represent positions or policies of the HRSA, SUNY, or ADA*

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## Introduction

- **The participation of females in higher-paying health professions has increased.** Currently, approximately 50% of veterinarians are female,<sup>1</sup> 35% of physicians are female,<sup>2</sup> and 31% of dentists are female.<sup>3</sup>
- **Female participation in these professions will likely grow as the percentage of female graduates from medical (47.3% in 2017<sup>4</sup>) and dental (46.3% in 2017<sup>5</sup>) education programs either stabilize at current levels or continue to increase and as many older, predominately male professionals depart the workforce.**
- **While the reasons for gender diversification can be attributed to societal and economic factors, including emerging workforce shortages in health care professions and changes in the business models for health services delivery, the long-term impact of professional diversification is not yet well understood.**

References:  
1. Dall TM, Farné GJ, Storm MV, et al. Executive summary of the 2013 U.S. Veterinary Workforce Study. *J Am Vet Med Assoc.* 2013;242(11):1507-1514.  
2. Professionally active physicians by gender. Kaiser Family Foundation website. <https://www.kff.org/other/state-indicator/physicians-by-gender/>  
3. Supply of dentists in the U.S., 2003-2017. American Dental Association Health Policy Institute. January 2018.  
4. Association of American Medical Colleges. FACTS Table B-2.2: Total graduates by U.S. medical school and sex, 2013-2014 through 2017-2018. November 2018.  
5. ADA Health Policy Institute. Commission on Dental Accreditation. 2017-18 Survey of Dental Education: Report 1: Academic Programs, Enrollments, and Graduates



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## Purpose of the Study

- While there is discussion that the increasing gender diversity in dentistry will affect **practice models, work hours, and the availability** of specialty dentists or dentists in less populated areas, there is **limited research that describes variation in characteristics of dental practice patterns by gender.**
- The OHWRC collaborated with the **Health Policy Institute team** at the **American Dental Association (ADA)** to analyze characteristics of dental practice to:
  - **Evaluate the differences by gender** among dental professionals in service delivery including perception of practice busyness, patient volume, and characteristics of patient population.
- The ultimate goal of this study is to **support the development of policy strategies** to mediate gaps in availability of services, particularly for underserved populations.

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## Methods: Data Source



- The current research used data from the **ADA's annual Survey of Dental Practice (SDP)** conducted in 2017.
- The survey is a **nationally representative, random sample of professionally active licensed dentists in private practice regardless of membership status in the ADA**, including general practitioners and specialists in the US.
- The 2017 SDP consisted of 24 questions about **characteristics of private dental practices and of dentists and their patients** in the year preceding survey completion (2016).



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## Methods: Statistical Analyses

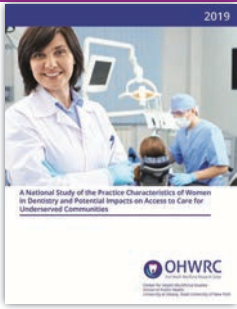
- Descriptive and multivariable statistical methods (Chi-Square test, t test, multilevel Poisson regression) were used to estimate differences in practice patterns between **male and female dentists by age cohort, such as:**
  - Work capacity (patient visits, work hours)
  - Perception of practice busyness
  - Patient volume change during the past year
  - Patient population by age and dental insurance
- Data analysis was also conducted for a **subgroup of solo practitioners** who were sole proprietors and the only dentists in the practice treating patients.
- **Survey estimates were weighted** to account for oversampling of specialists and potential nonresponse bias.
- All analyses were conducted in SAS v9.4. Results were considered statistically significant at  $P < .05$ .

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## Key Findings



### 2017 Survey of Dental Practice (SDP)

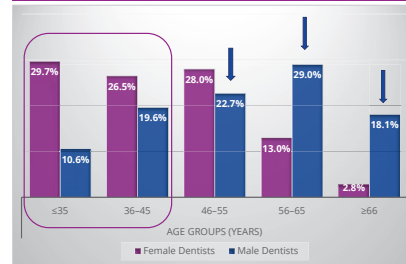
- The data from the 2017 SDP were provided by 2,258 professionally active dentists in private practice with information on gender:
  - 585 (25.9%) female dentists
  - 1,673 (74.1%) male dentists



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## Figure 1. Dentists' Age by Gender, 2016



Note: There were statistically significant differences, estimated using Pearson chi-square tests, between respondents who did not receive the needed dental care versus those who did by gender ( $P<.0004$ ), age ( $P<.0001$ ), and race/ethnicity ( $P<.0001$ ).

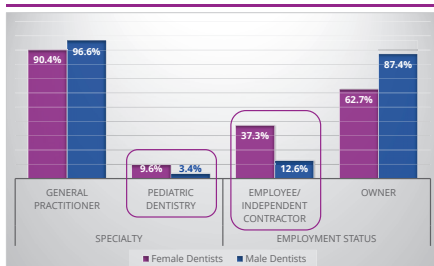
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- Female dentists in the US are younger than their male colleagues.
- In 2016, more than half of female dentists (56%) were age 45 or under, while the vast majority of male dentists (70%) were age 46 or older.



## Figure 2. Dentists' Practice Characteristics by Gender, 2016



Note: There were statistically significant differences, estimated using Pearson chi-square tests, between respondents who did not receive the needed dental care versus those who did by education ( $P<.0001$ ), household income ( $P<.0001$ ), and area of residence ( $P<.0001$ ).

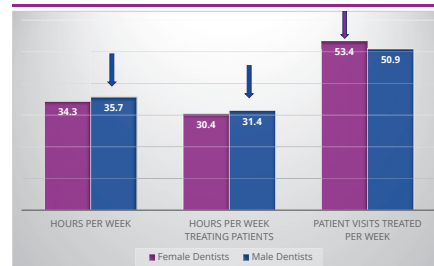
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- The majority of female and male dentists worked as general practitioners and owned their practice.
- However, a statistically significant larger proportion of female dentists worked as pediatric dentists and/or as employees or independent contractors than male dentists.



## Figure 3. Dentists' Work Capacity by Gender, 2016



Gender differences were statistically significant at  $P<.05$ , except for the average number of patient visits per week.

Source: ADA Health Policy Institute, Survey of Dental Practice, 2017.

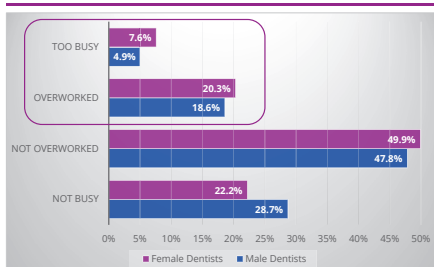
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- Female dentists spent significantly fewer hours per week in the dental office and/or treating patients than male dentists.
- Female dentists reported more patient visits per week than male dentists, although the difference was not statistically significant.



## Figure 4. Dentists' Perception of Their Level of Busyness by Gender, 2016



Dentists' perceptions of their level of busyness in the primary work setting. Gender difference was statistically significant at  $P=.0076$ .

Source: ADA Health Policy Institute, Survey of Dental Practice, 2017.

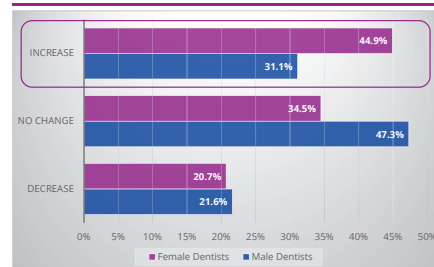
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- A significantly larger proportion of female dentists reported being too busy to treat all patients requesting care or providing care to all who requested but being overworked than male dentists.



## Figure 5. Change in Patient Volume in the Primary Practice of Solo Practitioners by Dentists' Gender, 2016



Gender difference was statistically significant at  $P=.0056$ .

Source: ADA Health Policy Institute, Survey of Dental Practice, 2017.

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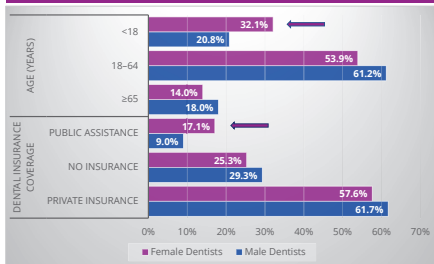
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Among a subset of 825 solo practitioners in private practice:

- A significantly larger proportion of female dentists than male dentists reported an increase in their practice volume in the past year.



**Figure 6. Distribution of Patients' Age and Insurance Coverage by Dentists' Gender, 2016**



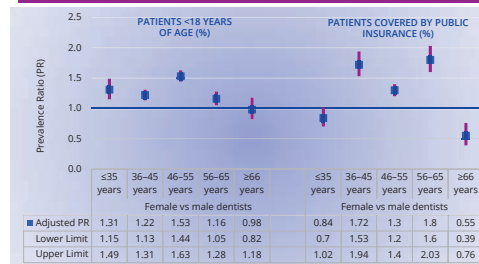
Among a subset of solo practitioners in private practice:

- A significantly higher proportion of female dentists' than male dentists' patients were <18 years of age and/or covered by public dental insurance

All gender differences were statistically significant at  $P < .05$ , except for the distribution of patients with private insurance. Source: ADA Health Policy Institute, Survey of Dental Practice, 2017.



**Figure 7. Adjusted Associations Between the Percentage of Patients <18 Years and/or Covered by Public Insurance and Dentists' Gender and Age, 2016**



Among a subset of solo practitioners in private practice, the adjusted estimates showed that:

- Female dentists were significantly more likely than male dentists to provide dental services to children patients and patients covered by public dental insurance

The multilevel Poisson regression model estimated the effect of gender by age, adjusting for dentists' race/ethnicity, location of training, residency, and specialty (individual level) and rurality of state in which the primary practice was located (state level). The effect of gender by age was statistically significant at  $P < .0001$ . Source: ADA Health Policy Institute, Survey of Dental Practice, 2017.



## Conclusions and Implications

- Study findings suggest that female dentists are more likely to provide care for younger patients than male dentists and may work in practice settings with higher percentages of historically underserved patients.
- Trends in the diversification of the dental workforce should be evaluated over time so that pipeline programs, policy advocates, and professional stakeholders can be proactive in responding to changes in practice patterns.
- Innovative service delivery models such as integration of primary care with oral health, expanding scopes of practice for other dental professionals, use of mobile dentistry or teledentistry, and providing workforce incentives can be considered when addressing the health care needs of the growing and aging US population.



## Study Limitations and Future Research

- Study Limitations:**
  - The relatively small sample size is a potential limitation that may have an impact on the statistical power generalizability of the study findings.
  - A possible survey nonresponse bias related to dentists' characteristics (such as age, general practitioner or specialist status, ADA membership status, and geography) was addressed by weighting the study estimates.
  - Another potential limitation is the recall bias; however, it is unlikely that there were systematic differences in completeness/accuracy of information reported by gender.
  - Lastly, the cross-sectional study design does not allow the assessment of causal relations.
- Future Research:**
  - To investigate the influence of some other important factors not collected in the SDP such as marital status, household annual income, number and age of children, and workplace flexibility on differences in practice patterns by gender among dentists.



## Thank You

### Questions?

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