Assessing Impacts of State-specific Dental Hygiene Scope of Practice on Oral Health Outcomes

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The OHWRC at CHWS

The Center for Health Workforce Studies (CHWS) has more than 20 years' experience studying all aspects of the health workforce:

- Established in 1996;
- A research center of the University at Albany School of Public Health;
- Committed to collecting and analyzing data to understand workforce dynamics and trends;
- Goal to inform public policies, the health and education sectors, and the public;
- Broad array of funders in support of health workforce research.

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Researchers who contributed to this work included Margaret Langelier, MSHA; Tracey Continelli, PhD; Simona Surdu, MD, PhD; Bridget Baker, MA; and Rachel Carter

The American Dental Hygiene Association helped to organize dental hygiene focus groups to inform this work.

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OBJECTIVES

1. Build a tool to measure state to state variation in scope of practice (SOP) for a health profession
2. Assess the impact of SOP variation on health outcomes
3. Translate SOP research findings for policy-makers

STUDY DESIGN

Developed a tool to measure SOP variation

Dental Hygiene Professional Practice Index (DHPPI).

- Initially developed in 2001 and revised in 2016
- Numerical index based on state's law & regulation
- Contains many variables grouped in 4 categories: regulation, supervision, tasks, and reimbursement
- Possible state composite score from 0-100
- State DH SOP scored in 2001 & 2014 using 2001 DHPPI and in 2016 using the 2016 DHPPI

Assessed impact of SOP variation on health outcomes

Do more expansive DH SOPs, which allow more autonomy in preventive services delivery in public health settings, impact oral health outcomes in the population?

- Multilevel logistic modeling was conducted using:
  - 2001 and 2014 DHPPI scores
  - 2002 and 2012 Behavioral Risk Factor Surveillance System (BRFSS) data on oral health status (ie, permanent teeth removed due to decay or disease)
  - State (eg, supply of dentists & dental hygienists) and individual (eg, age, race, gender, income, education, employment status) level factors

Translated SOP research findings for policy-makers

There is substantial variation in DH SOP across states, but no tools to help policy makers understand these differences.

- A DH SOP infographic was developed using:
  - Scores from the 2016 DHPPI
  - A series of focus groups of dental hygiene leaders from across the country to identify the key DH functions and tasks.

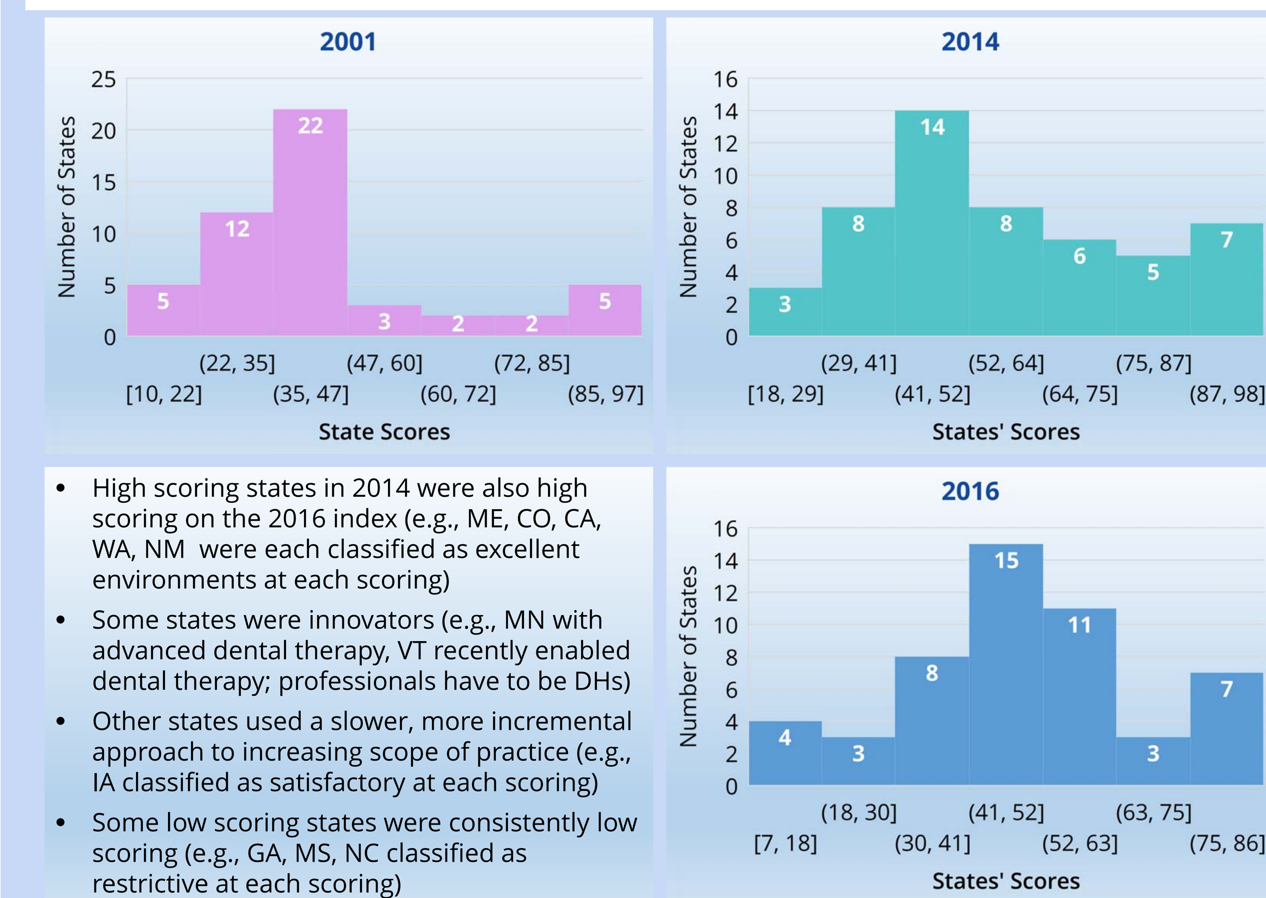
RESULTS

Changing scope of practice for dental hygienists

- State DHPPI scores ranged:
  - from 10 in West Virginia to 97 in Colorado in 2001
  - from 18 in Alabama & Mississippi to 98 in Maine in 2014
  - from 7 in Mississippi to 86 in Maine in 2016
- DHPPI mean score was 43.5 in 2001, 57.6 in 2014 and 48.9 in 2016

RESULTS (cont.)

Figure 1. A Comparison of DHPPI Scores in 2001, 2014, and 2016



Impact of dental hygiene interventions on outcomes

- More expansive SOP for DHs in states was positively and significantly associated ($P<0.05$) with having no teeth removed due to decay or disease among adults in those states.

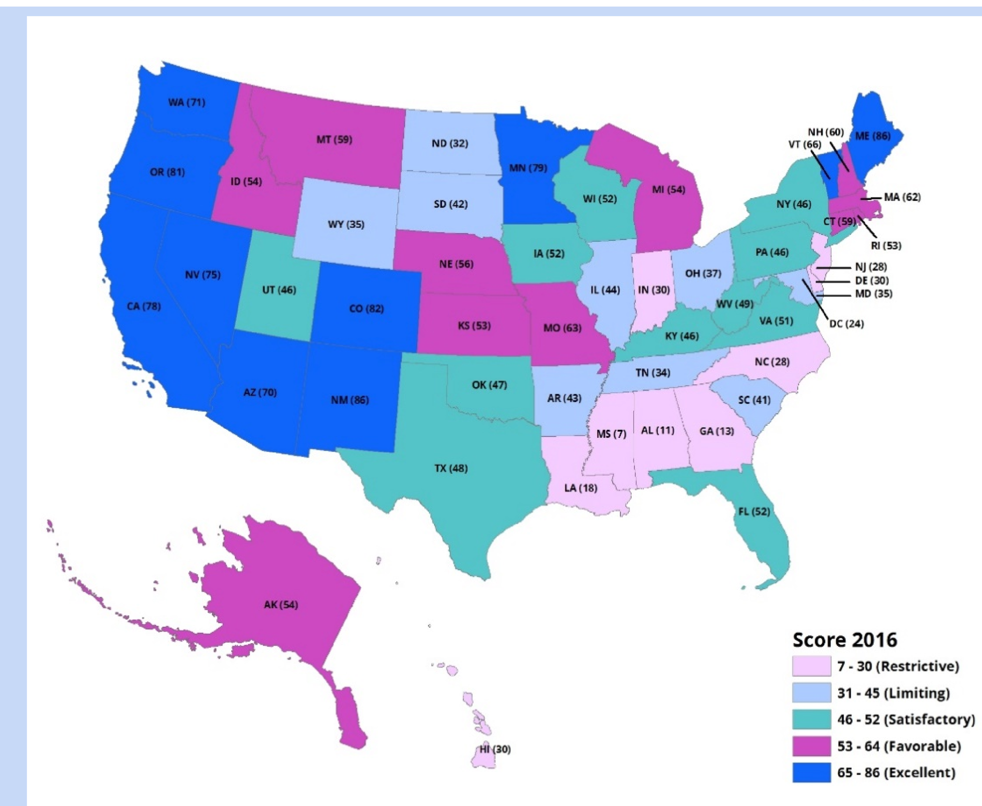
Table 1. Multivariable Association between DHPPI scores and having no teeth removed due to decay or disease

DHPPI	2001 Model Odds Ratio	2001 Model P-value	2014 Model Odds Ratio	2014 Model P-value
Composite Score	1.005	**<0.001**	1.003	**0.011**
Regulation Score	1.032	0.178	1.035	**0.026**
Supervision Score	1.011	**<0.001**	1.002	0.392
Tasks Score	1.014	**0.004**	1.006	0.299
Reimbursement Score	1.012	**0.008**	1.012	**0.002**

Note: Bold font indicates statistical significance at or below the 0.05 probability level.

- 2016 DHPPI accommodates emerging workforce models and newly permitted remediable and irremediable functions for DHs that were not included in the previous iterations of the DHPPI.

Figure 2. Map of the 2016 DHPPI Scores and Ranking of States

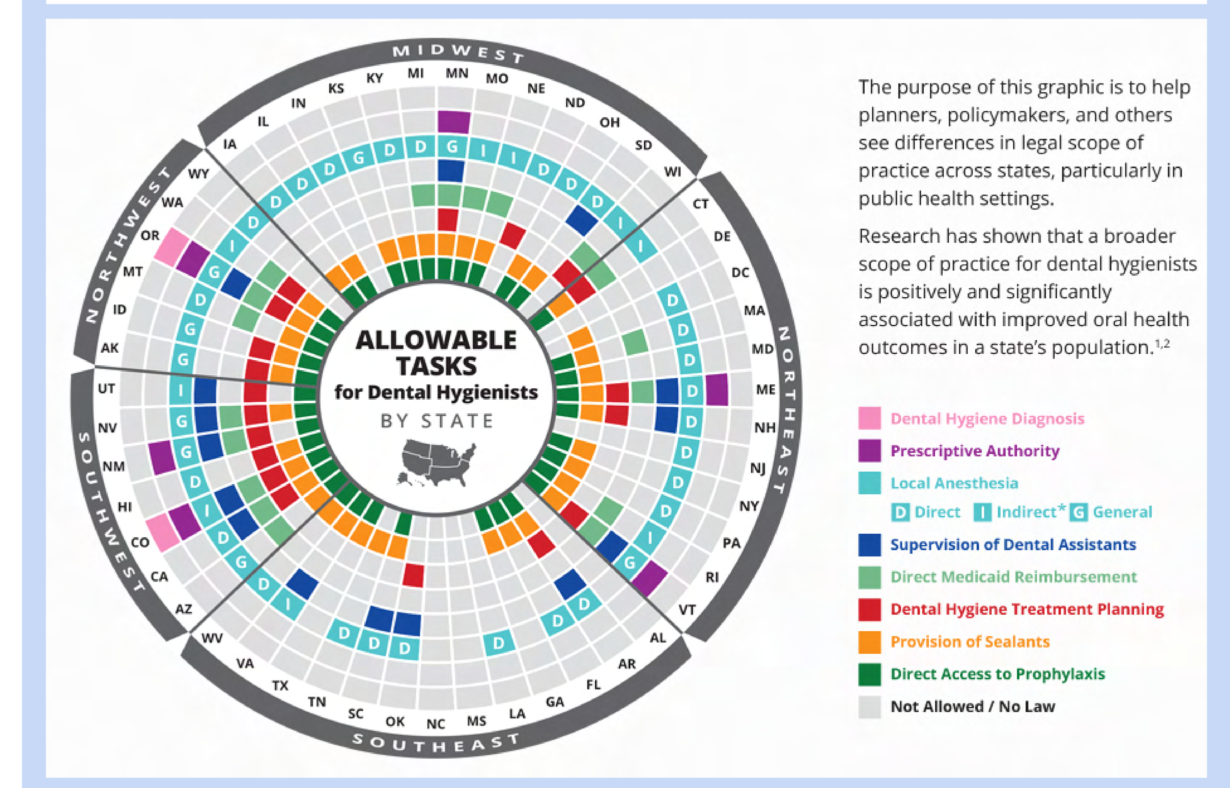


RESULTS (cont.)

Translating research findings for policy-makers

The graphic visualization on state-specific DH responsibilities associated with SOP helps policymakers and others to understand variation in legal scope of practice across states, particularly in public health settings.

Figure 4. Variation in Dental Hygiene SOP by State



POLICY IMPLICATIONS

Efforts to systematically quantify profession-specific SOP variation and measure impacts on population health is critical to helping stakeholders understand why SOP matters.

A data visualization depicting state-specific SOP variation on key functions within a health profession provides policy makers better perspective on where to focus state-specific efforts to allow health professionals to do what they are trained and competent to do, while improving patient outcomes.

Infographics such as this one should be considered a work in progress, for instance, it requires routine updating as states modify SOP requirements.

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