

Information Summary and Recommendations

Report on Substitute House Bill 2881

Practice of Dentistry - Licensing

December 2009



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Dental Quality Assurance Commission

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Executive Summary

In 2008, the Washington State Legislature passed Substitute House Bill (SHB) 2881, Practice of Dentistry – Licensing (Appendix A). This bill revised RCW 18.32.215 by adding an option to allow a dentist to qualify for licensure in Washington if the dentist had practiced in another state for at least four years and completed a one-year postdoctoral residency program approved by the Dental Quality Assurance Commission (dental commission).

Prior to SHB 2881, a graduate of a non-Commission on Dental Accreditation (CODA) dental program or a foreign-trained dentist had to complete at least two predoctoral or postdoctoral academic years of dental school from an approved program to qualify for licensure in Washington.

The bill:

- Adds an alternative qualification option for foreign-trained dentists to obtain licensure in Washington.
- Requires the dental commission to report to the governor and legislature by November 15, 2009 with recommendations for appropriate standards for issuing a license to foreign-trained dentists.
- Expires July 1, 2010.

The dental commission established a committee of commission members that worked with stakeholders to gather and share information about:

- The number of foreign-trained dentists issued a license in Washington from September 2006 to September 2008.
- Other state licensing standards.
- Unmet dental care needs.
- The Washington State Oral Disease Burden Document produced by the Department of Health, Community Family Health Division.
- The number of foreign-trained dentists issued a Medicaid provider number from September 2006 to September 2008.

The dental commission recognizes that there are health professional shortage areas in Washington. The national standard for dental education is accreditation from CODA, and most states require foreign-trained dentists to obtain two years of additional education for dental licensure. The dental commission has been actively reducing licensure barriers for all dentist applicants during the past several years. There is no data available that shows increased access to care if foreign-trained dentist licensing requirements are changed. National education standards are in place to ensure qualified dentists are providing appropriate care. Maintaining licensing requirements ensures patient safety. Creating alternative licensure for foreign-trained dentists is difficult to implement and does not ensure patient safety.

RECOMMENDATION

The Dental Quality Assurance Commission, in consultation with the Secretary of Health, recommends continuing the licensing standards created by SHB 2881. This allows foreign-trained dentists who have practiced in another state for at least four years and who have completed a one-year postdoctoral residency to become licensed in Washington.

Requirements of Substitute House Bill (SHB) 2881

SHB 2881 adds an alternative option to allow a dentist to qualify for licensure in Washington if the dentist has practiced in another state for at least four years and completes a one-year postdoctoral residency program approved by the dental commission. This provision expires on July 1, 2010.

The dental commission is required to make recommendations for appropriate standards for licensing foreign-trained dentists to the governor and legislature by November 15, 2009. The recommendations shall consider:

- The balance between
 - Maintaining assurance that Washington's dental professionals are well qualified; and
 - Planning for an adequate supply of dentists to meet future needs of Washington's diverse urban and rural communities.
- The use of standards established by accreditation organizations.
- Other options to reduce barriers to licensure.

History of Dental Licensing Standards

Applicants for a license to practice dentistry may obtain a license without fulfilling the examination requirement if they hold a license in another state where they are actively practicing and if they graduated from a dental school that has been approved by the dental commission. In 1993, the dental commission adopted American Dental Association's Commission on Dental Accreditation (CODA) standards for the approval of dental schools. The dental commission requires applicants who graduated from a dental school that is not accredited by the CODA, but is either approved by the dental commission or listed by the World Health Organization, to complete at least two additional predoctoral or postdoctoral years of dental education.

Licensing barriers were reduced in Substitute House Bill 1689, Chapter 454, Laws of 2005. That bill created an alternative licensing standard for dentists. Applicants for licensure may complete a postdoctoral residency program in a community health clinic that serves predominantly low-income patients or is located in a dental care health professional shortage area in Washington in lieu of passing a practical dental examination. There is currently one approved residency postdoctoral program in Washington, Northwest Dental Residency Program at Yakima Valley Farmworkers Clinic.

In 2008, the dental commission again reduced licensing barriers in Washington by amending its rules. WAC 246-817-110 Dental Licensure – Initial Eligibility and Application Requirements was modified to:

1. Add the Canadian National Dental Examining Board examination as an approved examination;

2. Recognize those applicants who are students or graduates of dental schools in the United States or Canada that are approved by CODA;
3. Provide an exception for dentists who wish to be licensed in Washington who obtained initial licensure in a state prior to that state's requirement for successful completion of the national boards;
4. Accept a qualifying postgraduate residency program in lieu of successful completion of an approved practical/clinical examination.

WAC 246-817-120 Examination Content was modified to accept the results of three regional dental testing services/agencies and other states with individual state board examinations for dental licensure in Washington.

Oral Health Care Needs

The executive summary of the Washington State Oral Disease Burden Document, published by the department in July 2007, states that the U.S. Surgeon General characterizes good oral health as a prerequisite for general health and quality of life. Oral health affects people both physically and psychologically. It influences how they grow, enjoy life, look, speak, chew, taste food, and socialize. Poor oral health produces negative effects to children and adults in all settings – home, community, work, and social activities.

In 2007, Washington State Dental Association compiled data showing the number of actively licensed dentists in each of Washington's 49 legislative districts. The statewide average was 87.24 dentists for each district, with each district averaging 120,285 people. Measuring dentist/population by legislative district allows a comparable ratio, as district populations are nearly uniform (Appendix E).

The capstone report provided by Naseem Bazargan, "Addressing the Shortage of Dental Providers for Low-Income and Uninsured populations in Washington State: Dental licensing, foreign trained dentists, and policy considerations," provides information on access to oral health care in Washington (Appendix G).

Foreign-Trained Dentists: Findings

Washington State licensing data was compiled for the period of September 2006 through August 2008. Twenty-one percent (132 of 636) of dentist licenses issued were graduates of non-CODA accredited education (i.e., foreign-trained). About 30 percent of the 132 foreign-trained dentists held a dental license in another state (Appendix B).

The national dental licensing standard requires two years of additional education for foreign-trained graduates. Almost all states require two years of additional education through a CODA educational program and appropriate examinations for graduates of non-accredited dental programs to obtain licensure. Nine of 50 states allow graduates of non-accredited dental programs to obtain licensure by having a license in another state.

Eight of the nine require at least two years of additional education through a CODA educational program.

As of July 1, 2009, no dentist has applied for Washington State dental licensure using the requirements of SHB 2881.

There have been 24 graduates of the Northwest Dental Residency Program at the Yakima Valley Farmworkers Clinic since June 2007. Eleven of the 24 graduates obtained a Washington State dental license and practiced and/or are still practicing in Washington. Data is unavailable on whether the 10 foreign-trained graduates from the residency program practice in Washington. Graduates of this residency were not required to take the clinical dental examination and met the two-year postgraduate education requirement for foreign-trained dentists.

Postdoctoral and predoctoral two-year education programs are available throughout the nation. In Washington, the University of Washington School of Dentistry (UW) provides many programs that meet the two-year educational standard for licensure. In 2009, the UW created a new two-year program specifically for foreign-trained dentists. Graduates of this program will receive a doctor of dental surgery degree.

Naseem Bazargan, from the University of Washington School of Public Health, provided a summary of recently licensed dental workforce data for the dental commission to consider for this report.

Study Aims

1. Describe Washington State's dental workforce in general and recent licensees in particular.
2. Compare foreign- and U.S.-trained dentists, particularly in regard to participation in Medicaid, and determine whether participation varies between dentists who are licensed by credentials or by examination.
3. Compare the characteristics of foreign- and U.S.-trained dentists who are enrolled as Medicaid providers and/or practice in underserved areas.

Study Sample

The study sample consisted of all (n=688) foreign- and U.S.-trained dentists in Washington State issued a license between September 1, 2006, and September 30, 2008.

Variables and Measures

The following variables were collected for the entire cohort of dentists:

- Name
- Age (date of birth)
- Sex
- Washington dental license number

- Initial dental license date (dd/mm/yyyy) in Washington
- Training status (initial dental education completed abroad or in the U.S.)
- Credentialing method (examination or endorsement)
- Medicaid provider enrollment (with or without Medicaid provider number, and if so, date effective)

For dentists enrolled as Medicaid providers, dental practice addresses were also available, allowing for the identification of the following:

- Practicing in urban or rural area (yes or no)
- Practicing in a dental health professional shortage area (yes or no)

Key Results

Aim 1. Characteristics of Washington State’s Recent Dental Workforce

38 percent Female, 63 percent Male (percentages are rounded up)
 30 percent Endorsement, 70 percent Examination
 20 percent Foreign-Trained, 80 percent U.S.-Trained
 23 percent Enrolled as Medicaid provider

Average age: 35 years, with dentists licensed via examination younger than those licensed via endorsement.

Aim 2. Comparison of Foreign- and U.S.-Trained dentists

Significant relationships:

- Foreign-trained more likely than U.S.-trained to be licensed via examination
- Foreign-trained more likely than U.S.-trained to be female
- Foreign-trained less likely than U.S.-trained to participate in Medicaid
- All dentists licensed via examination more likely than dentists licensed via endorsement to participate in Medicaid (Appendix C for percentage comparisons).

Aim 3. Characteristics of Newly Licensed Foreign- versus U.S.-Trained Dentists Participating in Medicaid

Among dentists enrolled as Medicaid providers, no significant differences in proportions between foreign- and U.S.-trained dentists except for sex; foreign-trained dentists participating in Medicaid were more likely to be female than U.S.-trained dentists participating in Medicaid (Appendix D for percentage comparisons).

In 2008, the Washington State Dental Association compiled UW dental student foreign language competency data (Appendix F).

Breakdown of UW School of Dentistry Classes 1999-2010

Total Students	631
Students self-reporting speaking at least one foreign language	242 (38.4%)
Students self-reporting speaking at least one foreign language fluently	140 (22.2%)

Options Considered to Reduce Barriers to Licensure

The dental commission considered the following options to reduce barriers to licensure:

1. Accept foreign-trained dentists who have been licensed in another U.S. state for at least five years and obtain two years preceptorship (limited license type) in Washington. The preceptorship could be in a community clinic or private office.
 - Stakeholder and dental commission discussion included the difficulty of creating and implementing a limited license of this type.
 - **This option does not ensure public protection or applicant qualifications.**

2. Require foreign-trained dentists to practice in community clinics for a period of time.
 - The dental commission considered this option to increase the number of dentists providing care in underserved communities. It determined that underserved communities included more than community clinics. Access to care should include all Washington residents.
 - Stakeholder and dental commission discussion included the difficulty of creating and implanting a temporary or limited license of this type.
 - **This option does not ensure public protection or applicant qualifications.**

3. Continue licensing the standard created by SHB 2881 - the dentist practiced in another state for at least four years, and completed a one-year postdoctoral residency approved by the dental commission.
 - Although there have been no dental licenses issued using SHB 2881, this standard is the best option to ensure qualified dentists are providing appropriate care and to ensure patient safety.

Recommendations

The Dental Quality Assurance Commission in consultation with the Secretary of Health recommends:

- Continuing licensing standards as created by SHB 2881 requiring the applicant to have:
 - Practiced in another state for at least four years; and
 - Completed a one-year postdoctoral residency approved by the dental commission.

Appendix A

CERTIFICATION OF ENROLLMENT

SUBSTITUTE HOUSE BILL 2881

60th Legislature
2008 Regular Session

Passed by the House March 8, 2008
Yeas 93 Nays 0

CERTIFICATE

Speaker of the House of Representatives

Passed by the Senate March 6, 2008
Yeas 47 Nays 0

President of the Senate
Approved

I, Barbara Baker, Chief Clerk of the House of Representatives of the State of Washington, do hereby certify that the attached is **SUBSTITUTE HOUSE BILL 2881** as passed by the House of Representatives and the Senate on the dates hereon set forth.

Chief Clerk

FILED

Governor of the State of Washington

**Secretary of State
State of Washington**

SUBSTITUTE HOUSE BILL 2881

AS AMENDED BY THE SENATE

Passed Legislature - 2008 Regular Session

State of Washington

60th Legislature

2008 Regular Session

By House Health Care & Wellness (originally sponsored by Representatives Hinkle, Kenney, and Cody)

READ FIRST TIME 02/04/08.

AN ACT Relating to the practice of dentistry; amending RCW 18.32.215; adding a new section to chapter 18.32 RCW; and providing an expiration date.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

Sec. 1 RCW 18.32.215 and 2003 c 57 s 2 are each amended to read as follows:

(1) An applicant holding a valid license and currently engaged in practice in another state may be granted a license without examination required by this chapter, on the payment of any required fees, if the applicant:

(a) Is a graduate of a dental college, school, or dental department of an institution approved by the commission under RCW 18.32.040(1); or

(b)(i) Has practiced in another state for at least four years; and

(ii) Has completed a one-year postdoctoral residency approved by the commission. The residency may have been completed outside Washington.

(2) The commission may also require the applicant to: ~~((1))~~ (a) File with the commission documentation certifying the applicant is licensed to practice in another state; and ~~((2))~~ (b) provide information as the commission deems necessary pertaining to the conditions and criteria of the Uniform Disciplinary Act, chapter 18.130 RCW, and to demonstrate to the commission a knowledge of Washington law pertaining to the practice of dentistry.

NEW SECTION. **Sec. 2** A new section is added to chapter 18.32 RCW to read as follows:

By November 15, 2009, the commission shall report to the governor and the legislature with recommendations for appropriate standards for issuing a license to a foreign-trained dentist. The recommendations shall consider the balance between maintaining assurances that Washington's dental professionals are well-qualified and planning for an adequate supply of dentists to meet the future needs of Washington's diverse urban and rural communities. In addition to considering the use of standards established by accreditation organizations, the recommendations shall consider other options to reduce barriers to licensure.

NEW SECTION. **Sec. 3** This act expires July 1, 2010.

--- END ---

Appendix B

Compiled by Naseem Bazargan using Washington State dental licenses issued from September 2006 through August 2008.

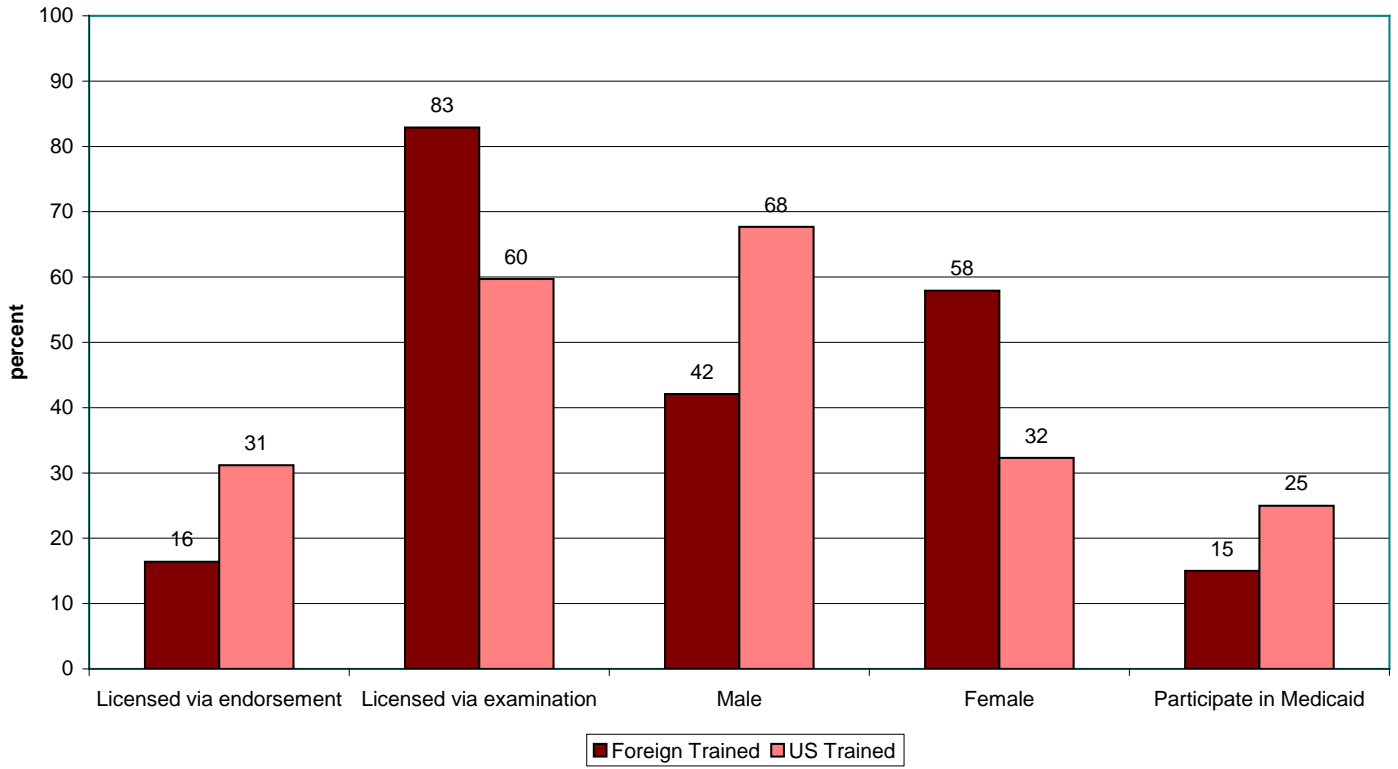
Total Applications Reviewed	636
Total Foreign Trained	132
Percentage of Total	21%

Variable	Percent of Total (n=132)
Application for License Via Examination	82.6%
Application for License Without Examination	17.4%
Female	58.3%
Male	41.7%
Average Age	34
Previously Fully Licensed in Other US State	29.5%
Country of Birth (top five)	
India	25.8%
China	9.1%
Taiwan	7.6%
S. Korea	7.6%
Canada	4.5%
Peru	4.5%
US	3.8%
Romania	3.8%
Foreign Dental Schools (most frequent)	
Cayetano Heredia Peruvian University, Peru	4.5%
Peking University (Beijing Medical University), China	3.8%
University of Sydney, Australia	3.0%
University of the Philippines, Philippines	3.0%
Taipei Medical University, Taiwan	3.0%
Azad University, Iran	3.0%
Damascus University, Syria	2.3%
Francisco Marroquin University, Guatemala	2.3%
Govt. Dental College and Hospital, Mumbai, India	2.3%
Kaohsiung Medical University, Taiwan	2.3%
University of Alberta, Canada*	2.3%
West China University of Medical Sciences, China	2.3%
Yonsei University School of Dentistry, S. Korea	2.3%

* University of Alberta, Canada is a CODA accredited school

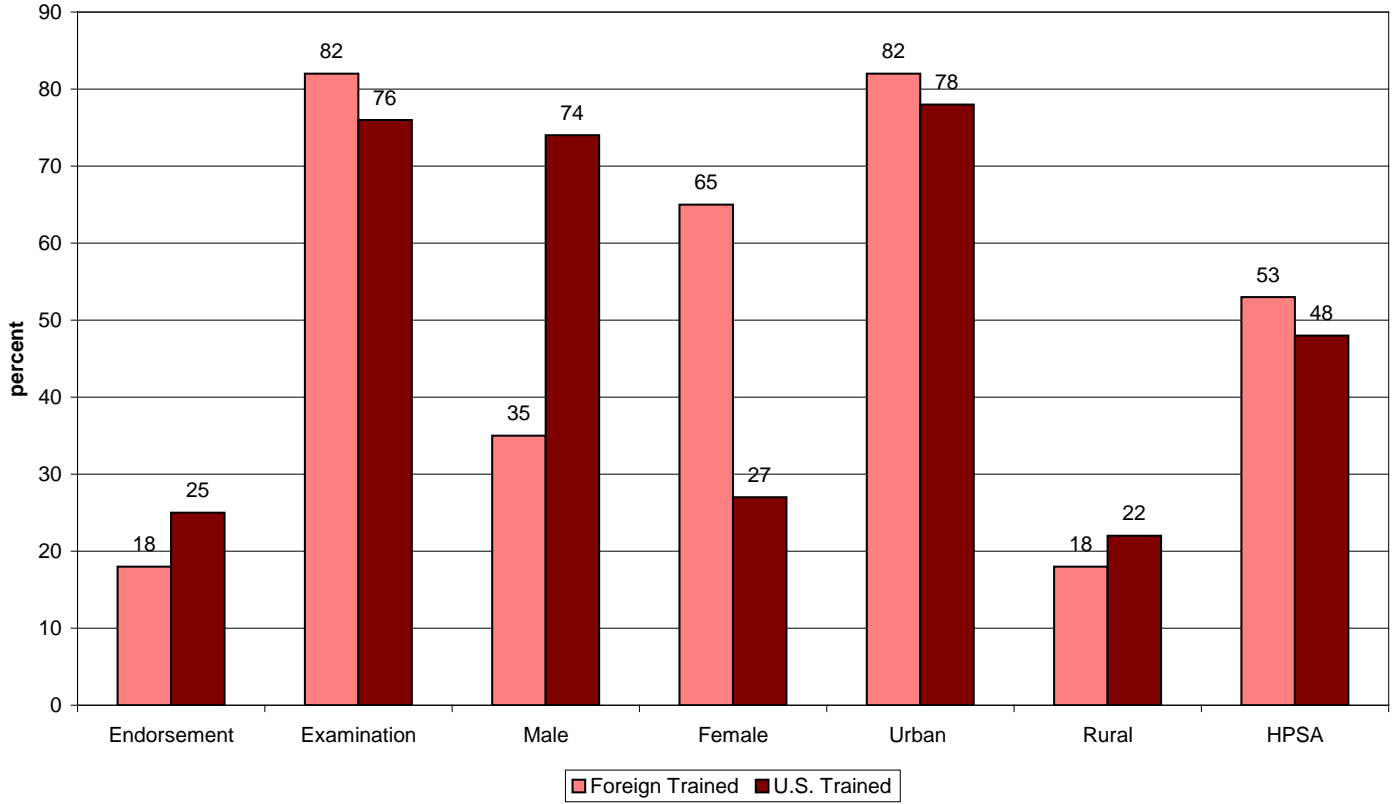
Appendix C

**Figure 1. Characteristics of newly licensed foreign and U.S. trained dentists.
September 01, 2006 - September 30, 2008**



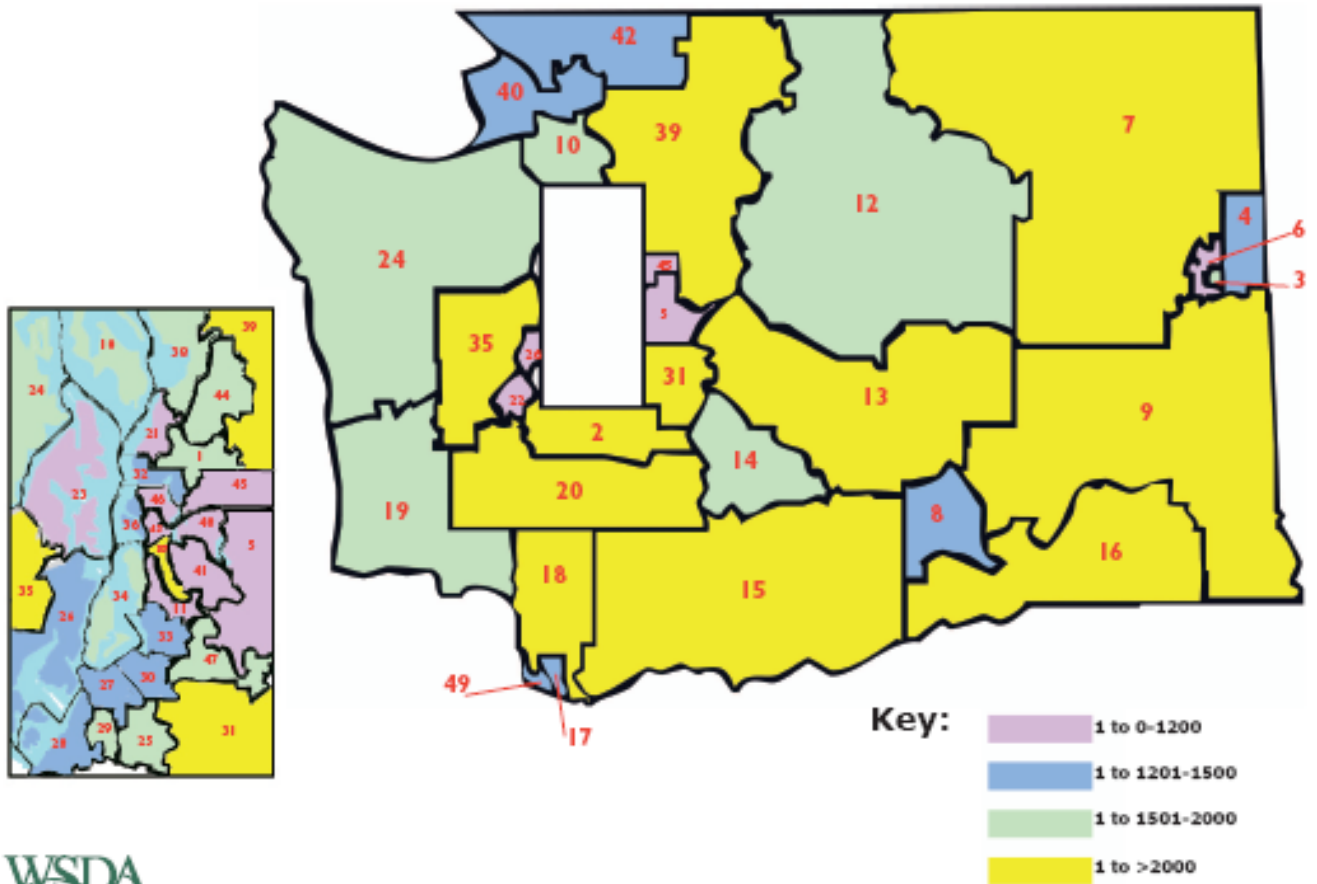
Appendix D

Figure 2. Characteristics Of Newly Licensed Foreign And U.S. Trained Dentists Participating In Medicaid. September 01, 2006 - September 30, 2008



Appendix E

Distribution of dentists by legislative districts Ratio of dentists to district population



Distribution of Dentists by Legislative District

Sorted by Legislative District							
Leg District	Main Cities	2000 Population	# of WSDA Dentists	# of non-WSDA Dentists	# of all Dentists in District	Total Dentists to Pop (1 to)	Rank by Ratio
1	Bothell, Edmonds, Lynnwood, Brier	120,291	43	25	68	1,768.99	34
2	Eatonville, Yelm, Roy, Rainier	120,370	15	10	25	4,814.80	49
3	Spokane	120,287	67	3	70	1,718.39	32
4	Spokane Valley, Millwood, Liberty Lake	120,286	84	5	89	1,351.53	19
5	Issaquah, North Bend, Sammamish	120,288	92	40	132	911.27	6
6	Spokane	120,293	114	11	125	962.34	8
7	Colville, Tonasket, Oroville, Davenport	120,290	41	1	42	2,864.05	42
8	Richland, Kennewick, Prosser	120,289	74	14	88	1,366.92	21
9	Othello, Cheney, Pullman, Colfax	120,287	36	3	39	3,084.28	44
10	La Conner, Burlington, Oak Harbor	120,300	45	7	52	2,313.46	39
11	Tukwila, Renton, Seattle	120,329	87	26	113	1,064.86	9
12	Wenatchee, Chelan, Okanogan	120,286	69	11	80	1,503.58	25
13	Moses Lake, Ellensburg, Cle Elum	120,290	33	5	38	3,165.53	45
14	Yakima, Selah, Union Gap, W. Valley	120,285	65	10	75	1,603.80	29
15	White Salmon, Toppenish, Grandview	120,287	30	3	33	3,645.06	47
16	Dayton, Pasco, Walla Walla, Finley	120,288	47	11	58	2,073.93	37
17	Vancouver, Battle Ground, Camas	120,288	72	23	95	1,266.19	14
18	Kelso, Woodland, Castle Rock, Camas	120,111	32	14	46	2,611.11	40
19	Longview, Long Beach, Kelso	120,301	55	8	63	1,909.54	35
20	Chehalis, Centralia, Olympia	120,296	33	3	36	3,341.56	46
21	Edmonds, Lynnwood, Mukilteo	120,286	92	33	125	962.29	7
22	Lacey, Olympia, Tumwater	120,281	122	20	142	847.05	5
23	Bainbridge Island, Poulsbo, Kingston	120,250	100	9	109	1,103.21	10
24	Forks, Sequim, Port Angeles, Hoquiam	120,277	53	8	61	1,971.75	36
25	Fife, Edgewood, Puyallup, Milton	120,282	54	17	71	1,694.11	31
26	Port Orchard, Gig Harbor, Bremerton	120,307	64	17	81	1,485.27	24
27	Tacoma, Ruston, Fife	120,371	81	19	100	1,203.71	12
28	Dupont, Lakewood, University Place	120,248	55	29	84	1,431.52	23
29	Tacoma, Parkland, University Place	120,298	66	10	76	1,582.87	28
30	Federal Way, Pacific, Algona	120,294	69	23	92	1,307.54	16
31	Auburn, Enumclaw, Bonney Lake	120,299	35	11	46	2,615.20	41
32	Edmonds, Kenmore, Shoreline	120,307	72	20	92	1,307.68	17
33	SeaTac, Des Moines, Tukwila, Kent	120,121	73	13	86	1,396.76	22
34	West Seattle, Burien, Vashon Island	120,297	51	18	69	1,743.43	33
35	Shelton, Elma, Bremerton, Oakville	120,303	24	8	32	3,759.47	48
36	Sea: Fremont, Queen Anne, Ballard	120,288	64	34	98	1,227.43	13
37	Renton, Seattle	120,279	29	26	55	2,186.89	38
38	Everett, Marysville	120,284	67	12	79	1,522.58	26
39	Arlington, Monroe, Sedro-Woolley	120,298	30	10	40	3,007.45	43
40	Friday Harbor, Bellingham, Mt. Vernon	120,279	74	15	89	1,351.45	18
41	Mercer Island, Bellevue, Newcastle	120,289	100	76	176	683.46	3
42	Bellingham, Ferndale, Blaine, Lynden	120,288	72	16	88	1,366.91	20
43	Sea: Capitol Hill, U. Dis., Wallingford	120,254	188	94	282	426.43	1
44	Mill Creek, Snohomish, Lake Stevens	120,283	59	15	74	1,625.45	30
45	Kirkland, Woodinville, Redmond, Duvall	120,286	75	27	102	1,179.27	11
46	Sea: Pinehurst, Ravenna, Greenwood	120,267	108	63	171	703.32	4
47	Kent, Auburn, Black Diamond	120,302	61	16	77	1,562.36	27
48	Bellevue, Redmond, Kirkland	120,294	161	55	216	556.92	2
49	Vancouver, Hazel Dell	120,467	73	22	95	1,268.07	15
Average		120,291	67.47	19.78	87.24	1,763.69	
Legislative Districts with 10 Highest Ratios of Dentists to Population							
Legislative Districts with 10 Lowest Ratios of Dentists to Population							

The number of WSDA dentists includes all practicing members.

The number of non-WSDA dentists includes all licensed non-member dentists under 55.

Leg. district is determined by business address; home address was used when business address was unknown.

Distribution of Dentists by Legislative District

Sorted by Dentists to Population Ratio (Lowest to Highest)							
Leg District	Main Cities	2000 Population	# of WSDA Dentists	# of non-WSDA Dentists	# of all Dentists in District	Total Dentists to Pop (1 to)	Rank by Ratio
43	Sea: Capitol Hill, U. Dis., Wallingford	120,254	188	94	282	426.43	1
48	Bellevue, Redmond, Kirkland	120,294	161	55	216	556.92	2
41	Mercer Island, Bellevue, Newcastle	120,289	100	76	176	683.46	3
46	Sea: Pinehurst, Ravenna, Greenwood	120,267	108	63	171	703.32	4
22	Lacey, Olympia, Tumwater	120,281	122	20	142	847.05	5
5	Issaquah, North Bend, Sammamish	120,288	92	40	132	911.27	6
21	Edmonds, Lynnwood, Mukilteo	120,286	92	33	125	962.29	7
6	Spokane	120,293	114	11	125	962.34	8
11	Tukwila, Renton, Seattle	120,329	87	26	113	1,064.86	9
23	Bainbridge Island, Poulsbo, Kingston	120,250	100	9	109	1,103.21	10
45	Kirkland, Woodinville, Redmond, Duvall	120,286	75	27	102	1,179.27	11
27	Tacoma, Ruston, Fife	120,371	81	19	100	1,203.71	12
36	Sea: Fremont, Queen Anne, Ballard	120,288	64	34	98	1,227.43	13
17	Vancouver, Battle Ground, Camas	120,288	72	23	95	1,266.19	14
49	Vancouver, Hazel Dell	120,467	73	22	95	1,268.07	15
30	Federal Way, Pacific, Algona	120,294	69	23	92	1,307.54	16
32	Edmonds, Kenmore, Shoreline	120,307	72	20	92	1,307.68	17
40	Friday Harbor, Bellingham, Mt. Vernon	120,279	74	15	89	1,351.45	18
4	Spokane Valley, Millwood, Liberty Lake	120,286	84	5	89	1,351.53	19
42	Bellingham, Ferndale, Blaine, Lynden	120,288	72	16	88	1,366.91	20
8	Richland, Kennewick, Prosser	120,289	74	14	88	1,366.92	21
33	SeaTac, Des Moines, Tukwila, Kent	120,121	73	13	86	1,396.76	22
28	Dupont, Lakewood, University Place	120,248	55	29	84	1,431.52	23
26	Port Orchard, Gig Harbor, Bremerton	120,307	64	17	81	1,485.27	24
12	Wenatchee, Chelan, Okanogan	120,286	69	11	80	1,503.58	25
38	Everett, Marysville	120,284	67	12	79	1,522.58	26
47	Kent, Auburn, Black Diamond	120,302	61	16	77	1,562.36	27
29	Tacoma, Parkland, University Place	120,298	66	10	76	1,582.87	28
14	Yakima, Selah, Union Gap, W. Valley	120,285	65	10	75	1,603.80	29
44	Mill Creek, Snohomish, Lake Stevens	120,283	59	15	74	1,625.45	30
25	Fife, Edgewood, Puyallup, Milton	120,282	54	17	71	1,694.11	31
3	Spokane	120,287	67	3	70	1,718.39	32
34	West Seattle, Burien, Vashon Island	120,297	51	18	69	1,743.43	33
1	Bothell, Edmonds, Lynnwood, Brier	120,291	43	25	68	1,768.99	34
19	Longview, Long Beach, Kelso	120,301	55	8	63	1,909.54	35
24	Forks, Sequim, Port Angeles, Hoquiam	120,277	53	8	61	1,971.75	36
16	Dayton, Pasco, Walla Walla, Finley	120,288	47	11	58	2,073.93	37
37	Renton, Seattle	120,279	29	26	55	2,186.89	38
10	La Conner, Burlington, Oak Harbor	120,300	45	7	52	2,313.46	39
18	Kelso, Woodland, Castle Rock, Camas	120,111	32	14	46	2,611.11	40
31	Auburn, Enumclaw, Bonney Lake	120,299	35	11	46	2,615.20	41
7	Colville, Tonasket, Oroville, Davenport	120,290	41	1	42	2,864.05	42
39	Arlington, Monroe, Sedro-Woolley	120,298	30	10	40	3,007.45	43
9	Othello, Cheney, Pullman, Colfax	120,287	36	3	39	3,084.28	44
13	Moses Lake, Ellensburg, Cle Elum	120,290	33	5	38	3,165.53	45
20	Chehalis, Centralia, Olympia	120,296	33	3	36	3,341.56	46
15	White Salmon, Toppenish, Grandview	120,287	30	3	33	3,645.06	47
35	Shelton, Elma, Bremerton, Oakville	120,303	24	8	32	3,759.47	48
2	Eatonville, Yelm, Roy, Rainier	120,370	15	10	25	4,814.80	49
Average		120,288	67.47	19.78	87.24	1,763.69	
Legislative Districts with 10 Highest Ratios of Dentists to Population							
Legislative Districts with 10 Lowest Ratios of Dentists to Population							

The number of WSDA dentists includes all practicing members.

The number of non-WSDA dentists includes all licensed non-member dentists under 55.

Leg. district is determined by business address; home address was used when business address was unknown.

Sorted by % of Dentists Accepting DSHS by District (Lowest to Highest) July 07					
Leg Dis.	Main Cities	2000 Pop.	# of all Dentists in District	# of Dentists Accepting DSHS in District	% of Dentists Accepting DSHS in District
36	Sea: Fremont, Queen Anne, Ballard	120,288	98	14	14%
5	Issaquah, North Bend, Sammamish	120,288	132	23	17%
43	Sea: Capitol Hill, U. Dis., Wallingford	120,254	282	47	17%
1	Bothell, Edmonds, Lynnwood, Brier	120,291	68	12	18%
41	Mercer Island, Bellevue, Newcastle	120,289	176	32	18%
48	Bellevue, Redmond, Kirkland	120,294	216	41	19%
17	Vancouver, Battle Ground, Camas	120,288	95	21	22%
27	Tacoma, Ruston, Fife	120,371	100	22	22%
49	Vancouver, Hazel Dell	120,467	95	22	23%
11	Tukwila, Renton, Seattle	120,329	113	27	24%
30	Federal Way, Pacific, Algona	120,294	92	23	25%
46	Sea: Pinehurst, Ravenna, Greenwood	120,267	171	43	25%
45	Kirkland, Woodinville, Redmond, Duvall	120,286	102	28	27%
32	Edmonds, Kenmore, Shoreline	120,307	92	26	28%
33	SeaTac, Des Moines, Tukwila, Kent	120,121	86	25	29%
23	Bainbridge Island, Poulsbo, Kingston	120,250	109	33	30%
16	Dayton, Pasco, Walla Walla, Finley	120,288	58	18	31%
47	Kent, Auburn, Black Diamond	120,302	77	24	31%
22	Lacey, Olympia, Tumwater	120,281	142	46	32%
25	Fife, Edgewood, Puyallup, Milton	120,282	71	23	32%
31	Auburn, Enumclaw, Bonney Lake	120,299	46	15	33%
29	Tacoma, Parkland, University Place	120,298	76	26	34%
13	Moses Lake, Ellensburg, Cle Elum	120,290	38	15	39%
2	Eatonville, Yelm, Roy, Rainier	120,370	25	10	40%
4	Spokane Valley, Millwood, Liberty Lake	120,286	89	36	40%
10	La Conner, Burlington, Oak Harbor	120,300	52	21	40%
21	Edmonds, Lynnwood, Mukilteo	120,286	125	50	40%
8	Richland, Kennewick, Prosser	120,289	88	36	41%
26	Port Orchard, Gig Harbor, Bremerton	120,307	81	34	42%
34	West Seattle, Burien, Vashon Island	120,297	69	29	42%
40	Friday Harbor, Bellingham, Mt. Vernon	120,279	89	37	42%
24	Forks, Sequim, Port Angeles, Hoquiam	120,277	61	26	43%
28	Dupont, Lakewood, University Place	120,248	84	36	43%
44	Mill Creek, Snohomish, Lake Stevens	120,283	74	32	43%
15	White Salmon, Toppenish, Grandview	120,287	33	15	45%
12	Wenatchee, Chelan, Okanogan	120,286	80	37	46%
38	Everett, Marysville	120,284	79	37	47%
18	Kelso, Woodland, Castle Rock, Camas	120,111	46	22	48%
19	Longview, Long Beach, Kelso	120,301	63	30	48%
42	Bellingham, Ferndale, Blaine, Lynden	120,288	88	42	48%
7	Colville, Tonasket, Oroville, Davenport	120,290	42	21	50%
35	Shelton, Elma, Bremerton, Oakville	120,303	32	16	50%
39	Arlington, Monroe, Sedro-Woolley	120,298	40	22	55%
3	Spokane	120,287	70	39	56%
6	Spokane	120,293	125	77	62%
20	Chehalis, Centralia, Olympia	120,296	36	23	64%
37	Renton, Seattle	120,279	55	35	64%
9	Othello, Cheney, Pullman, Colfax	120,287	39	26	67%
14	Yakima, Selah, Union Gap, W. Valley	120,285	75	50	67%
Average		120,285	87.24	29	38%
Legislative Districts with 10 Highest Percentages of DSHS Dentists					
Legislative Districts with 10 Lowest Percentages of DSHS Dentists					

Appendix F

University of Washington Dental Student Foreign Language Competency

Breakdown of UW School of Dentistry Classes 1999-2010

Total Students	631
Students self-reporting speaking at least one foreign language	242 (38.4%)
Students self-reporting speaking at least one foreign language fluently	140 (22.2%)

Breakdown of Languages Spoken

Spanish

Total Self-Reported	86 (13.6%)
Self-Reported Fluent	31 (4.9%)

French

Total Self-Reported	26 (4.1%)
Self-Reported Fluent	11 (1.7%)

Korean

Total Self-Reported	24 (3.8%)
Self-Reported Fluent	19 (3.0%)

Chinese (Mandarin, Cantonese, other)

Total Self-Reported	22 (3.5%)
Self-Reported Fluent	18 (2.9%)

Vietnamese

Total Self-Reported	18 (2.9%)
Self-Reported Fluent	15 (2.4%)

Russian

Total Self Reported	11 (1.7%)
Self-Reported Fluent	7 (1.1%)

German

Total Self Reported	10 (1.6%)
Self-Reported Fluent	6 (1.0%)

Japanese

Total Self Reported	9 (1.4%)
Self-Reported Fluent	2 (0.3%)

Other self reported languages totaling less than 1percent include: Albanian, Amharic, Arabic, American Sign Language, Basque, Cambodian, Czech, Dutch, Farsi, Greek, Gujarati, Guarani, Hebrew, Hindi, Italian, Kachi, Laotian, Mongolian, Norwegian, Polish, Portuguese, Punjabi, Romanian, Swahili, Taiwanese, Thai, Turkish, and Ukrainian.

Compiled by the Washington State Dental Association 2/2008

Data provided by the UW School of Dentistry, Department of Student Services and Admissions

Addressing the Shortage

of Dental Providers for Low-Income and Uninsured populations in Washington State: Dental licensing, foreign-trained dentists, and policy considerations.

A Community-Oriented Public Health Practice Capstone written by **Naseem Bazargan** at The University of Washington School of Public Health in June 2009.

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PROBLEM STATEMENT AND INTRODUCTION

In March of 2008, Governor Christine Gregoire signed Substitute House Bill (SHB) 2881, an act pertaining to the practice of dentistry in Washington State. SHB 2881 altered the dental licensing requirements in Washington State to allow an additional avenue for internationally trained dentists to get licensed in the state. Included in the legislation was a request for a report from the Washington State Dental Quality Assurance Commission (DQAC). This section states (1):

“By November 15, 2009, the commission shall report to the governor and the legislature with recommendations for appropriate standards for issuing a license to a foreign trained dentist. The recommendations shall consider the balance between maintaining assurances that Washington's dental professionals are well-qualified and planning for an adequate supply of dentists to meet the future needs of Washington's diverse urban and rural communities. In addition to considering the use of standards established by accreditation organizations, the recommendations shall consider other options to reduce barriers to licensure.”

SHB 2881 signifies an attempt to target foreign-trained dentists as a means for expanding the supply of dentists in the state who will provide care to the underserved. By changing licensing requirements for foreign-trained dentists, the DQAC may enable these dentists to work in dental professional shortage areas or in other underserved communities. No available evidence exists, however, that says dentists trained abroad are more likely than domestically trained dentists to serve publicly insured or uninsured patients. In addition, Washington State does not keep track of which licensed dentists are foreign- or U.S.-trained. This means there is no data on how many foreign-trained dentists are working in the state, let alone knowledge of where they work or who they serve. This capstone project is intended to assist Natalie González, the Washington State Department of Health recruitment specialist, and also the DQAC to address this knowledge gap and refocus the state's energy on the dental provider population most likely to provide needed services.

This capstone project seeks to accomplish the following:

1. Explore the relationship between oral and public health, and mount the discussion of expanded access to dental care within a 'social determinants of health' frame
2. Describe the shortage of dental providers caring for Medicaid and uninsured patients in Washington State
3. Describe some state and federal efforts to enhance access to dental care
4. Illustrate current dental licensing requirements in Washington State
5. Analyze available dental workforce data to determine whether easing licensing restrictions for foreign trained dentists to practice in Washington State will help reduce the shortage of dentists willing to provide care to Medicaid patients
6. Make recommendations for future inquiry on dental supply to maximize dental access among underserved populations

As noted above, this project focuses specifically on the question of dental *supply* as a means to increasing dental access to the underserved. This report is ultimately meant to inform and

assist policy makers to enact legislation and policies that increase access to affordable and quality dental care among Washington State's rural and urban underserved populations.

OBJECTIVE 1. ORAL HEALTH AND PUBLIC HEALTH

Oral health is essential to overall health

Oral health is an integral yet often ignored aspect of overall health. Research and clinical observations show the mouth is a mirror that reflects the health status of our less visible organ systems and tissues (2). Oral disease, which most often presents as dental caries (cavities) and/or periodontal (gum) disease, adversely affects our physical, social, and psychological health (3). Left untreated, dental caries and gum disease can result in pain, suffering, social embarrassment, difficulty sleeping, mood swings, missed days at work, poor performance and learning for children at school, expensive treatment, loss of teeth, and at worst, death (4). Dental caries and gum disease share risk factors with several chronic illnesses, including diabetes, cardiovascular disease, cancer, and chronic respiratory disease (2, 4, 5). These risk factors include availability of health insurance, poor diet and nutrition, lack of exposure to fluoride, poor oral hygiene, smoking, alcohol abuse, and lack of access to care (4). The need for integration of oral health services into a more comprehensive continuum of general health services is widely documented, and the conceptual separation of oral health from overall health is misguided and at best detrimental for population health (3).

In addition, dental disease is the most common chronic disease across all age groups (4), yet is less prioritized than more life-threatening diseases (5). For example, nearly all poor children receive immunizations while only about half of poor children aged 2 to 20 years receive preventive dental services nationwide, in spite of the fact that dental caries and gum disease are largely preventable (6, 7). Dental caries, or tooth decay, is caused by an overgrowth of bacteria in the tooth microfilm that excrete tooth damaging acids as part of their metabolism, exacerbated by a diet rich in refined carbohydrates (8). Periodontal diseases (gum infections) are more complex infections involving multiple types of bacteria and interactions with the immune defense system, and most often occur in smokers, diabetics and others with compromised host defenses (9). Neither disease requires sophisticated medical technology to control, and tooth decay is clearly preventable. Proper hygiene, preventive dental visits, and a few simple yet extremely effective public health measures such as community water fluoridation, the free distribution of toothpaste, wider access to topical fluoride varnish, and the application of dental sealants in high risk populations help prevent oral disease (2-4, 8-10). The fact that dental disease has not been eradicated can be partially attributed to a political failure to ensure equitable access to these preventive measures.

Marginalized populations bear a disproportionate burden of oral disease

Merely focusing on oral disease's clinical cause is irreconcilable with well-documented racial and ethnic health disparities. Former Secretary of the United States Department of Health and Human Services' Task Force on Black and Minority Health aptly stated the following in a 1985 seminal report on health disparities:

“Despite the unprecedented explosion in scientific knowledge and the phenomenal capacity of medicine to diagnose, treat, and cure disease, Blacks, Hispanics, Native Americans, and those of Asian/Pacific Islander heritage have not benefited fully or equitably from the fruits of science or from those systems responsible for translating and using health sciences technology” (11).

Despite federal efforts to reduce disparities in health reported by the task force, disparities in health outcomes continue to plague people of color. These disparities apply to dental disease as well. People of color and low-income individuals and communities suffer disproportionately from dental diseases both nationally and in Washington State (2-4, 12, 13). Successful forays into *equitable* dental disease prevention and oral health promotion must operate within a “social determinants of health” framework. Respected institutions such as the World Health Organization (WHO), the United States Office of the Surgeon General, and the Institute of Medicine all stress the importance of the social and environmental etiologies of disease in addition to clinical and biological explanations (14). The WHO defines the social determinants of health as follows:

The social determinants of health are the conditions in which people are born, grow, live, work and age, including the health system. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels, which are themselves influenced by policy choices (15).

Proponents of the social determinants of health framework emphasize the need for a more holistic approach to health promotion. Traditional health promotion models focus on health education, which stresses lifestyle and behavior change, and often results in the victimization of “high risk” individuals (14). A more effective approach targets political, social, economic, cultural and environmental factors as more appropriate places for health promotion and intervention. For example, research associating egregious health disparities with institutional racism, powerlessness, poverty, and lack of adequate housing, employment opportunities, and access to care calls for a conceptual model that “recognizes that individuals are embedded within social, political, and economic systems that shape behaviors and access to resources necessary to maintain health”(16). This approach creates an arena in which we might place an individual or community’s health status within a broader social context (17).

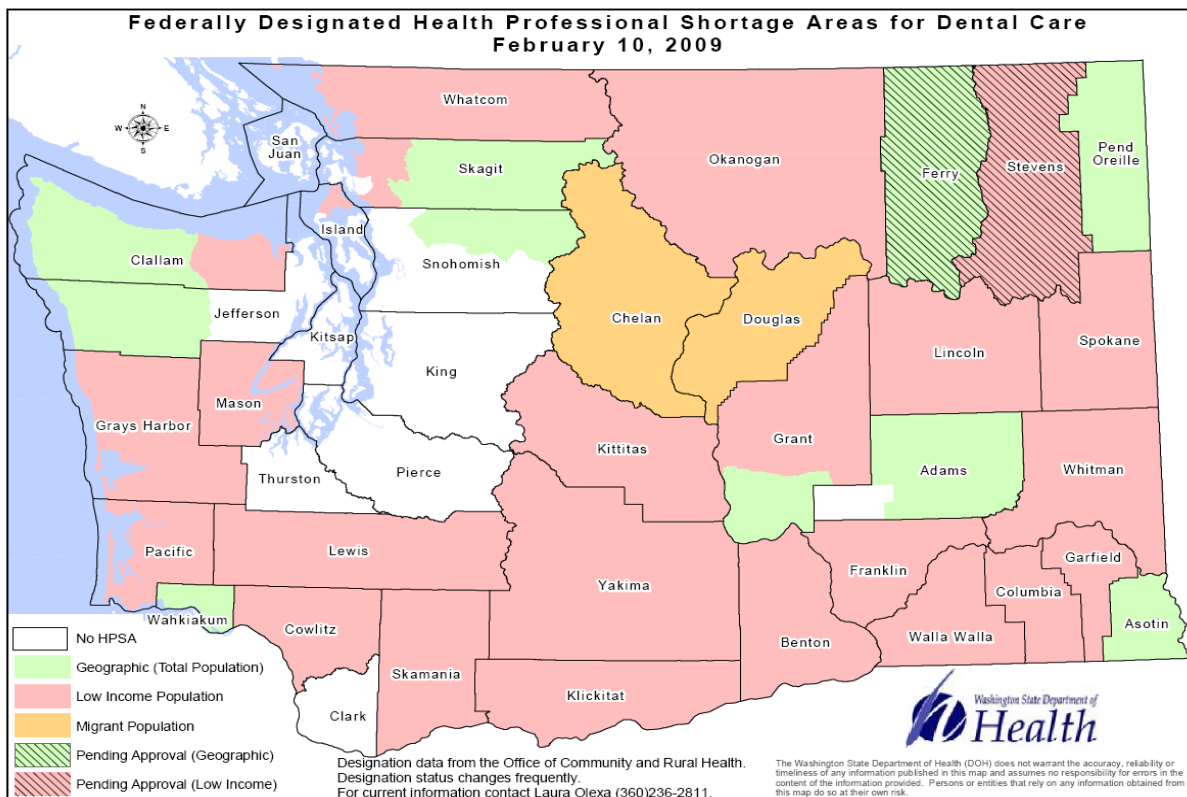
Nationwide and in Washington state, the “underserved” lack access to resources such as health care that is available to others to “enhance their quality of life” (3). Access to dental care facilitates the maintenance of oral health care at the primary, secondary, and tertiary levels of prevention (3). Dental providers can not only cure dental caries and treat periodontal disease, but can also assist and educate patients around preventive measures by providing fluoride varnish and sealants, removing stains and deposits, and discussing oral hygiene and nutrition (2, 4, 12). Some underserved groups that experience a disproportionate burden of disease and lack of access to care include people of color (African- Americans, American Indians/Alaskan Natives, Latinos, Asian/Pacific Islanders); single mothers; unemployed single men; the elderly poor; the working poor; low-income children; the homeless; inner city and rural residents; individuals living with disabilities (mental, physical, developmental); recent immigrants and migrant workers; and individuals with low educational attainment (2-4, 12, 13). In fact, about 80 percent of tooth decay nationwide is concentrated in 20 percent of the population, who are mostly low-income people of color (18). About half of Washington State’s population either rely on Medicaid or have no dental insurance (18). More specifically, about 15 percent of children 0-17 years lacked any type of dental coverage in 2003; about 30 percent of adults 18-64 lacked any type of dental coverage in 2001; and in the same year, about 65 percent of people older than 65 lacked any type of dental coverage in Washington (4).

OBJECTIVE 2. SHORTAGE OF DENTISTS ACCEPTING MEDICAID

Supply shortage of dentists willing and able to care for the underserved

A study conducted by the United States General Accounting Office found that “while several factors contribute to the low use of dental services among low-income persons who have coverage for dental services, the major one is finding dentists to treat them” (12). The United States Health Resources and Services Administration (HRSA), in effort to forward its vision of “optimal health for all, supported by a health care system that assures access to comprehensive, culturally competent, quality care,” has developed designations called dental “Health Professional Shortage Areas” (19). County or service areas can be designated geographic, demographic (low-income or migrant population), institution (comprehensive health center, federally-qualified health center, etc), federally recognized tribe, or correctional facility Health Professional Shortage Areas (HPSA) (20, 21). HPSA designation qualifies the area for several special programs, including grants and loan repayments for providers.

Nationally, there are 48 million people living in 4,048 dental HPSAs. It would require 9,432 dental practitioners to meet the need, or to achieve a ratio of 3,000 people per 1 practitioner (22). In 2007, Washington State had 37 dental HPSA designations (4). The following map from the Washington State Department of Health depicts dental HPSAs in the state as of February, 2009 (23):



Unmistakably, dental health professional shortages are widespread throughout the state primarily for low-income populations, suggesting that there is a real shortage of dentists willing to accept Medicaid and uninsured patients. Nominally, the current Medicaid participation rate of dentists in Washington State is 40 percent, (24). This rate does not reflect the number of patients Medicaid providing dentists are willing to see. Ten years ago,

the U.S. General Accounting Office surveyed all 50 states and found that of the 39 reporting states, fewer than half of the states' dentists saw at least one Medicaid patient in 1999 (12). Of 31 reporting states, five states had 25-50 percent of dentists see at least 100 Medicaid patients, while 26 states reported that less than 25 percent of dentists saw at least 100 Medicaid patients in 1999 (12). No states had more than half of their dentists see more than 100 Medicaid patients (12).

Additionally, low-income residents of rural America and Washington alike experience the largest relative shortage of dentists, compared with residents of urban areas (3, 4). Nationally, higher income areas have 66 percent more dentists per capita than lower income areas (3). For example, the dentist to population ratio in urban King County is one dentist per 928 people, while rural Pend Oreille County has a dentist to population ratio of 1: 12,300 (4). In December of 2006, Skamania County in Washington State had no Medicaid providers (4).

Lack of incentives to participate as a dental Medicaid provider

Researchers cite several explanations for dentists' low rates of participation in Medicaid, including low reimbursement rates, administrative requirements, and patient issues (3, 4, 12, 18, 25-27). The following summarizes these arguments and offers some critiques.

Low reimbursement rates have been cited by dentists as the primary reason for not participating in Medicaid. According to the American Dental Association (ADA), dentists collect around 95 percent of what they bill for services (12). Medicaid reimbursement rates, however, are anywhere from one half to one third of the customary charges in private dental offices (3). The WSDA estimated in 2004 that dental offices subsidize more than \$175 million of uncompensated care for Washington State's Medicaid patients; adult dental care reimbursements averages about 33 percent of customary fees while child dental care average about 40 percent of customary fees (25). The Washington State Dental Association (WSDA) argues that the state's Medicaid providing dentists are filling the gap in Medicaid funding with their own time and money (25).

It could be argued, however, that the majority of dentists don't see Medicaid patients because private practice dentistry is not only the norm but also a lucrative business. According to a 2009 report by the U.S. Department of Labor, "almost all dentists work in private practice" (28). The ADA reports that three out of four dentists working in private practice are also the sole proprietors of their practice (28). In May 2006, the median annual earnings of salaried dentists were \$136,960, with self-employed private practice dentists tending to earn more than their salaried counterparts (28). Given these figures, it is doubtful that the state can raise Medicaid reimbursements to a level that is competitive with the earnings of private practitioners unless explicit policy mandates that dentists set up practices that minimize costs.

Administrative requirements include difficulty filling out Medicaid claim forms with proper codes, difficulties with claims handling, slow payments, arbitrary claim denials, and complicated eligibility requirements and rules for both patient and provider enrollment (4, 12). Although slow payments are cited as a burden, Washington State processes claims submitted electronically within a few days (29). Offices that continue to submit claims by paper experience slower processing rates, and in both cases, small errors substantially slow the payment process (29, 30).

Patient issues are reported difficulties with Medicaid enrollees that dentists are often unwilling or not equipped to deal with. For example, the ADA reports that one third of Medicaid patients fail to keep their appointments (12). Although there is no comparison data for privately insured patients, dentists perceive more no-shows among the Medicaid population (12, 27). Some explanations for no-shows include long waiting times, and long distances and travel times to clinics for rural residents (3). Missed appointments result in an average lost time of 45 minutes per appointment, and are particularly bothersome for Medicaid providers in private clinics because Medicaid does not allow billing for no-shows, while private insurance does (12). This problem is less apparent in community health centers and public health clinics because of the steady flow of walk-ins and emergency cases (12). In addition, low-income populations, as mentioned above, tend to experience poorer health than their higher-income counterparts. Often underserved populations, by virtue of their lack of access to service, do not seek and receive dental care until the point of ill health. As a result, dentists in these situations must perform chronic or crisis care (extraction) rather than preventive care (cleaning) (3).

OBJECTIVE 3. EFFORTS TO ENHANCE ACCESS TO CARE

At the federal and state level, government agencies have the responsibility to improve access to quality health services for underserved communities. HRSA designations of shortage areas are a first step at the federal level in putting into operation the mandate to improve access to care. At the state level, the Washington State Department of Health Office of Community Health Systems/Rural Health administers several programs to enhance rural and underserved communities' access to health services. Despite the federally recognized shortage of Medicaid providers nationally and in Washington State, federal and state efforts fall short in their attempts to remedy the problem. Here in Washington State and nationally, safety net programs with dental provider shortages have limited ability to meet the dental needs of low-income, underserved groups. Chronic dental professional shortages, including recruitment and retention of dentists, are major national problems for safety net programs, including the National Health Service Corps, Indian Health Services, and Community and Migrant Health Centers (12). The following is a brief summary of several of these noteworthy programs that seek to address access and dental provider shortages.

Medicaid and SCHIP

Since the 1960s, federal and state governments have partnered to extend health care coverage to low-income U.S. citizens by reimbursing health care providers through Medicaid (31). Nearly 900,000 Washington State citizens rely on Medicaid for their health care, nearly two-thirds of whom are children (32). Medicaid enrollees receive services either through Healthy Options managed care or through providers who contract with the Department of Social & Health Services (DSHS) and provide care on a fee-for-service basis (32). Recent data suggest that the Medicaid caseload is divided in half between the two delivery systems (32). There are two major types of dental Medicaid coverage in Washington State. The first is comprehensive coverage for children under age 18 in families with incomes up to 200 percent of the federal poverty level (FPL) (4). The State Children's Health Insurance Program (SCHIP) extends that coverage to 250 percent of the FPL (32, 33). The second type is limited coverage for adults aged 18 and up. The U.S. government does not mandate dental Medicaid coverage for adults, but Washington State is one of 11 states that elects to provide reimbursement for adult services (4). In fiscal year 2005, about 36 percent of enrollees used Medicaid dental services (4).

RIDE

The University of Washington, in partnership with Eastern Washington University, offers the Regional Initiatives in Dental Education (RIDE) program to improve the overall health and well-being of Eastern Washington residents by training dental students in rural and underserved communities throughout the state. The University of Washington is the only American Dental Association-accredited dental school in Washington, Idaho, Alaska, Wyoming, and Montana, making the RIDE program a strategic effort to funnel dental students into rural communities experiencing shortages of dental practitioners (34). The UW is also one of 15 Dental Pipeline schools, or schools that aim to have dental students spend more time providing care to underserved, diverse and low-income populations in community sites. Research on Dental Pipeline programs show that community-based dental education has a significant, short-term effect in reducing dental access disparities because dental students in these programs spend more time practicing in safety-net clinics (35). There is also potential for long-term effects, as more students may choose to practice in safety-net clinics post-graduation (35). RIDE's long-term potential effect on reducing dental shortages is

likely to be minimal, however, as only eight students are admitted each year. Because RIDE is a relatively new and small program, its effect has not been evaluated in terms of actual numbers of graduates locating their practices in underserved areas.

ABCD Program

The Access to Baby and Child Dentistry (ABCD) Program started in Washington State in 1995 to connect Medicaid-eligible children from birth through age 5 with case-managed dental services. The program actively performs outreach at organizations where these children receive services to ensure that young children are enrolled in preventive dental care services. Their families are also “coached” about the need for preventive dental care and “dental office etiquette,” effectively addressing some of the above mentioned patient issues unappealing to dentists (36). ABCD also teaches dentists how to work with Medicaid patients, helps dentists with Medicaid billing problems, and trains dentists and their staffs on new technology. Some argue that *ABCD* also increases peer pressure among dentists to participate.

Community Health Centers and other safety-net clinics

Washington’s safety-net clinics have the express purpose of providing services to the state’s low-income and uninsured residents, including Medicaid enrollees (37). Some of these safety-net clinics may be Federally Qualified Health Centers (FQHC), which qualifies them for enhanced Medicaid reimbursements and grant funding. Some clinics also receive additional grant funding from the Washington State Health Care Authority Community Health Services (CHS) grant program (4, 37).

Safety-net providers include Community and Migrant Health Centers (130 sites with 53 sites offering dental care), public health clinics, and free clinics (21 sites with three sites offering dental care) (4, 37). Auxiliary safety-net clinics include federally certified rural health clinics (operating in HPSAs), tribal health clinics (23 clinics of which four are operated by the Indian Health Service), public hospitals, and residency programs, all of which see Medicaid enrollees (37).

The Yakima Valley Farm Workers Clinic and the University of Washington operate the Northwest Dental Residency program in Advanced Education in General Dentistry and the Pediatric Dentistry Residency. These programs encourage dental residents to practice in some rural communities such as Yakima, Othello and Toppenish, or on mobile dental clinics serving some harder-to-reach residents of agricultural areas (4).

Nationally, safety-net clinics have the capacity to provide dental care for 7 million to 8 million people (of about 82 million underserved people) (38). Although the capacity of safety-net clinics to care for the underserved is clearly limited, expanding the system could increase its capacity to care for 10 million people annually (38). Expanding the system would include increasing the number and efficiency of community health centers, requiring dental school graduates to complete a year-long residency at a safety-net clinic, and requiring dental school students and residents to practice 60 days per year at a safety-net clinic (38).

National Health Service Corps:

The National Health Service Corps (NHSC) is a HRSA program that recruits health professionals, including dental providers, to work in underserved communities and HPSAs. NHSC also offers a scholarship program and a loan repayment program of up to \$50,000 to enable providers to practice in areas or at clinics with limited capacity to offer competitive salaries (39). As mentioned above, the NHSC still experiences trouble recruiting and retaining dentists.

State Loan Repayment and Scholarship Program

Washington State offers a Health Professional Loan Repayment and Scholarship program that offers loan repayment assistance to licensed dentists (and other primary care providers) practicing in rural or underserved urban areas. The program also offers scholarships to students training to become primary care dentists who serve shortage areas (40).

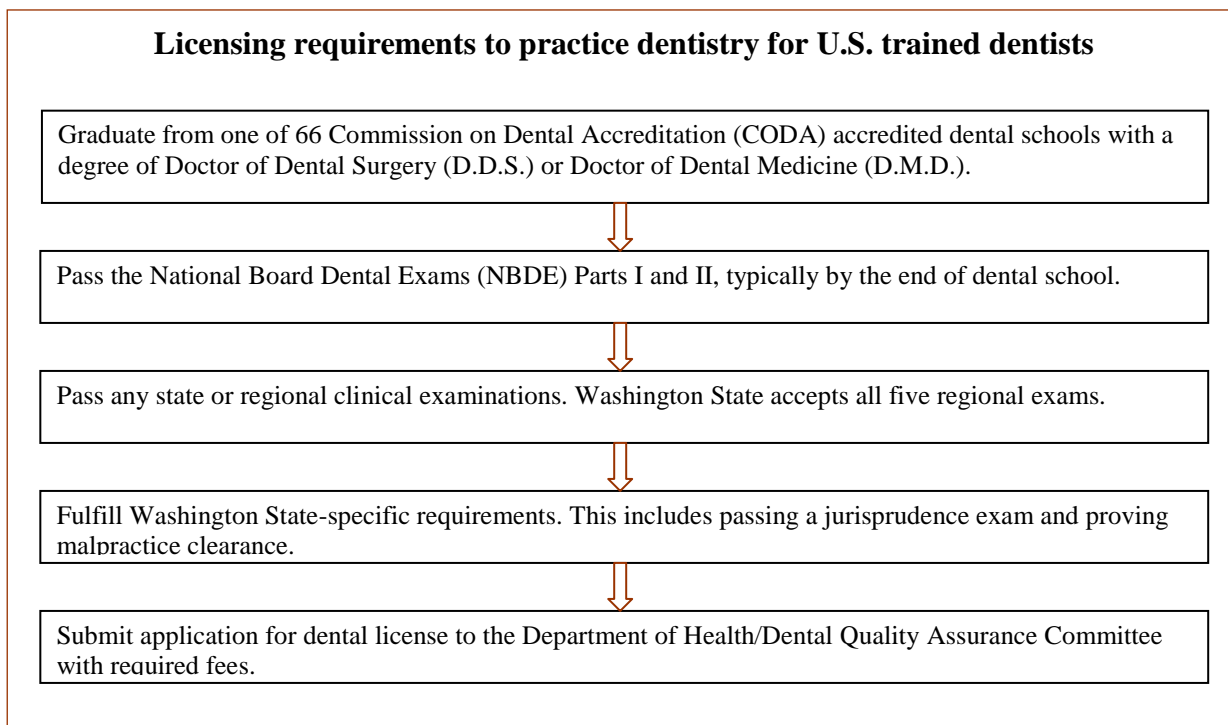
OBJECTIVE 4. CURRENT PRACTICES IN DENTAL LICENSING

Dental licensing in Washington State

Dental licensing in the United States is disjointed and complicated. Requirements vary by state, and each state may have multiple avenues for licensing. In most states, dentists must graduate from an accredited dental school, and pass both a written and clinical examination.

In Washington State, dentists may be licensed via clinical examination or via endorsement if they have been previously licensed in another state (examinations to be discussed below). Requirements for foreign-trained dentists are more demanding than for those who are domestically trained; as of 1985, foreign-trained dentists must complete two years of Commission on Dental Accreditation (CODA)-approved pre or postdoctoral dental education in addition to their foreign training. SHB 2881, which is set to sunset in 2010, provides an additional avenue for licensing. SHB 2881 allows foreign-trained dentists to bypass the additional two years of education if they have worked as a licensed dentist in another state for five years and have completed a DQAC-approved, year-long postdoctoral dental residency.

The flow chart below depicts avenues to licensure in Washington State for domestically trained dentists and foreign-trained dentists, followed by a brief description of the different examinations and agencies involved.



Licensing requirements to practice dentistry for foreign trained dentists

Graduate from foreign, non-CODA accredited dental school and send transcripts for verification to Educational Credential Evaluators, Inc. (ECE).



Complete two years of pre or postdoctoral training at a CODA accredited dental school (may apply for advanced standing to complete only final two years), dental graduate program, or residency.



Pass the NBDE Parts I and II at a Prometric Test Center in the U.S. or its territories.



Pass any state or regional clinical examinations. Washington State accepts all five regional exams.



Fulfill Washington State-specific requirements. This includes passing a jurisprudence exam and proving malpractice clearance.



Submit application for dental license to the Department of Health/Dental Quality Assurance Committee with required fees.

Commission on Dental Accreditation (CODA):

The Commission on Dental Accreditation (CODA) is responsible for approving dental schools in the U.S. and its territories, and has an agreement with the Canadian Dental Association in which certain Canadian dental schools are also considered accredited. CODA is a private, non-governmental division of the American Dental Association. CODA is responsible for “establishing, maintaining and applying standards that ensure the quality and continuous improvement of dental and dental-related education and reflect[ing] the evolving practice of dentistry” (41). Currently 56 dental schools in the US and 10 dental schools in Canada are accredited by CODA. The only accredited dental school in Washington is the University of Washington.

Commission on National Dental Examinations:

The Joint Commission on National Dental Examinations is the agency responsible for developing and administering the National Board Dental Exams Part I and II. Both tests are computer-based, multiple-choice, and offered only in the English language by Prometric Test Centers in the U.S. and its territories. Candidates for Part I must be enrolled in a CODA accredited school and have the approval of that dean in order to be eligible to take the exam. Part I covers the basic biomedical sciences and dental anatomy, and costs \$260. Candidates may take Part II only after completing Part I, and getting approval from the dean of an accredited dental school in which the candidate is enrolled in or has graduated from. Extending over 1.5 days, Part II covers clinical dental subjects, behavioral science, dental public health, pharmacology, and occupational safety, and costs \$340. The NBDE is nationally recognized and required.

Clinical Examinations:

Clinical exams involve dental work with a live patient, and can cost anywhere from \$50 to \$1,000, as cost of travel, test fees, liability insurance, dental patients, and other necessities are expensive. The exams are developed and administered by five regional clinical testing agencies or by individual states. Only four states/jurisdictions administer their own exams, including Delaware, Florida, Nevada, and the Virgin Islands, while the rest contract the responsibility to one or more of the following five agencies: Council of Interstate Testing Agencies (CITA), Central Regional Dental Testing Services, Inc (CRDTS), Northeast Regional Board of Dental Examiners, Inc (NERB), Southern Regional Testing Agency, Inc (SRTA), and Western Regional Examining Board (WREB). In 2005 the American Board of Dental Examiners (ADEX) created a clinical exam called American Dental Licensing Examinations (ADLEX). Some regional agencies administer ADLEX while others administer their own exam. As mentioned above, each agency contracts with its "member" jurisdictions; however, while many states are members of one agency, various dental boards will accept different regional exams.

Educational Credential Evaluators (ECE):

Educational Credential Evaluators, Inc. is a non-profit public organization to which foreign graduates must send their transcripts for verification that the academic curriculum and rigor of their foreign school is equivalent to that of U.S. credentials. ECE's services come with a fee ranging from \$85 to \$250 depending on the type of evaluation report requested.

Educational Programs for foreign trained dentists:

Most states, like Washington, require some form of CODA accredited education in addition to whatever foreign degrees the licensee might hold. Washington requires two years of either pre- or postdoctoral training.

Pre-doctoral Education:

Licensees may apply to accredited dental schools to earn a D.D.S or D.M.D, and will have to fulfill any requirements requested by the school. Examples include the Dental Admission Test and/or proof of financial stability. Some accredited schools offer the option of applying for advanced standing, meaning admission to the second or third year of dental school. Other schools offer two-year programs especially designed for international students. The University of Washington does *not* offer advanced standing or an international program, making this state rather unwelcoming to foreign-trained dentists seeking to fulfill the requirements for licensing. As mentioned, the second option is to do a two-year postdoctoral program.

Postdoctoral Education:

The University of Washington offers a Master of Science in Dentistry (M.S.D.) and postgraduate certificates in endodontics, oral pathology, oral medicine and orofacial pain, orthodontics, pediatric dentistry, periodontics, and prosthodontics. Additionally, the UW offers residency training in oral and maxillofacial surgery (four years) or a year-long general practice residency (GPR). And, as mentioned above, the Northwest Dental Residency out of the Yakima Valley Farm Workers Clinic offers a year long Advanced Education in General Dentistry (AEGD) in rural Washington.

OBJECTIVE 5. ANALYSIS OF AVAILABLE DENTAL WORKFORCE DATA

Study Aims

The ultimate objective of this capstone project is to determine if existing data supports Washington State adopting a policy to intentionally license more foreign trained dentists to help reduce the shortage of dental care providers overall and the lack of Medicaid dental providers specifically. Washington lacks a cohesive state-level tracking system to identify where dentists were educated, where they currently practice, and what populations they serve. To complete this study, two years of files on recent licensees were reviewed. This group of licensees served as a proxy for the dental workforce in general. Within the context of the longer term goal, this study aims to:

1. Describe Washington State's dental workforce in general and recent licensees in particular
2. Compare foreign- and U.S.-trained dentists, particularly in regard to participation in Medicaid, and determine whether these factors vary between dentists who are licensed by credentials or by examination.
3. Compare the characteristics of foreign- and U.S.-trained dentists who are enrolled as Medicaid providers and/or practice in underserved areas.

Study Sample

The study sample consisted of all (n=688) foreign and U.S. trained dentists in Washington State licensed between September 1, 2006 and September 30, 2008. Foreign-trained dentists were identified by reviewing the dental license applications of every dentist who was granted a new license to practice during that time period. U.S.-trained dentists licensed in the same time period were identified by querying the Department of Health licensee database and excluding the names of all dentists identified as foreign-trained in the license applications review.

Variables and Measures

The following variables, followed by an explanation of how they were measured, were collected for the entire cohort of dentists:

- Name
- Age (date of birth)
- Sex
- Washington dental license number
- Initial dental license date (dd/mm/yyyy) in Washington
- Training status (initial dental education completed abroad or in the U.S.)
- Credentialing method (licensed by passing a clinical examination or by endorsement after being licensed in another U.S. state)
- Medicaid provider enrollment (with or without a Medicaid provider number, and if so, date effective. According to descriptive data, of all dentists with Medicaid provider numbers, 91.5 percent of dentists' provider numbers were effective within nine months of being a licensed dentist. As a result, dentists who got a Medicaid provider number within nine months of being licensed were categorized as "yes" and those dentists who did not get a Medicaid provider number within nine months of being licensed were categorized as "no." Additionally, many dentists with provider numbers treat very few Medicaid patients (12); dentists working in community health centers where the majority of patients are uninsured or Medicaid enrollees will see many more Medicaid patients

than private practitioners. This means that having a Medicaid provider number does *not* indicate the varying degrees to which dentists see those patients.)

Medicaid data was provided by the Washington State Department of Social and Health Services. For dentists enrolled as Medicaid providers, dental practice addresses were also available, allowing for the identification of the following:

- Practicing in urban or rural area (practice locations were assigned urban or rural status according to the Rural-Urban Commuting Area Codes (RUCA), which are census-tract based classifications using the Bureau of Census Urbanized Area and Urban Cluster standards. For the purposes of this paper, both large and small, isolated rural towns were classified as “rural,” while both urban and suburban towns were classified as “urban.”)
- Practicing in a dental Health Professional Shortage Area (HPSA) as designated by the United States, Department of Health and Human Services, Health Resources and Services Administration (dentists were assigned “yes” or “no” for working in a dental HPSA) (19). A HPSA can be designated as a geographic, or demographic (low-income or migrant population), or institution (comprehensive health center, federally-qualified health center, etc), or federally recognized tribe, or correctional facility Health Professional Shortage Areas (20, 21).

Data analysis:

Statistical Package for the Social Sciences (SPSS Version 15.0 for Windows) was used to analyze descriptive data. The following outlines the analyses performed to achieve each of three above-mentioned objectives.

1. In order to address AIM 1, descriptive analyses were carried out by age, sex, training status, credentialing method, and Medicaid provider enrollment. These analyses provide information on the percentages of the dental workforce that are male or female, foreign or U.S. trained, licensed via examination or endorsement, and enrolled as a Medicaid provider or not. The average age of dentists (total and male vs. female) licensed via examination versus endorsement was also compared using t-tests.
2. In order to achieve AIM 2, to compare foreign with U.S. trained dentists, separate tables were constructed and examined of training status (foreign, U.S) with sex, credentialing method, and Medicaid provider enrollment. Pearson Chi-Square was computed for each table to test the significance ($p < .05$) of each relationship. The average age of each group was also compared using t-tests.
3. For AIM 3, to compare the extent to which Medicaid providing foreign and U.S. trained dentists practice in underserved counties, training status (foreign versus U.S) was tabulated with credentialing method (examination or endorsement), sex, and practice location (urban or rural and/or practicing in underserved area). Pearson Chi-Squares were computed for each model to test the significance ($p < .05$) of each relationship. The average age of each group was also compared using a t-test.

Results

AIM 1. Characteristics of Washington State’s Recent Dental Workforce

There were 688 dentists licensed in Washington State between September 01, 2006, and September 30, 2008. Table 1 gives the characteristics of all dentists newly licensed in this

period. On average, dentists licensed via endorsement are older (41 years, SD=11) than dentists licensed via examination (32 years, SD=4, $t=15.91$, $p<.05$).

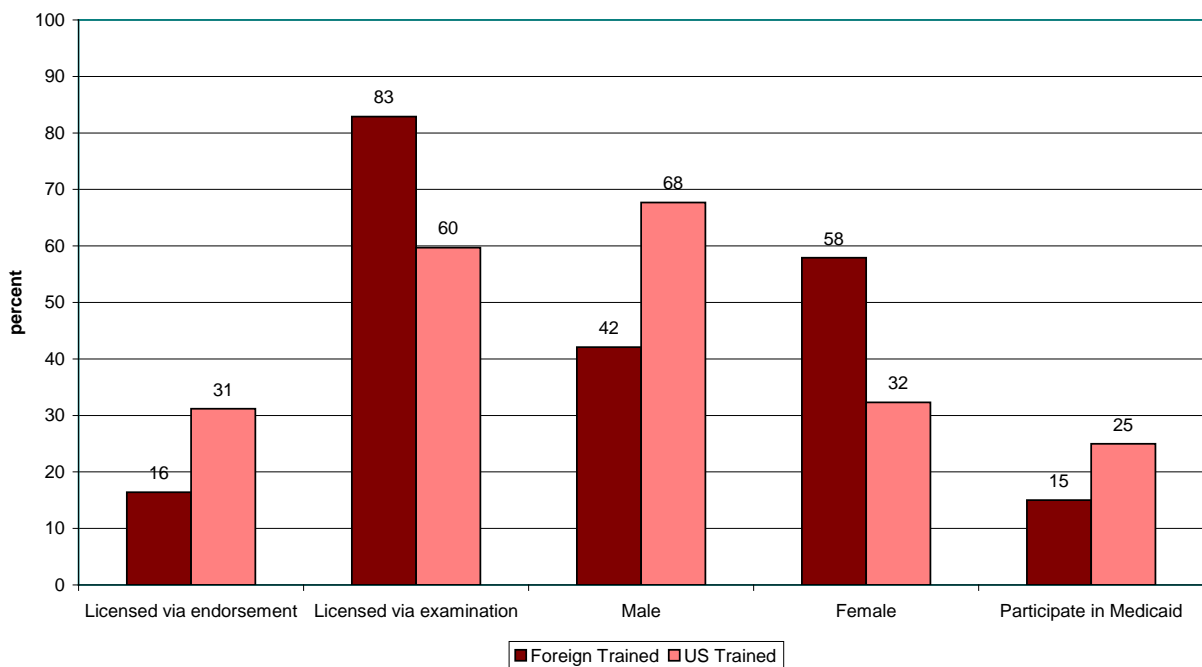
Table 1			
Characteristics of all newly licensed dentists. September 01, 2006 - September 30, 2008 (N=688)			
Variable	Measure	Number of Dentists (%)	Average Age (SD) years
Female		258 (38)	33 (6)
	Licensed via endorsement	59 (25)	37 (8)
	Licensed via examination	181 (75)	31 (4)
Male		430 (63)	36 (9)
	Licensed via endorsement	135 (34)	43 (12)
	Licensed via examination	262 (66)	32 (5)
All Dentists		688 (100)	35 (8)
Type of Licensing		Number of Dentists (%)	
	Licensed via endorsement	194 (31)	
	Licensed via examination	443 (70)	
Source of Training			
	Foreign- trained	140 (20)	
	U.S- trained	548 (80)	
Medicaid provider *	Enrolled as Medicaid provider	130 (23)	

*Excludes dentists licensed less than 9 months (N=568)

AIM 2. Comparison of Foreign and U.S. Trained dentists

During the period studied, there were 140 foreign-trained dentists and 548 U.S.-trained dentists licensed. Figure 1 illustrates some key comparisons between the two groups.

Figure 1. Characteristics of newly licensed foreign and U.S. trained dentists. September 01, 2006 - September 30, 2008



Sex and Age Differences

A greater proportion of the foreign-trained dentists were female (58 percent, 81/140) than U.S.-trained dentists (32 percent, 177/548, Chi square=31.01, df=1, p<.05). The average age of both foreign- and U.S.-trained dentists was 35 (SD=5) years (t=-.151, p>.05).

Among the foreign-trained licensees, dentists who were licensed by endorsement were older (38 years, SD=8) than those who were licensed by examination (34 years, SD=4), (t=3.35, p<.05).

Credentialing and Medicaid Participation

Table 2 compares foreign- and U.S.-trained dentists by type of credentialing and participation in Medicaid. Foreign-trained dentists (84 percent, 116/139) versus U.S.-trained dentists (66 percent, 327/498) were more likely to have been licensed via examination (Chi square=16.24, df=1, p<.05). Foreign-trained dentists (15 percent, 17/114) were *less* likely than U.S. trained dentists (25 percent, 113/455) to participate in Medicaid (Chi square=5.09, df=1, p<.05).

Regardless of source of training, recently licensed dentists who were licensed via examination (26 percent, 91/357) are more likely than dentists licensed via endorsement (16 percent, 28/178) to enroll as a Medicaid provider (Chi square=6.54, df=1, p<.05). However, looking at only the foreign-trained dentists, the proportion that participated in Medicaid among those licensed by endorsement (16 percent, 3/19) was not significantly different (Chi square=.014, df=1, p>.05) from the proportion of those licensed by examination (15 percent, 14/95).

Table 2			
Characteristics of newly licensed foreign and U.S. trained dentists			
September 01, 2006 - September 30, 2008			
		Number of dentists (%)	
		Foreign Trained (n=140)	U.S. Trained (n=548)
Type of Licensing			
	Licensed via endorsement	23 (17)	171 (34)
	Licensed via examination	116 (84)	327 (66)
Medicaid Provider*	Enrolled as Medicaid Provider	17 (15)	113 (25)

*Excludes dentists licensed 9 months or less (N=569)

AIM 3. Characteristics of Newly Licensed Foreign versus U.S. Trained Dentists Participating in Medicaid

During the period studied, there were 17 foreign-trained dentists and 113 U.S.-trained dentists enrolled as Medicaid providers. Table 3 illustrates comparisons between foreign-trained dentists and U.S.-trained dentists participating in Medicaid, including type of credentialing and practice location.

Sex and Age Differences

A greater proportion of foreign-trained dentists participating in Medicaid were female (65 percent, 11/17) than the U.S.-trained group (27 percent, 30/113, Chi Square =9.96, df=1, p<.05). The average age was 33 (SD=5) years for the foreign-trained group and 34 (SD=9)

years for the U.S.-trained group, with no significant difference in age between the groups ($t=.281$, $p>.05$).

Credentialing and Practice Areas

Among those who are enrolled as Medicaid providers, slightly more foreign trained dentists (82 percent, 14/17) practiced in urban areas than the U.S. trained group (78 percent, 88/113, Chi-square=.18, $df=1$, $p>.05$). Additionally, slightly more of these foreign trained dentists (53 percent, 9/17) practiced in dental HPSAs (U.S. trained dentists 48 percent, 54/113, Chi-square=.16, $df=1$, $p>.05$). Finally, among all Medicaid-providing dentists practicing in dental HPSAs ($n=66$), a slightly greater proportion of foreign trained dentists practiced in urban HPSAs (68 percent, 6/9) (U.S. trained dentists 58 percent, 33/57, Chi-square=.25, $df=1$, $p>.05$). However, none of these differences were statistically significant.

Discussion

AIM 1. Characteristics of Washington State's Dental Workforce

Approximately one-fifth of the dentists licensed in Washington between September 01, 2006 and September 30, 2008 were foreign trained. Nationwide, 17 percent (4136/24,113) of dental students who took the NBDE Part II between 2002-2005 were foreign-trained (42). Although this rate does not reflect the actual proportion of foreign-trained dentists licensed in the U.S., it is the best estimate available since the NBDE are required for licensure in all states. Additionally, 17 percent is likely an overestimate, as not all dentists who take the board exams actually become licensed dentists. There are no available data indicating the number of licensed foreign-trained dentists as a proportion of all dentists practicing in the U.S. or in specific states. Therefore, the proportion of recently licensed foreign-trained dentists in Washington is slightly above the estimated national rate, but cannot be compared with other state rates.

As reflected in the proportion of recently licensed dentists who are foreign-trained, current licensing practices are not as restrictive to foreign-trained dentists as they were before changes in licensing rules in 1985. Prior to 1985, it was difficult for a foreign-trained dentist to gain a license in Washington State. Subsequently, laws were changed to allow foreign-trained dentists to apply for licensure after passing the National Board Dental Exams Parts I and II, completing a Commission on Dental Education-accredited (CODA), two-year pre- or postdoctoral dental education program, and passing a clinical licensing exam accepted by Washington State (43). Washington does not have a CODA-accredited special program for foreign trainees although a small number of non-U.S. trainees obtain training in the regular graduate dental education programs at the UW (primarily Oral Medicine).

AIM 2. Comparison of Foreign and U.S. Trained Dentists

During 2006-2008, U.S.-trained dentists were more likely to enroll as Medicaid providers than foreign-trained dentists. Those licensed via examination rather than endorsement are younger and more likely to enroll. Nevertheless, having a Medicaid provider number does not ensure that the licensee actually participates in the program or to what extent he/she participates. Further studies are necessary to explain why more recent U.S.-trained dentists and dentists licensed via examination are more likely to be Medicaid providers. Economic theory predicts that new licensees will attempt to maximize the rate of economic return on their investment in education and recoup opportunity costs (income postponed by electing this course rather than work) associated with gaining a license. Modifying factors include student indebtedness, current dental licensing requirements for foreign-trained dentists, and sociocultural preferences of the foreign-born to locate in urban areas. These factors operate in tandem and are further discussed below.

Dental school student debt

School debt influences recent graduates' decisions for practicing dentistry (44), and likely influences graduates to work initially in established settings (rather than opening a private practice) where they begin to earn quickly. A study conducted by the American Dental Education Association (ADEA) on dental student financial assistance found in 2004 that 90 percent of dental school seniors graduated with student debt (incurred mostly from loans, scholarships, and grants) averaging \$135,721 (45). In the early 1970s, the Institute of Medicine concluded that subsidies to dental education were unnecessary, as the rate of

return on dental education was large and subsidy policies did not yield more dentists who served the poor (46). Consequently, the cost of education has continued to rise, causing indebtedness to rise also (45, 47).

An option for recent dental school graduates seeking to avoid further borrowing, repay student debts, gain loan forgiveness, and/or gain additional experience is to work in the military or in community clinics serving low income and/or people of color. Few of these individuals, however, make a long-term commitment to public service, especially when the average income of a dentist working at a community health center is around \$73,000 less than the average income of a dentist in a general private practice (48, 49). Thus, student debt may increase a recently licensed dentist's likelihood to care for the underserved in the short run, but once the burden of student debt has passed, it has little impact over the long run (49). This could explain the propensity of recent licensees to serve Medicaid patients more so than more experienced, older dentists licensed via endorsement.

Another more profitable common practice among new licensees to earn quickly, repay school debt, and avoid further borrowing has been to take a position as an associate within an established private practice. Experienced dentists who take associates use this as a strategy to grow their practice and to have someone to whom they may sell their practice upon retirement (50). Recent dental school graduates who become associates may or may not be Medicaid providers depending on the type of practice they join. In recent years, however, fewer of these spots have been available; many established dentists have postponed retirement because of the reduced value of their investments (50).

Licensing Requirements

Current Washington state licensing rules require that foreign-trained dentists complete at minimum an additional two years of accredited education to supplement foreign training whether or not they were already licensed in another state. Licensing restrictions have been adopted to ensure that licensees meet minimal standards of competence, although historically they have been used by the dental profession to limit competition. This additional two years of training increases the cost for foreign-trained dentists to be licensed in Washington. Nothing is known specifically about how foreign-trained licensees finance their dental education, such as whether their additional educational costs are paid primarily via loans or personal finances. This increased cost likely modifies the practice decisions and likelihood of foreign-trained licensees electing to participate in Medicaid. However, without these data it is difficult to predict how debt affects their choices regarding provision of care to the underserved.

In addition, requiring that foreign-trained dentists complete more pre- or postdoctoral education might influence these dentists to get trained in a dental specialty through a two-year professional program, rather than repeat two years of pre-doctoral dental school. Nominally, dentists who specialize don't accept Medicaid at rates equal to general practice dentistry. This could explain why foreign-trained dentists in Washington are less likely to see Medicaid patients. Further inquiry into dentists' specialties in Washington State may prove fruitful, but the state does not keep track of dental specialties and therefore the data is available only for those dentists enrolled in the WSDA.

Sociocultural Factors

Further study is necessary to determine whether or not foreign trained dentists are locating mostly in urban areas. Urban areas in Washington experience fewer dental shortage issues and have more dense population than rural areas, and therefore dentists have less of a need to draw clientele from the Medicaid population. Foreign-trained dentists may be more likely to settle in urban areas and/or ethnic enclaves (rather than rural areas) where they can become associates or establish practices rapidly and earn a higher return on the investment of becoming a dentist and licensee. This settlement pattern holds true for immigrants in general, as urban areas tend to be more ethnically diverse and to offer more in terms of available resources (diverse food products, language, schools, places of worship, etc.) and possibly a diverse and/or ethnically similar clientele (51). In addition, it is possible that foreign trained dentists are more likely to locate in market areas where there are higher proportions of corresponding ethnic groups and/or already established dentists, as is the case with international medical graduates (52). In Washington State, these areas are likely to be urban. Nationally, the majority of foreign-trained dentists who took the NBDE Part II between 2002-2005 came from Asia (Philippines), the Southeast Asia (India), and South America (Colombia) (42). According to data abstracted from dental licensing applications, between 2006-2008, 25 percent of foreign-trained dentists in Washington State graduated from schools in India; 20 percent graduated from schools in Asia (8 percent China, 7 percent Taiwan, 5 percent South Korea); and 7 percent graduated from schools in South America (5 percent Peru and 2 percent Brazil).

AIM 3. Characteristics of newly licensed foreign- versus U.S.-trained dentists participating in Medicaid

Among the recently licensed dentists already enrolled as Medicaid providers, slightly more foreign-trained dentists than the U.S.-trained group practiced in urban areas overall, dental HPSAs overall, and urban HPSAs specifically. This is consistent with the hypothesis that immigrants tend to locate in urban areas. These differences between the U.S.- and foreign-trained group, however, are not substantial enough to generalize to the greater population of licensed dentists. As expected, a majority of all dentists enrolled as Medicaid providers were licensed via examination, and the proportion of dentists licensed via examination within the foreign- and U.S.-trained groups were similar. The most notable difference is the higher proportion of foreign-trained women serving Medicaid patients than U.S.-trained women. Further examination of this phenomenon might explore family size and employment opportunities for foreign- versus U.S.-trained women.

OBJECTIVE 6. RECOMMENDATIONS FOR FUTURE INQUIRY

1. The state should explore ways to attract and retain dental students and dental graduates to care for the underserved. Between 1985 and 1995, Washington State imported about 56 percent of its dental practitioners, and was one of only seven states that imported more than half its practicing dentists (53). Washington has only one dental school to serve Washington, Wyoming, Alaska, Montana and Idaho. The university has tried to recruit and retain more dentists by accepting more dental students as well as initiating programs to expand the number of dentists who choose to practice in rural areas. One such program is Regional Initiatives in Dental Education (RIDE) (34). The university with the Yakima Valley Farm Workers Clinic also operates the Northwest Dental Residency program in Advanced Education in General

Dentistry and the Pediatric Dentistry Residency, which encourage dental residents to practice in some rural communities such as Yakima, Othello, and Toppenish, or on mobile dental clinics serving harder to reach residents of agricultural areas (4). These new programs are worthwhile but inadequate, as large portions of the population remain underserved. The university may consider instituting and subsidizing an international dental program for foreign graduates in order to attract and retain more foreign-trained dentists. The state may consider accrediting certain foreign dental schools and/or easing access to licenses for graduates of those schools. California recently accredited a Mexican dental school from which graduates may apply for a license to practice in California without further education from a CODA-accredited school (54).

2. If Washington State cannot educate or import sufficient numbers of U.S.-trained dentists to serve its underserved population, then other avenues must be explored. Despite this study's conclusion that foreign trained dentists are less likely than U.S. trained dentists to care for the underserved, it is likely that foreign graduates will continue to be an important part of the oral health workforce in the future. As with nurses and physicians, policy makers will likely continue to consider foreign graduates as possible solutions to workforce shortages. However, government policy that recruits foreign trained health care providers from developing countries to practice in the U.S. results in "brain drain," or the inability of foreign healthcare systems to serve their populace as a result of health professional shortages. The state must weigh these ethical considerations when developing licensing policy (55).

Were the state to enact policy that mandated foreign trained dentists to serve Medicaid and/or uninsured patients in dental HPSAs, then easing licensing restrictions would be in the state's best interest.

This could be done by granting limited licenses with quality control in place, such as supervision by a licensed dentist. For example, Massachusetts licensing policy allows granting of limited licenses to foreign-trained dentists to work at a state-approved hospital, school, or government clinic with supervision from a licensed dentist (54). Annual renewals are allowed for up to five years, after which the dentist may petition to take the clinical exam. Foreign-trained dentists may also apply for and indefinitely renew a "faculty practice registration," for which the same practice restrictions as the limited license apply (54). Maryland grants limited licenses to foreign trained dentists who have completed state-approved pediatric training, and contractually obligates those dentists to serve only Medicaid, uninsured or indigent patients for at least two years at public health clinics or federally or state-qualified health centers (54). After completing two years, these dentists have the option to apply for general licenses upon passing the NBDEs, a clinical exam, and an English language proficiency exam. Tennessee regulations allow foreign-trained dentists who have Educational Credential Evaluators (ECE)-approved specialty training to practice at public institutions or HPSAs (54). It is unknown, however, to what extent these limited license policies and practices have affected dental shortages in the respective states.

3. The Dental Quality Assurance Committee in conjunction with the Department of Health and the Department of Social and Health Services should move to collect more accurate and complete data on dental Medicaid and the dental professionals

they license, including foreign or U.S. training status, dental specialties, and up-to-date practice locations. The lack of data makes it difficult to determine if foreign graduates can significantly affect the oral health workforce in the future. Current data collection practices also make it difficult to differentiate between foreign- and U.S.-trained dentists and to identify where dental practices are located and who is served. Licensing and Medicaid databases do not have current home or practice addresses.

Also, current data collection practices make it difficult to differentiate dental Medicaid providers who provide care to the underserved regularly from those dental Medicaid providers who only provide care to the underserved on occasion. Further studies are needed to link actual Medicaid claims data to specific licensees. An additional confounding factor is that not all licensees bill Medicaid under their own provider number; instead, a clinic billing number can be used. It will take considerable effort to determine whether foreign trained licensees contribute more than their proportional share to meeting the state's obligation to the Medicaid population.

Additional data are also necessary to study the career paths of licensees and the factors that influence their career decisions. Nurses and physicians have been studied more in-depth, and that information may help policy makers in their study of using foreign graduates as a possible solution to workforce shortages. This would better provide policy makers with the information necessary to determine the extent to which the current licensing regulations should be modified.

4. Due to the well-documented shortage of dentists serving rural areas and special populations such as people of color, low-income, and migrants populations, it is recommended that the Dental Quality Assurance Commission and the Washington State Department of Health study whether the current restrictions on licensing achieve the proper balance between protection of the public from less competent dentists and providing an adequate workforce (4). The state could partner with other states that have eased licensing restrictions for foreign-trained dentists with the condition that they care for underserved populations to examine the actual effect of those policy changes on workforce shortages. As mentioned above, Massachusetts, Maryland, Tennessee, and California are good examples. In addition, Minnesota reviews applications for licensure from foreign-trained dentists on a case-by-case basis (54). Studying the effect of such pilot licensing programs may inform the Legislature as to whether quality care is sacrificed for an increase in the dental workforce willing to care for the underserved.

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