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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:
  - The RWJ Pipeline program stimulated increased attention at diversifying the dental workforce through recruitment of minority students
  - Scope of practice for dental hygienists and assistants has been expanded and 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.

Specific Study Objectives

- This analysis 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

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

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%

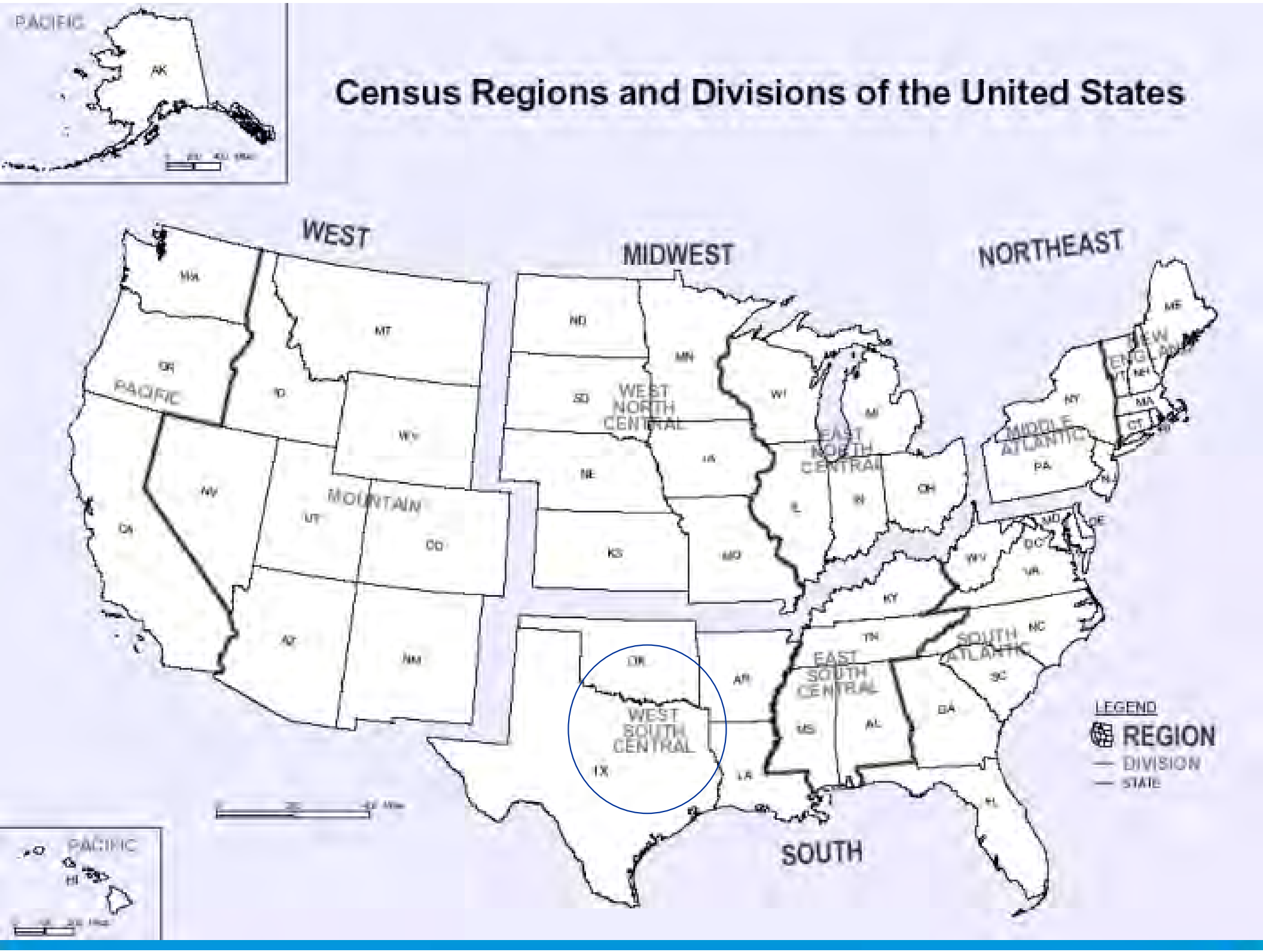
Independent Variables: Demographics

Variable Name	All n(%)	Hispanic n(%)	Black n(%)	AI/AN 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

Variable Name	**All** **n(%)**	Hispanic n(%)	Black n(%)	AI/AN 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%

Census Regions and Divisions of the United States



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%

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	

Independent Variables	Support for Community Dental Health Worker OR	95% CI	Opposition to Community Dental Health Worker 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 few providers*), but region has no impact on attitudes toward CDHWs
- Membership in the ADA impacts negative attitudes toward both models, and does not impact support for CDWH
- International effects are found in opposition to both types of models, with internationally born or trained less 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 having a higher percent of public insurance patients predicted opposition for DTs.
- The degree of discrimination experience reported predicted slight support for DTs.

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Summary

- Organized dentistry is a fundamental avenue for providers to connect and advocate for their profession, so these results are not surprising. However, negative messaging is clearly dominating this group of providers attitudes toward these workforce models.
- While Black, Hispanic and American Indian/Alaska Native dentists are all classified as underrepresented, they are clearly quite different and have variance of perspectives that should be included in the ongoing discussion about new workforce models.
- Various experiences in the safety net seems to drive support, if financial pressures are not paramount.
- Economic variables (overall debt, practice cost, specialty practice status) did not drive attitudes

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Acknowledgements

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  - **Jeanne Sinkford**: Associate Executive Director and Director of the ADEA Center for Equity and Diversity, Dean Emeritus at Howard University College of Dentistry
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- The Society of American Indian Dentists
- The American Dental Education Association

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(Study data were collected and managed using REDCap electronic data capture tools hosted at UCSF.[1] REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources.

[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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