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#### Feature Article

# Dental care practices and oral health training for professional caregivers in long-term care facilities: An interdisciplinary approach to address oral health disparities

Richie Kohli, BDS, MS<sup>a,\*</sup>, Sandra Nelson, RDH, EPDH<sup>b</sup>, Samantha Ulrich, BS<sup>c</sup>, Tony Finch, MA, MPH<sup>c</sup>, Karen Hall, RDH, EPDH<sup>c</sup>, Eli Schwarz, DDS, MPH, PhD<sup>a</sup>

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#### ABSTRACT

The objectives of this study were to: 1) Assess and analyze the knowledge and attitudes of caregivers towards dental care for older adults in long-term care facilities; and 2) Train administrators, medical staff, and caregivers in the oral health competencies necessary to provide daily oral health care for residents of Assisted Living Communities in Oregon. Our results indicate that although the majority of caregivers felt comfortable with regard to their oral health background and daily activities, they expressed a need for additional training in several areas. Caregivers who participated in the training recognized the poor oral health of their residents and felt the training curriculum provided them with competencies needed to improve their daily oral health services. This innovative training demonstrates that oral health can be integrated into daily routines which could improve oral and systemic health and reduce inequities in oral health care for older adults.

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#### Introduction

Current population projections suggest that 20% of the U.S. population in 2050 will be 65 years and older compared to 13% in 2010 and 9.8% in 1970. This vast increase in the elderly population is due to an overall decrease in mortality rates of older people and from improved healthcare, which has raised life expectancies on a global level. In the United States, there were an estimated 8.7 million people using long-term care services in 2014, and it is expected that 27 million Americans will be living in nursing homes or other assisted residential settings by 2050. Among this growing elderly population, there is an increasing number of citizens with natural teeth as well as out-of-pocket payments for dental services due to the lack of coverage for dental care under Medicare. Literature suggests that the oral health of the elderly population in a global context is poor and in need of further research and reform.

E-mail address: kohli@ohsu.edu (R. Kohli).

Recently, the non-governmental organization, Oral Health America, has assessed edentulism, adult Medicaid dental benefits, community water fluoridation, basic screening surveys, and state oral health plans as factors affecting the oral health of seniors nationwide. This study assigned each state a ranking based upon the assessment results and compared state rankings from 2013 to rankings in 2016. Although the oral health of seniors in Oregon improved, Oregon's current composite score of all five factors is 47%, which suggests that the overall oral health of seniors in Oregon is poor.<sup>8</sup>

Many other factors impact the oral health of seniors, including barriers that compromise the oral health of seniors such as underestimation of dental health problems, means of transportation to dental care facilities, lack of dental coverage under Medicare, perceived value for dental care, and caregiver attitudes and practices toward oral care. Older populations face oral related ailments such as xerostomia, periodontal disease, dental caries, and orofacial pain. Has also been shown that poor oral hygiene can exacerbate conditions commonly afflicting seniors, such as cardiovascular disease, diabetes, osteoporosis, and respiratory disease. On the disease of t

<sup>&</sup>lt;sup>a</sup> Department of Community Dentistry, Oregon Health and Science University, Portland, OR, USA

<sup>&</sup>lt;sup>b</sup> Smiles All Around LLC, Portland, OR, USA

<sup>&</sup>lt;sup>c</sup> Oregon Oral Health Coalition, Wilsonville, OR, USA

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<sup>\*</sup> Corresponding author. Department of Community Dentistry, School of Dentistry, Oregon Health and Science University, 3030 SW Moody Ave, Suite 135A, Portland, OR 97201-5042, USA.

caregivers for bodily care assistance exhibit worse oral hygiene than those who are self-sufficient for bodily care. <sup>16</sup> Importantly, there has been an identified connection between poor oral health and higher mortality rates in a cohort of elderly people. <sup>26</sup>

There are studies from various countries outside the United States that rate the oral health of residents in Assisted/Aged Care Facilities (ACF's) as poor.<sup>14,27,28</sup> The poor oral health of seniors is due in part to a limited number of professionally trained caregivers.<sup>3,4</sup> A publication by Jablonski et al in 2014 confirms the need for increased oral health and hygiene training in caregivers, as licensed practitioners lack sufficient training in areas of oral health and hygiene.<sup>3,29</sup> A 2016 Western Australian study by Adebeyo et al reported that caregivers had little knowledge of appropriate preventative oral care and in order to improve oral health of residents, ACF's need "ongoing professional development".<sup>30</sup> Several other studies and trainings have been done in this area of research that have produced similar results.<sup>31–33</sup>

Several intervention studies have aimed at improving the oral health services provided by caregivers. Some studies have discussed that there is inadequate oral care of seniors and ACF's need to have new dental procedures implemented. <sup>13,14</sup> In a pilot study conducted in 2011 by Jablonski et al, interventions aimed at training caregivers in threat-reduction techniques during oral health treatment were successful at reducing care-resistant behaviors in seniors with dementia and allowed for more frequent oral health exams. <sup>34</sup> Similarly, a 2011 Australian intervention study by Blinkhorn et al showed that adding oral hygiene protocols to the daily care routine greatly improved nurses' cooperation and oral health of seniors residents. <sup>35</sup>

A recent study by Albrecht et al in 2016 as part of the Cochrane Library assessed the effects of oral health educational interventions for nursing staff aimed at improving dental health. They searched numerous databases including the Cochrane Oral Health Trials Register, ClinicalTrials.gov, and World Health Organization International Trials Registry Platform. The researchers screened 1454 abstracts and assessed nine studies that met their criteria. Interventions assessed by the researchers reported on the oral health-related knowledge and attitudes of caregivers, but none actually reported on the oral health-related knowledge and attitudes of residents. One study included in their assessment by MacEntee et al in 2007 reported no significant changes to oral health of seniors with a pyramid-based educational intervention, however, in 2012, De Visschere et al reported a small, but statistically significant improvement in denture plaque following a 6month supervised educational intervention.<sup>36</sup>

These studies present a case for additional research on caregiver attitudes and practices of oral care in ACF's, along with training interventions aimed at improving the poor oral health of institutionalized elderly residents. Because of the total lack of information about the situation in this State, the aims of this project were to assess the oral health attitudes/practices of long-term care facilities' caregivers in Oregon (Stage 1) and to create and implement geriatric oral care training program for caregivers of assisted living facilities based on their attitudes/practices and educational needs of senior residents (Stage 2).

#### Materials and methods

The study protocol was approved by the Oregon Health & Science University Institutional Review Board (IRB00009667).

Study design

There were two stages of this study, the first, Caregivers' Attitudes Study, was a cross-sectional study that took place during

2014–2015 and consisted of surveys measuring the attitudes of caregivers in ACF's in Clackamas County, Oregon. The Caregivers' Attitudes Study demonstrated a need for a training intervention and prompted the second study, the Caregivers' Training Study, which assessed the efficacy of an oral health care training intervention for caregivers in a separate set of facility participants. The overall study design is illustrated in Fig. 1.

Sample

Stage 1

The sampling frame for the Caregivers' Attitudes Study was a list of licensed long-term care facilities in Clackamas County, obtained from the State of Oregon's Department of Human Services. Facilities were stratified by urban/rural status (facility zip code). In order to capture facilities of different capacity, a systematic probability proportional to size (PPS) sampling method was used to select 10 ACF's in Clackamas County, Oregon, to participate in the study. In case of a refusal to participate, PPS sampling was used to select a replacement facility. Of the 10 ACF's selected, a total of 8 facilities participated in the study.

Stage 2

In the subsequent study, Caregivers' Training Study, the sample of assisted care facilities was selected through an outreach program. A list of facilities within 20 miles of the Oregon Oral Health Coalition office in Wilsonville, Oregon was created and sorted by capacity, distance, and Medicaid acceptance using online resources such as the DHS Office of Licensing and Quality Care County Listing of Assisted Living Facilities and the Aging and Disability Resource Connection of Oregon. 33 facilities were contacted via phone, emails, and drop-ins and 10 agreed to schedule a training day and participate in the study.

Data collection

Stage 1

In the first part of the study, Caregivers' Attitudes Study, a 21-item questionnaire was developed from the literature<sup>39</sup> to explore general knowledge, attitudes, facilitators, and barriers towards providing oral care among caregivers. The survey gathered caregiver demographics, oral care provided in the aged care facility, residents' oral care, and factors that influence oral care. The questionnaire was accompanied by a letter of intent for the study and mailed to the administrators of the selected ACF's to be distributed to all caregivers throughout the facilities. Data collected from the Caregivers' Attitudes Study demonstrated that caregivers expressed the need for additional oral health care training and inspired the following study, Caregivers' Training Study (Fig. 1).

Stage 2

The Caregivers' Training Study provided a geriatric oral health training intervention to caregivers of 10 assisted living facilities. Prior to the administration of the intervention, the two 5-item pretraining surveys were administered to participating ACF's. The first survey, Administrator Survey, was administered to the ACF's and gathered information on the facility, administrators, residents, and staff. The second survey, Caregiver Survey, was then administered to caregivers to understand caregivers' perceptions of residents' oral health care.

Results from Stage 1 and Stage 2 surveys were taken into account as assisted living community administrators and geriatric dental hygienists met to design the training curriculum, which was also compared to senior health projects that had been implemented in other locations, as reflected in the references. Further

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