Understanding health disparities through workforce research: A national sample survey of underrepresented minority dentists, 2013

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Final Survey

Final survey was formatted as a 12 page booklet, with 8 sections and approximately 150 questions. It was also available to take in an online survey tool.

Survey Sections
A: Personal Information
B: Dental Education
C: Practice History
D: Current Practice Status
E: Clinical Dental Practice
F: Patient Population
G: Volunteer Dental Service
H: Professional Experiences and Opinions

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URM Dentists' Treatment of Patients by Race/Ethnicity

- Caucasian patients are treated by almost all URM dentists across racial/ethnic groups.
- More American Indian/Alaska Native and Black dentists treat Caucasian patients than treat members of their own race/ethnicity. This is not the case for Hispanic/Latina(o) dentists.

Patient Race or Ethnicity	Dentists who treat any of the patient population		
	Amer. Indian/AK Native (n=362)	Black (n=4998)	H/L (n=4700)
Amer. Indian / Alaska Native	**89% (n=322)**	39% (n=1961)	40% (n=1879)
Black	90% (n=326)	**91% (n=4560)**	93% (n=4386)
Hispanic/Latina(o)	90% (n=326)	94% (n=4709)	**99% (n=4640)**
Caucasian	**92% (n=333)**	**97% (n=4856)**	**98% (n=4596)**
Asian	57% (n=207)	64% (n=3205)	68% (n=3196)

Distribution of URM Dentists' Patient Population

- Although Caucasian patients are treated by almost all URM dentists across racial/ethnic groups, each URM group treats more patients of their own race/ethnicity than is treated by any other group of URM dentists.

Patient Race or Ethnicity	Percent of dentists' patient population		
	Amer. Indian/AK Native Dentists	Black Dentists	Hisp./Lat. Dentists
Amer. Ind./AK Native	**22%**	6%	6%
Black	13%	**45%**	13%
Hispanic/Latina(o)	14%	20%	**42%**
Caucasian	55%	31%	40%
Asian	10%	7%	7%

Opinions on Current Issues in Dentistry

The small number of underrepresented minority dental providers contributes to the access to dental care problems for minority populations.

Opinion of Respondents, by Race/Ethnicity	American Indian/Alaska Native (n=399)	Black (African American, Caribbean, African) (n=5,197)	Hispanic (n=5,024)
Strongly agree	7%	25%	15%
Agree	31%	37%	32%
Neither agree nor disagree	28%	23%	31%
Disagree	23%	13%	16%
Strongly disagree	11%	2%	7%

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What Predicts Attitudes Toward New Workforce Models Among Underrepresented Minority Dentists?

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Background

- In 2000, the Surgeon General's report on Oral Health noted significant deficiencies with the oral health workforce and access to care.
- In 2003, the SG's call to action noted a need to increase the diversity, flexibility and capacity of the oral health workforce.
- Since then, in addition to expanding scope of practice for dental hygienists and assistants, two new workforce models have been deployed:
  - Dental Therapist (DT)
  - Community Dental Health Worker (CDHW)

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Research Overview

- **Broad Study Goals**
  - The goal of our study was to assess the outcomes of efforts to improve the diversity of the dental workforce and the relationship of these efforts to improvements in:
    - *access to care*
    - *reductions in oral health disparities*

- **Research Team**
  - UCSF and the Bronx-Lebanon Hospital Center, in partnership with the NDA, HDA, SAID, & ADEA.

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Specific Study Objectives

- This study examines predictors of Underrepresented Minority Dentists' (URM) attitudes toward DTs and CDHWs.
  - New workforce has been focused on serving underserved populations
  - Minority providers have historically disproportionately served the underserved
  - New models could enhance these practices or be seen as a threat
- Using 2013 nationally representative survey data sampled from 4386 Black, Hispanic and American Indian/Alaska Native dentists, we sought to examine what factors predict SUPPORT and/or OPPOSITION to these two models
- Data included 1489 respondents (34% response rate) and survey included 150 questions

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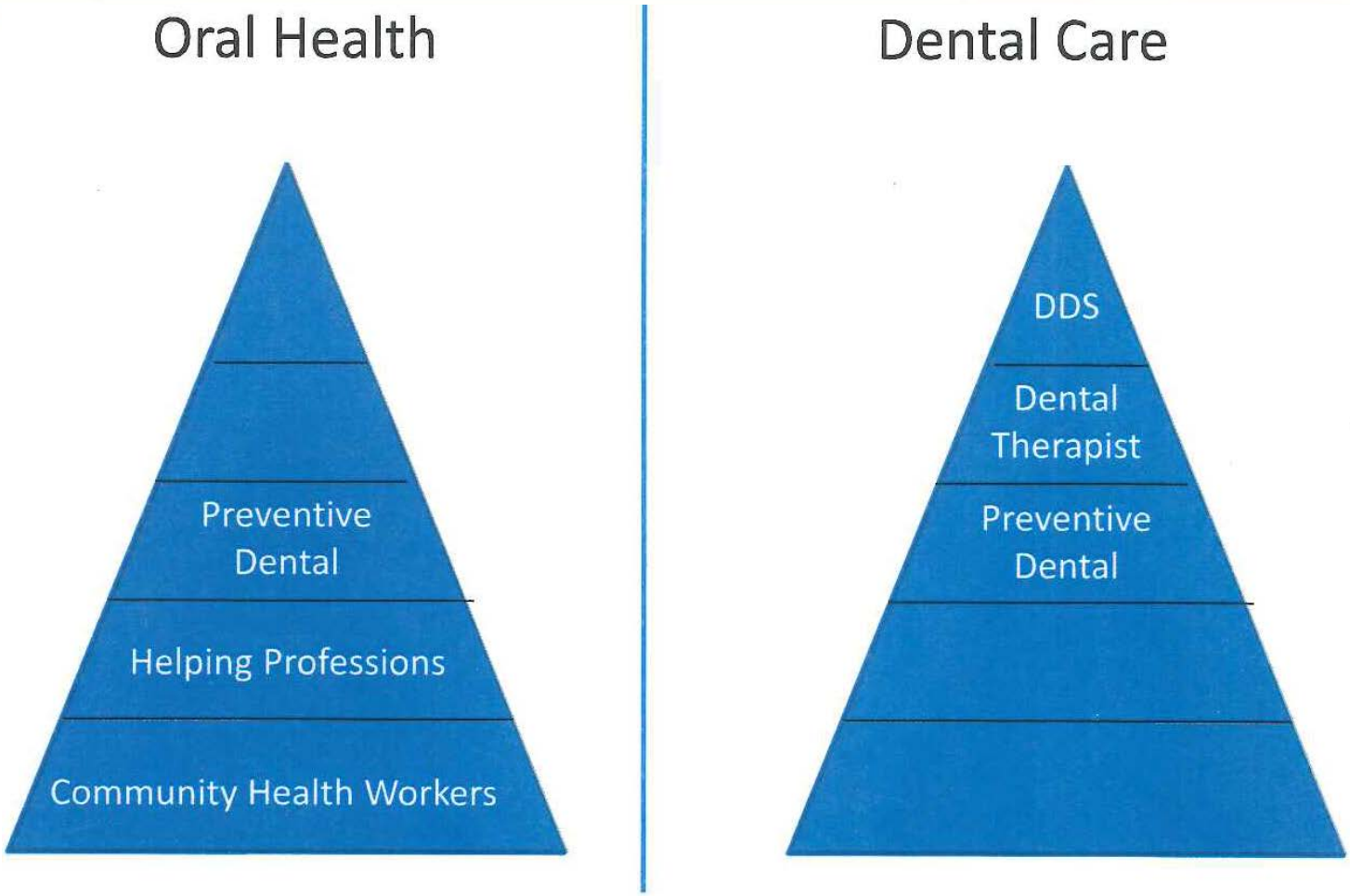
BURT EDELSTEIN MODEL



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Methodology

- Responses to the following statements were recorded on a 5-point Likert Scale (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree)
  - A well-trained, licensed mid-level provider such as a dental therapist should be developed as part of the dental team
  - A well-trained dental community health worker should be developed as part of the dental team
- Providers' attitudes toward DTs and CDHWs were recoded as a binary variables
  - Support: Strongly Agree + Agree = 1, all other = 0
  - Oppose: Strongly Disagree + Disagree = 1, all other = 0
- Independent variables of theoretical relevance were tested for correlation followed by logistic regression

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Independent Variables: Demographics

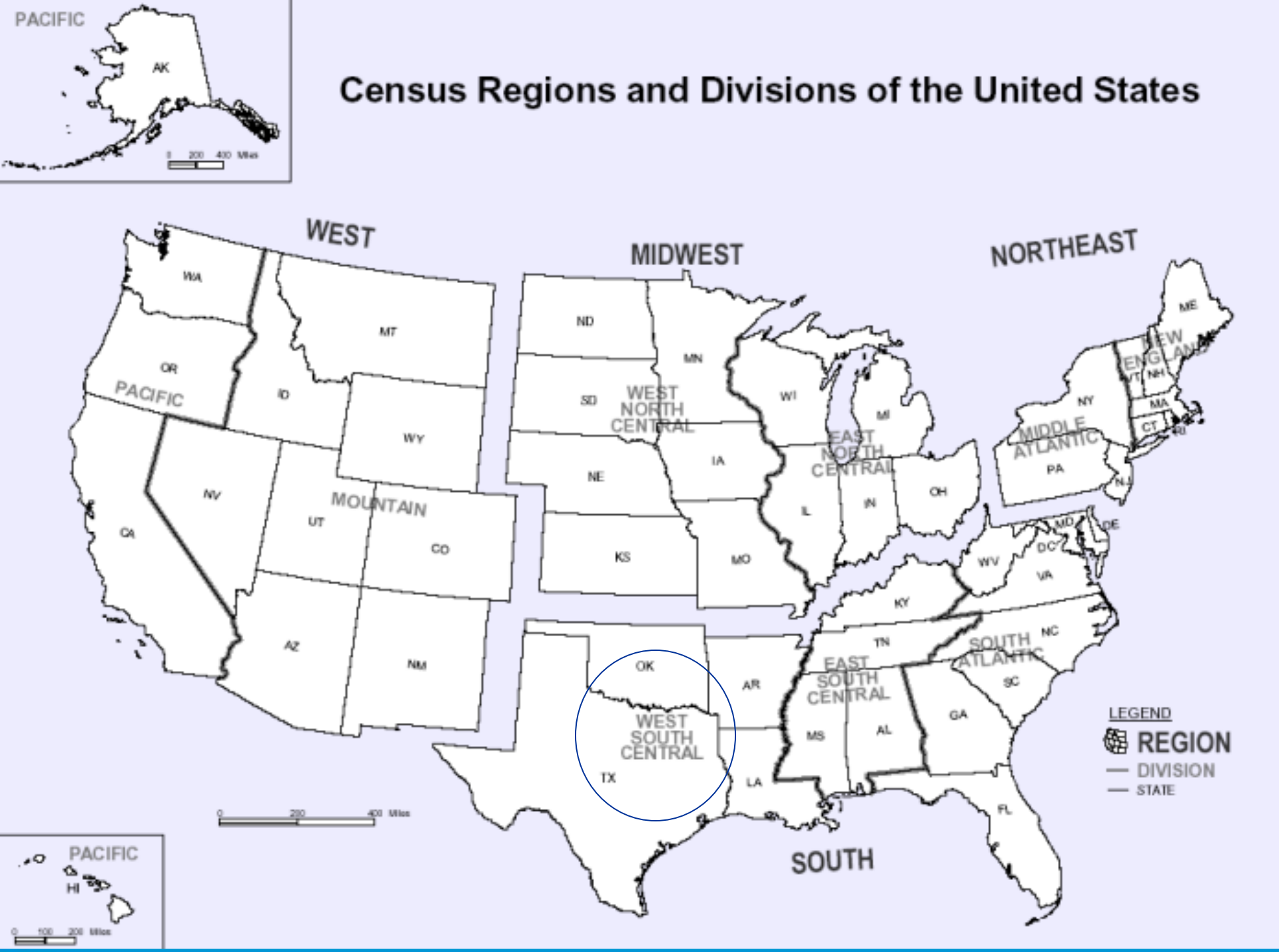
	All	Hispanic	Black	AI/AN
Variable Name	n(%)	n(%)	n(%)	n(%)
Sample weighted n	10,873	5095	5368	410
Age (mean)	49	48	50	46
Gender				
Male	6376	3133	2807	286
	59%	61%	55%	70%
Female	4497	1963	2288	123
	41%	39%	45%	30%
US Born				
Yes	7353	2502	4450	402
	68%	49%	83%	98%
No	3460	2570	882	8
	32%	51%	17%	2%

Independent Variables: Demographics

	All	Hispanic	Black	AI/AN
Variable Name	n(%)	n(%)	n(%)	n(%)
Take Public Insurance				
Yes	6389	2754	3434	200
	64%	58%	70%	57%
No	3616	1989	1473	154
	36%	42%	30%	43%
ADA Member				
Yes	5954	3105	2559	291
	55%	61%	48%	71%
No	4919	1990	2809	119
	45%	39%	52%	29%
Work Collaboratively (total count)	10528	4942	5187	399
Collaborates with none	1705	897	743	66
	16%	18%	14%	16%

Independent Variables: Regional Distribution

	All	Hispanic	Black	AI/AN
Variable Name	n(%)	n(%)	n(%)	n(%)
Region				
East North Central	1146	391	719	37
	11%	8%	13%	9%
East South Central	603	63	534	7
	6%	1%	10%	2%
Mid-Atlantic	1223	595	629	-
	11%	12%	12%	-
Mountain	599	394	165	40
	6%	8%	3%	10%
New England	279	154	122	4
	3%	3%	2%	1%
Pacific	1755	1302	352	102
	16%	26%	7%	25%
South Atlantic	3531	1345	2108	78
	32%	26%	39%	19%
West North Central	295	137	136	22
	3%	3%	3%	5%
West South Central (referent)	1441	716	603	122
	13%	14%	11%	30%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Dependent Variables: Attitudes

	All	Hispanic	Black	AI/AN
Variable Name	n(%)	n(%)	n(%)	n(%)
Support DT	2286	847	1352	87
	22%	18%	27%	22%
Oppose DT	4719	2327	2182	209
	46%	49%	42%	54%
Support CDHW	4360	1677	2539	144
	43%	35%	50%	37%
Oppose CDHW	2276	1224	917	135
	22%	26%	18%	35%

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Independent Variables	Support for Dental Therapist OR	Support for Dental Therapist 95% CI	Opposition to Dental Therapist OR	Opposition to Dental Therapist 95% CI
Age (continuous)	1.000	(0.980-1.020)	**0.984**	**(0.971-0.998)**
Gender (0=Male, 1=Female)	0.909	(0.572-1.447)	1.156	(0.839-1.593)
Race: Black (Referent)				
Hispanic	0.708	(0.447-1.120)	1.237	(0.904-1.792)
American Indian/Alaska Native	1.176	(0.528-2.618)	1.204	(0.698-2.077)
Census Region: West South Central (Referent)				
East North Central	0.724	(0.328-1.600)	1.581	(0.882-2.833)
East South Central	1.200	(0.417-3.451)	0.984	(0.407-2.378)
Mid Atlantic	1.032	(0.463-2.300)	1.439	(0.760-2.728)
Mountain	**0.421**	**(0.182-0.973)**	**2.256**	**(1.214-4.193)**
New England	0.715	(0.270-1.893)	1.280	(0.636-2.574)
Pacific	0.689	(0.335-1.415)	1.004	(0.590-1.710)
South Atlantic	0.707	(0.367-1.362)	1.164	(0.700-1.936)
West North Central (*Contains MN*)	0.579	(0.231-1.450)	**3.986**	**(2.045-7.770)**
Born in the US (0=No, 1=Yes)	-	-	**1.651**	**(1.161-2.347)**
Attended a CODA School (0=No, 1=Yes)	-	-	-	-
Member of the ADA (0=No, 1=Yes)	**0.455**	**(0.301-0.688)**	**2.179**	**(1.611-2.946)**
Currently has no dental school loans (0=No, 1=Yes)	**1.707**	**(1.025-2.842)**	-	-
Practice serves primarily underserved (0=No, 1=Yes)	**1.747**	**(1.095-2.787)**	-	-
Collaboration Index (0-7 types of providers)	-	-	**0.906**	**(0.839-0.977)**
Accepts Public Insurance (0=No, 1=Yes)			**0.747**	**(0.547-1.019)**
Quartiles of Patients on Public Insurance (1=0-25; 2=25-50; 3=50-75; 4=75-100)	**0.767**	**(0.621-0.948)**	-	-
Degree of discrimination experienced in dental career (Range 0 times to 32+ times)	**1.031**	**(1.005-1.058)**	-	-
	Obs=914		Obs=1152	
	F(17,897)=2.61		F(16, 1136)=5.21	
	Prob > F =0.0004		Prob > F =0.0000	

1-The Odds Ratio (OR) of age is .98 for opposing DTs. In other words, for every year older a dentist is, they are .98 less likely to oppose DTs. Or, even more simply, there is a significant inverse relationship between age and expressed opposition to DTs.

2-There is no relationship between either support or opposition for DTs by gender or race.

3- By region, the west south central is our referent. Dentists in the mountain region are 0.421 less likely to support DTs than dentists in the WSC region. Alternatively, dentists in the mountain region are 2.256 times more likely to oppose DTs than dentists in the WSC region, and dentists in the West North Central region are 3.986 times more likely to oppose DTs than the referent region.

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4- When there is a – instead of a number, that just means we did not include it in the model
5- ADA – this means that dentists who are members of the ADA have a .4 odds (less likely) of supporting DTs compared to non-members, and 2.179 the odds of opposing compared to non-members.
6- Having paid off all their loans gives dentists a 1.707 higher odds of supporting DT than those who still have loans
7- If your primary or secondary practice serves primarily underserved patients you have a 1.747 higher odds of supporting DTs than those whose practices do not

8- Collaboration index is 0-7, so you can be counted as collaborating with between 0 and 7 non-dental health care providers. For every additional provider type you collaborate with, you have a 0.9 odds of opposing DTs, meaning if you collaborate with more providers, you oppose the DT less.

9- For public insurance, you have a 0.74 odds of opposing DTs compared to dentists who don't' accept public insurance. Alternately, the more public insurance you take, the less likely (OR 0.767) you are to support DTs

10- And the more discrimination you've experiences, the more likely you are to support DTs (OR 1.031),

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Independent Variables	Support for Community Dental Health Worker		Opposition to Community Dental Health Worker	
	OR	95% CI	OR	95% CI
Age (continuous)	1.014	(0.999-1.029)	0.997	(0.982-1.013)
Gender (0=Male, 1=Female)	1.013	(0.731-10402)	1.105	(0.748-1.634)
Race: Black (Referent)				
Hispanic	**0.531**	**(0.384-0.733)**	**1.617**	**(1.080-2.421)**
American Indian/Alaska Native	0.586	(0.344-1.025)	**2.239**	**(1.203-4.167)**
Census Region: West South Central (Referent)				
East North Central	1.065	(0.573-1.978)	1.189	(0.596-2.375)
East South Central	0.803	(0.326-1.979)	1.264	(0.483-3.306)
Mid Atlantic	0.836	(0.441-1.585)	0.859	(0.403-1.830)
Mountain	0.863	(0.468-1.588)	1.350	(0.696-2.621)
New England	1.300	(0.640-2.641)	0.602	(0.239-1.513)
Pacific	1.283	(0.742-2.219)	1.070	(0.584-1.961)
South Atlantic	0.085	(0.504-1.422)	0.783	(0.433-1.415)
West North Central (*Contains MN*)	0.934	(0.485-1.797)	1.125	(0.529-2.390)
Born in the US (0=No, 1=Yes)	-	-	-	-
Attended a CODA School (0=No, 1=Yes)	-	-	**2.037**	**(1.109-3.742)**
Member of the ADA (0=No, 1=Yes)	0.823	(0.607-1.115)	**1.504**	**(1.038-2.178)**
Currently has no dental school loans (0=No, 1=Yes)	-	-	**-**	**-**
Practice serves primarily underserved (0=No, 1=Yes)	**1.865**	**(1.373-2.533)**	**-**	**-**
Collaboration Index (0-7 types of providers)	**1.141**	**(1.057-1.233)**	**0.909**	**(0.831-0.995)**
Accepts Public Insurance (0=No, 1=Yes)	-	-	**0.655**	**(0.457-0.939)**
Quartiles of Patients on Public Insurance (1=0-25; 2=25-50; 3=50-75; 4=75-100)	-	-	-	-
Degree of discrimination experienced in dental career (Range 0 times to 32+ times)	**-**	**-**	0.993	(0.970-1.016)
	Obs= 1167		Obs= 1126	
	F(15,1152)= 4.32		F(17,1109) 3.27	
	Prob > F = 0.0000		Prob > F = 0.0000	

Key Points

- Demographic variables have little relationship to attitudes toward DTs, but differences by race exist in attitudes toward CDHW
- Regional variation exists in attitudes towards DTs, with particular opposition from the West North Central region (*contains MN*), but has no impact on attitudes toward CDHWs
- Membership in the ADA impacts negative attitudes toward both models, and does not impact support for CDWH (ADA sponsored)
- US vs. international effects are found in opposition to both types of models, with US born or trained more likely to oppose both
- Serving underserved patients, accepting any public insurance, and collaboration with multiple provider types tends to predict support (and/or lack of opposition)
- Having no loans predicted support for DTs, while a higher percent of public insurance patients predicted opposition for DTs.
- The degree of discrimination experience reported predicted slight support for DTs.

Summary

- Organized dentistry is a fundamental avenue for providers to connect and advocate for their profession, so these results are not surprising.
- While Black, Hispanic and American Indian/Alaska Native dentists are all classified as underrepresented, they are clearly quite different and have variance within as well as between
- When the model is inverted different characteristics predict support for DTs, and race-specific models vary as well, indicating a wide diversity of perspectives that should be included in the ongoing discussion about new workforce models.

Acknowledgements

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  - **Leo Rouse**: Dean at Howard University College of Dentistry, current ADEA President
  - **Jeanne Sinkford**: Associate Executive Director and Director of the ADEA Center for Equity and Diversity, Dean Emeritus at Howard University College of Dentistry
  - **George Taylor**: Chair Preventive and Restorative Dental Sciences UCSF / President elect of the Board of Dental Public Health
  - **Jay Anderson**: Oregon Health Sciences University School of Dentistry
  - **Roy Irons**: NDA President
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- The American Dental Education Association

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[1]Paul A. Harris, Robert Taylor, Robert Thielke, Jonathon Payne, Nathaniel Gonzalez, Jose G. Conde, Research electronic data capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support, J Biomed Inform. 2009 Apr;42(2):377-81.)

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