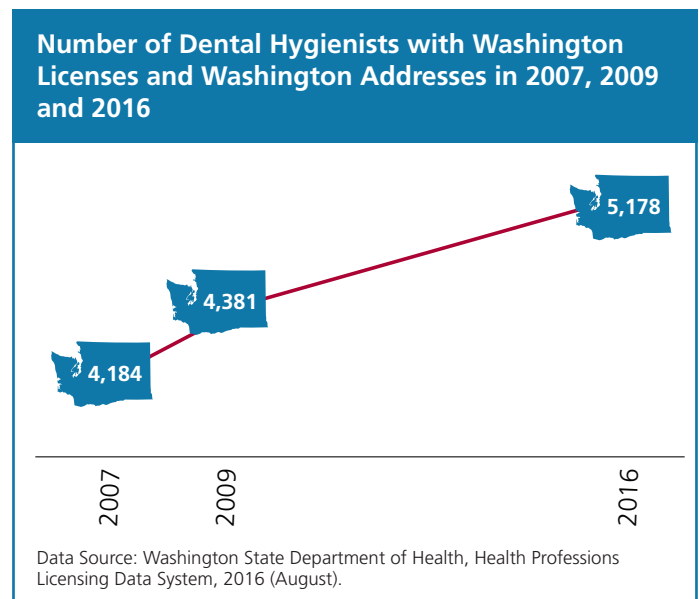
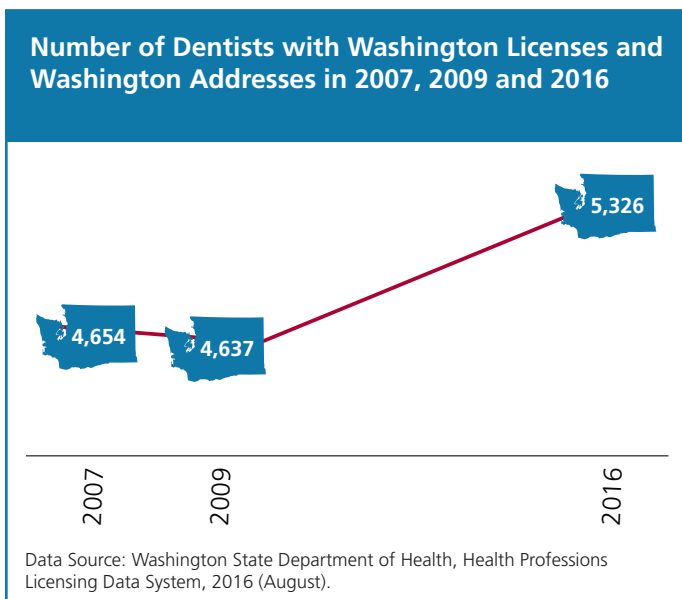


The University of Washington Center for Health Workforce Studies, with funding from the Arcora Foundation, conducted this study to answer key questions about the current supply of Washington state's oral health workforce, patient access to oral health care, and the integration of oral health with primary care.

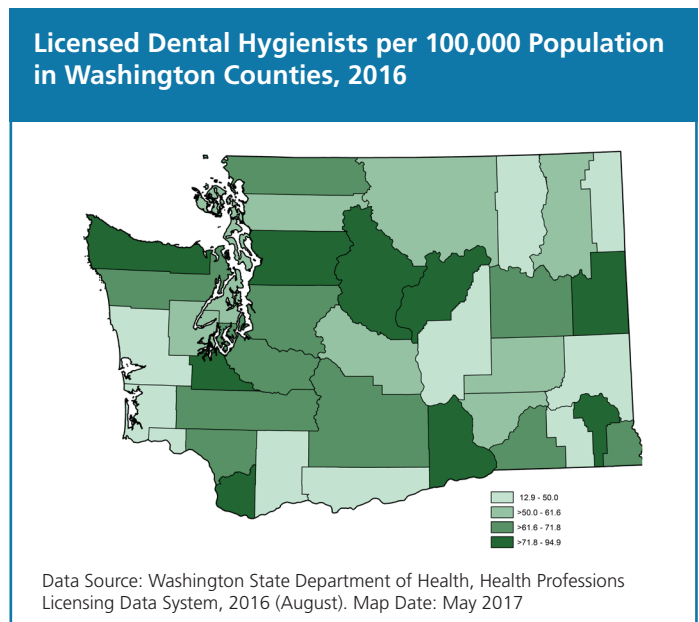
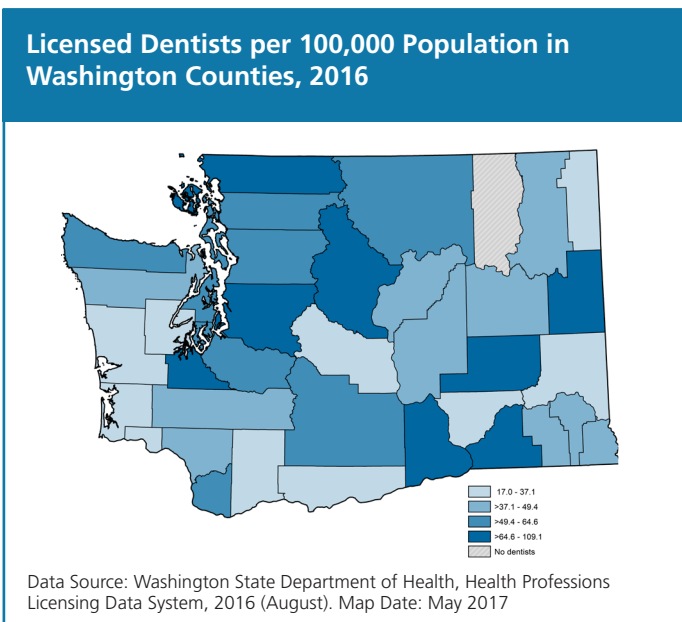
Assessing the Impact of Washington State's Oral Health Workforce on Patient Access to Care

SUPPLY OF ORAL HEALTH PROFESSIONALS

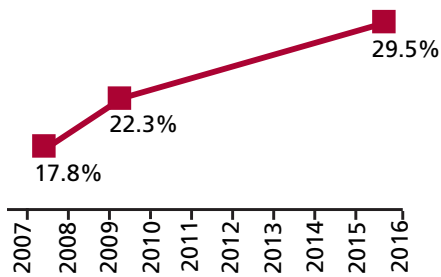
Overall dentists and dental hygienist supply increased from 2007 to 2016



Dentists and dental hygienists were unevenly distributed across Washington state's counties in 2016



Percent of Dentists Who Are Female in Washington State, 2016

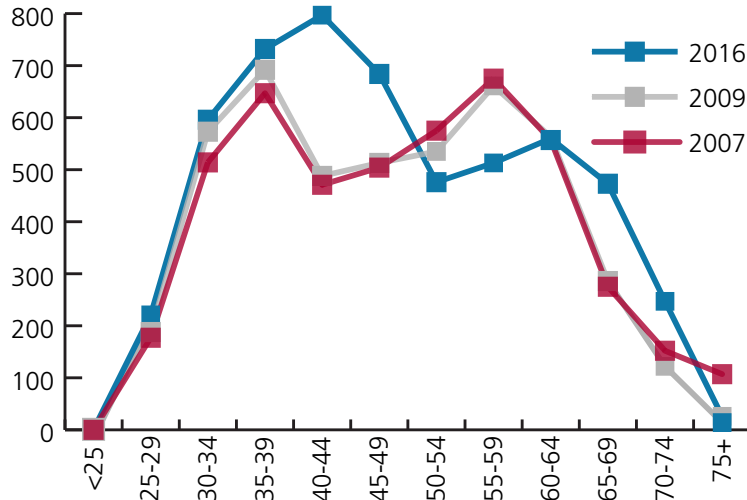


Data Source: Washington State Department of Health, Health Professions Licensing Data System, 2016 (August).

Women are an increasing share of dentists in Washington state

The increasing share of women in dentistry in Washington is consistent with the national trend.

Dentists by Age Group in Washington State

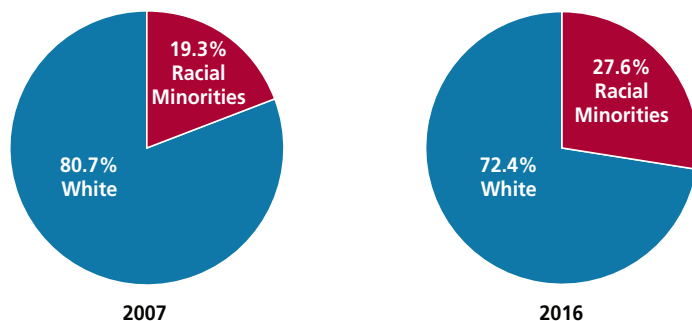


Data Source: Washington State Department of Health, Health Professions Licensing Data System, 2016 (August).

The age distribution of the dentist workforce in Washington has changed from 2007 to 2016

The number of dentists in their 30's and 40's has increased since 2007, while the number of dentists in their 50's and early 60's has decreased.

Washington Dentists by Race, 2007 and 2016



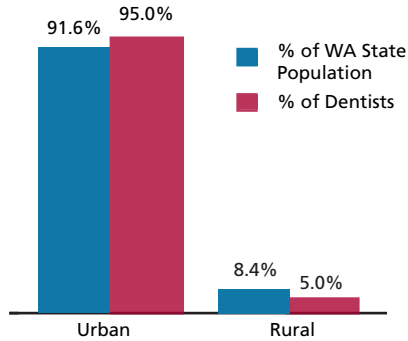
More Washington dentists are from racial/ethnic minority groups in 2016 than in 2007, but several groups remain underrepresented

Proportionally more dentists reported being from a racial minority group (27.6%) in 2016 than in 2007 (19.3%). Most of this increase occurred among Asians: those reporting their race as Asian only were 14.1% of practicing dentists in 2007, compared with 20.9% in 2016. Thus African American, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, and Hispanic populations remain underrepresented in dentistry.

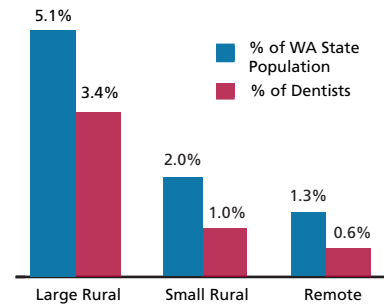
Washington's rural areas had a disproportionately low supply of dentists and dental hygienists compared with urban areas in 2016

Urban and Rural Distribution of Washington State Dentists and Population, 2016

2016 Urban-Rural Population and Dentist Distribution in Washington State



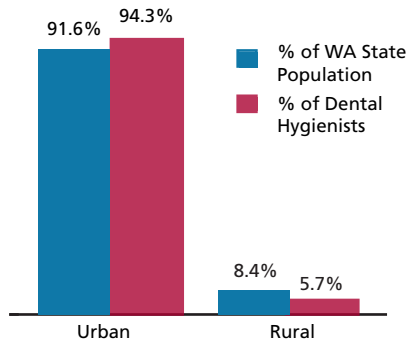
2016 Population and Dentist Distribution by Rural Area Type in Washington State



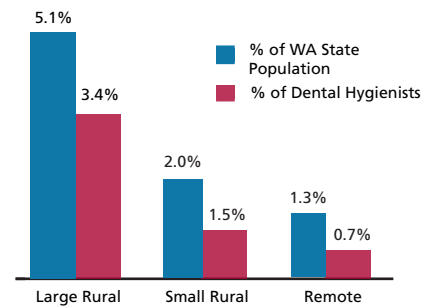
Data Source: Washington State Department of Health, Health Professions Licensing Data System, 2016 (August), and Washington State Office of Financial Management Population Data, 2016.

Urban and Rural Distribution of Washington State Dental Hygienists and Population, 2016

2016 Urban-Rural Population and Dental Hygienist Distribution in Washington State



2016 Population and Dental Hygienist Distribution by Rural Area Type in Washington State

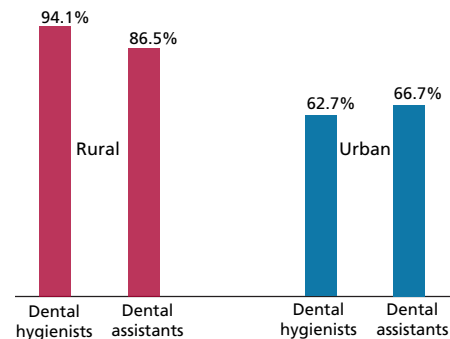


Data Source: Washington State Department of Health, Health Professions Licensing Data System, 2016 (August), and Washington State Office of Financial Management Population Data, 2016.

Both urban and rural dentists report difficulty recruiting dental hygienists and dental assistants, but rural dentists report far more difficulty

Rural Versus Urban Dentists: Difficulty Recruiting Dental Hygienists and Dental Assistants in Washington State, 2016

"Very" or "Somewhat" Difficult to Recruit

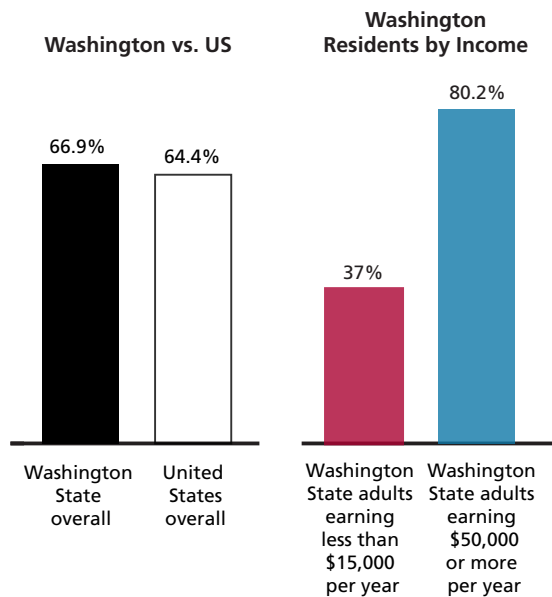


Data Source: University of Washington Center for Health Workforce Studies Survey of Dentists, 2016.

ACCESS TO ORAL HEALTH CARE

More Washington residents visited the dentist in 2014 compared with the U.S. population, but access differed greatly by income level

Percentage of Washington Residents Visiting a Dentist in 2014

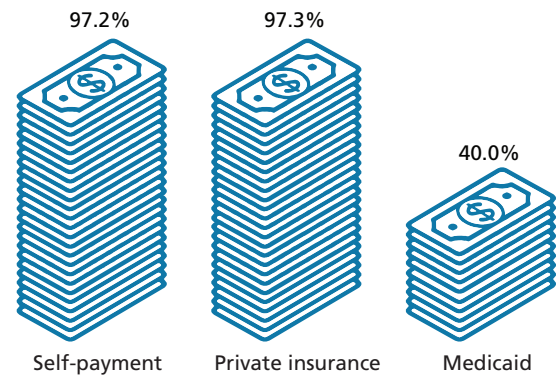


Data Source: Centers for Disease Control and Prevention.

40% of Washington dentists accepted Medicaid for payment in 2016

Almost all dentists reported accepting self-payments (97.2%) and private insurance (97.3%). 40.0% of dentists reported accepting Medicaid.

Forms of Payment Accepted by Washington Dentists, in 2016

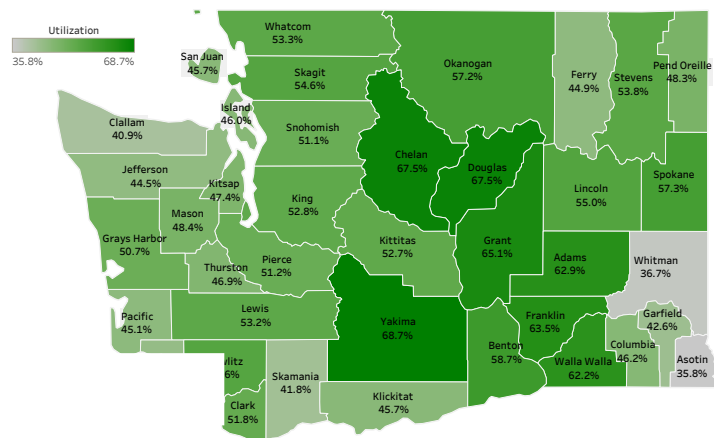


Data Source: University of Washington Center for Health Workforce Studies Survey of Dentists, 2016.

The Medicaid utilization rate for children was more than double the rate for adults in 2016

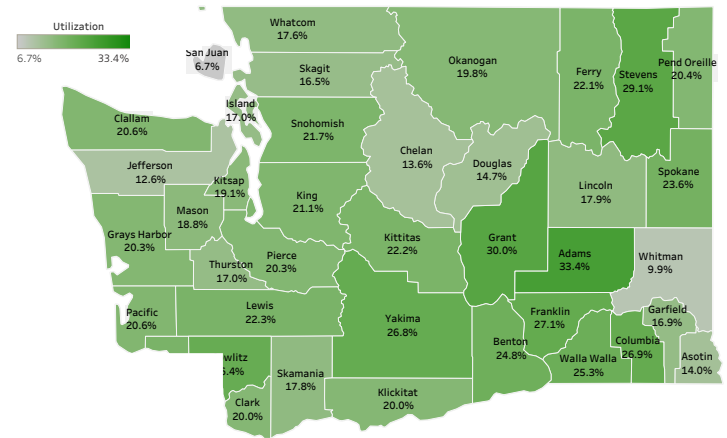
Utilization of dental services by Medicaid enrollees—those using at least one dental service in 2016—varied considerably across counties around Washington state for both children (age 20 and under) and adults (age 21 and older).

Medicaid Enrollees Age 20 and Under with at Least One Dental Service, by County, FY 2016



Data Source: Washington State Health Care Authority

Medicaid Enrollees 21 and Older with at Least One Dental Service, by County, FY 2016



Data Source: Washington State Health Care Authority

The numbers of adults and children eligible for and receiving Medicaid dental services have increased from 2011 to 2016

Table 1. Dental Service Provision to Medicaid-eligible Populations in Washington State; 2011, 2016

Population	Year	Eligible for Medicaid Dental Services	% of Eligibles Receiving Dental Services	Average Users per Provider
Adult (21+ years)	2011	487,649	21.4%	88
	2016	1,120,265	22.1%	227
Child (<21 years)	2011	866,234	52.8%	315
	2016	994,555	56.3%	411

Data Source: Washington State Health Care Authority

Restorative work was the largest category of Medicaid payments in 2011 and 2016

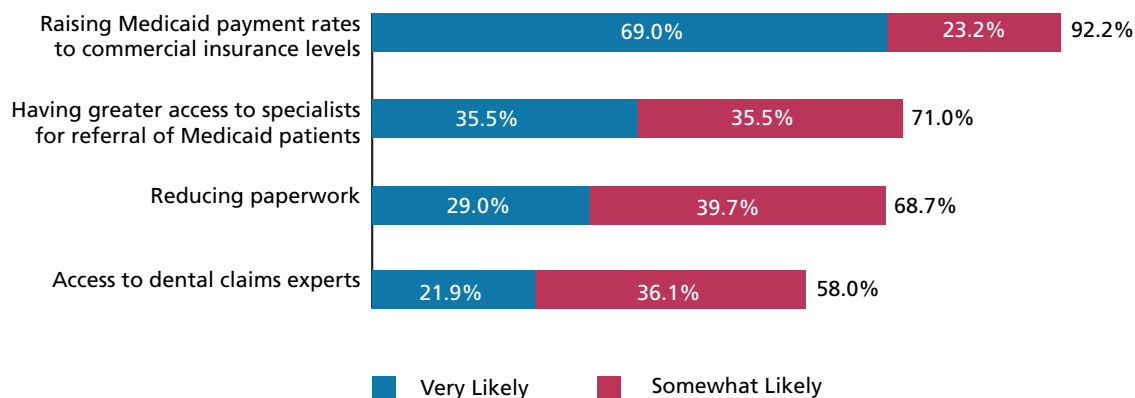
Table 2. Payments for Medicaid Dental Services in Washington State by Type of Service; 2011, 2016

Population	Year	Total cost	Diagnostics	Preventive care	Restorative work	Oral surgery	Removable prosthodontics
Adult (21+ years)	2011	\$39,556,687	11.5%	3.0%	15.5%	13.5%	14.2%
	2016	\$122,026,130	9.9%	2.7%	13.4%	9.5%	8.4%
Child (<21 years)	2011	\$204,508,555	15.0%	15.6%	25.6%	5.0%	<0.1%
	2016	\$243,655,097	15.9%	15.6%	21.3%	5.0%	<0.0%

Data Source: Washington State Health Care Authority

Increased payment rates, access to specialists for referral, and reduced paperwork are the most favorably reported ways to encourage dentists to accept patients on Medicaid

Medicaid Program Changes That Were "Very" or "Somewhat Likely" To Encourage Washington's Dentists to Continue Seeing or Accept New Medicaid Patients, 2016

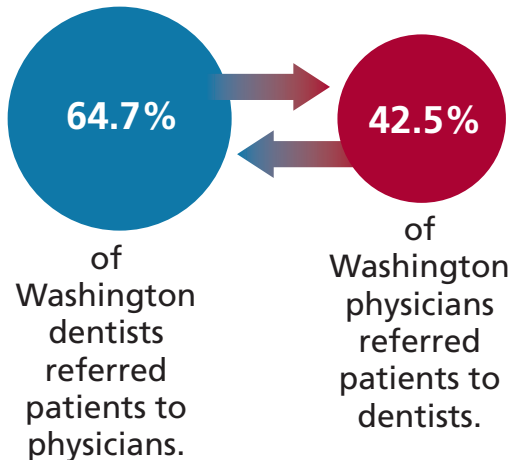


Data Source: University of Washington Center for Health Workforce Studies Survey of Dentists, 2016.

ORAL HEALTH AND PRIMARY CARE INTEGRATION

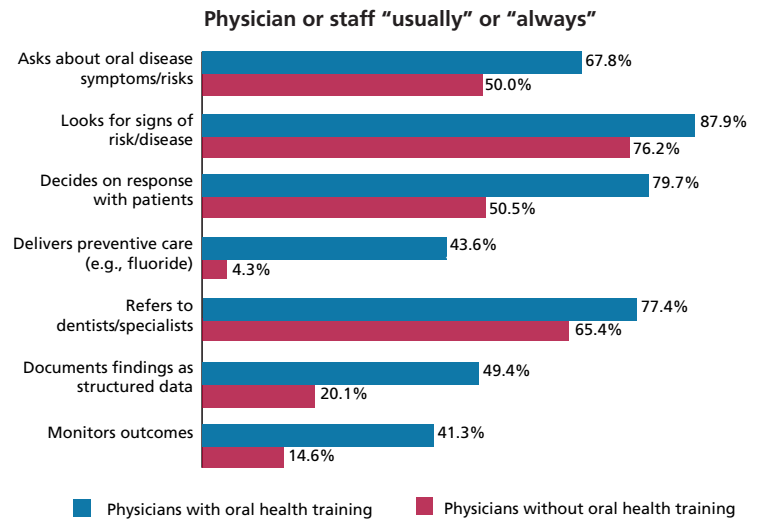
Dentists refer patients to physicians more often than physicians to dentists

Patient Referrals Between Washington Dentists and Physicians, 2016



Physicians trained in oral health services for children provide these services more often than physicians without training

Provision of Oral Health Services for Children by Physician* or Practice Staff, by Physician's Oral Health Training Status, 2016

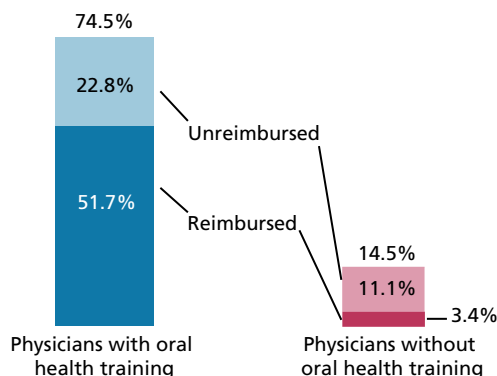


Data Source: University of Washington Center for Health Workforce Studies Surveys of Family Physicians and Pediatricians in Washington State, 2016.

*Includes family physicians and pediatricians.

More physicians with oral health training provided these services and were paid for them in 2016 than physicians without training

Physician* Reimbursement for Oral Health Preventive Services for Children by Oral Health Training Status, 2016

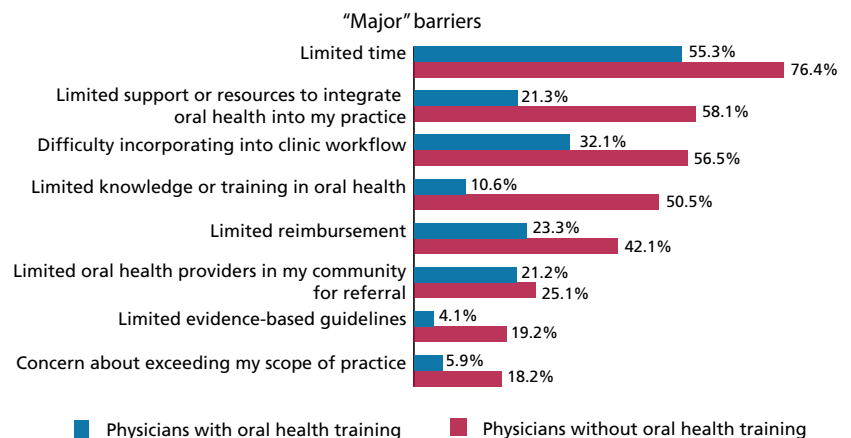


Data Source: University of Washington Center for Health Workforce Studies Surveys of Family Physicians and Pediatricians in Washington State, 2016.

*Includes family physicians and pediatricians.

Physicians with training reported fewer perceived barriers to providing oral health services for children than physicians without training

Physicians'* Perceived Major Barriers to Providing Oral Health Preventive Services for Children by Oral Health Training Status, 2016



Data Source: University of Washington Center for Health Workforce Studies Surveys of Family Physicians and Pediatricians in Washington State, 2016.

*Includes family physicians and pediatricians.

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http://depts.washington.edu/fammed/chws/wp-content/uploads/sites/5/2017/11/Washington_State_Oral_Health_Workforce_FR_Nov_2017_Patterson.pdf

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