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Oral Wellness: Using Occupational Therapy to Enhance Oral Hygiene Delivery in Long-Term Care

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A Capstone Project Submitted in Partial Fulfillment of the Requirements for the Degree Master of Science Occupational Therapy

School of Health and Natural Sciences

Dominican University of California

San Rafael, California

December 2014

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This project, written under the direction of Eira Klich-Heartt, DNP, RN, CNS, CNL, and approved by the Chair of the program, Dr. Ruth Ramsey, Ed.D, OTR/L, has been presented to and accepted by the Faculty of the Occupational Therapy department in partial fulfillment of the requirements for the degree of Master Science in Occupational Therapy. The content, project, and methodologies presented in this work represent the work of the candidates alone.

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Abstract

Based on current literature, oral health in long-term care (LTC) facilities is frequently of low priority and does not follow evidence-based best practices. Poor oral health reduces the quality of life of older adult residents and patients and can lead to systemic diseases, such as cardiovascular disease, stroke, and pneumonia, the leading cause of death in LTC. Occupational therapists can play an instrumental role as oral care consultants, and educators, and can act as resource guides to raise the standards of oral care in LTC facilities.

This capstone project explored ways in which occupational therapy, a profession traditionally designated for interventions targeting activities of daily living (ADL), can improve oral care in LTC facilities. The proposed solution was a comprehensive toolkit to equip occupational therapists to assist LTC facilities in the implementation of an evidence-based oral care delivery system. The toolkit contained information and forms to establish necessary support structures for oral care, such as evidence-based policy and practices, documentation, educational in-service materials, and a list of specialized skills unique to occupational therapy. During the implementation phase, the project was modified to meet the needs of the project facility. The project became a site-specific educational in-service to improve the daily oral-care delivery of the certified nurse assistants, which was measured for its short and long-term effects. Results indicated that educational in-services may help improve oral care delivery in LTC facilities. The project team recommends that future projects include the complete oral care toolkit, including the educational in-services, and a tracking tool to further promote evidence-based oral care delivery in LTC facilities.

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Introduction

Oral hygiene is an aspect of daily self-care that has a significant connection to overall health. For this project, oral hygiene care is defined as daily plaque removal through tooth brushing, flossing, and rinsing, or the use of other oral hygiene aids for the prevention of plaque-related diseases (Chalmers & Johnson, 2004). There is a direct connection between the condition of the mouth, the condition of other systems in the body, and the transmission of infection throughout the body (Azarpazhooh & Leake, 2006; Li, Kolltveit, Tronstad, & Olsen, 2000; Sloane et al., 2013; Stein & Henry, 2009). As patients age and experience a declining health status that leads them into long term care (LTC), oral hygiene tends to receive less attention than other activities of daily living (ADL) (McNally et al., 2012). Given the connection between oral health and systemic health, oral hygiene should receive greater priority alongside other daily self-care activities to help older adults achieve holistic healthcare (Bissett & Preshaw, 2011).

Daily oral hygiene to maintain oral health has direct benefits for older adults (Bissett & Preshaw, 2011; U.S. Department of Health, 2011). In contrast, a poor oral hygiene regimen is associated with serious risks to overall health, especially in older adults who have been already diagnosed with certain medical conditions and are at risk for health complications (Azarpazhooh & Leake 2006; Li et al., 2000; Salamone, 2013; Stein & Henry, 2009). This capstone project explored ways in which occupational therapy, a healthcare profession designated to address ADLs in LTC, can offer expertise to help improve oral hygiene delivery to patients.

Literature Review

Current Practices of Oral Care

Proper oral care in LTC facilities is crucial. An estimate of 70% to 95% of patients residing in LTC facilities require maximal to minimal assistance with active daily living skills,

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including brushing teeth and assistance with dentures (Stein & Henry, 2009). In a 2006 oral care study, 413 LTC facility residents were evaluated for oral care health. Results showed only 16% of the patients received oral care at all. In addition, 80% of the patients were classified as having poor overall oral health (Coleman & Watson, 2006). In another study in 2009, 1,063 patients were evaluated and similar results were shown. Seventy-two percent of the patients with natural teeth showed poor oral health and 15% of the patients with dentures also showed poor oral health (Jablonski et al., 2009).

Research on oral care frequently indicates that oral care policies at LTC facilities are inconsistent or lacking (Dyck, Bertone, Knutson, & Campbell, 2012; MacEntee, Thorne & Kazanjian, 1999; McNally et al., 2012). For example, a systematic review by Gottschalck (2003) identified 41 assessment methods to evaluate the mouth. However, these assessments had great variations and most of them had no proper validation. Even when facilities had oral care policies, they lacked guidance for oral assessment, care planning, and accountability (McNally et al., 2012). A study of three LTC facilities revealed that both internal professionals, those who are in daily contact with the residents, as well as external healthcare professionals, such as physicians and occupational therapists who do not work with clients on a daily basis, were unaware of formal policies for oral care (McNally et al., 2012). In another study, staff at a facility with on-site dental personnel did not know that the dentist was available for check-up examinations (MacEntee et al., 1999). The same study further demonstrated that at facilities with on-site dental clinics, staff felt less responsible for oral hygiene since they assumed the dental personnel would provide it (MacEntee et al., 1999).

In another study, an extensive review of internal and external institutional documents corroborated the low priority of oral health as demonstrated by a lack of references to oral health

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(McNally et al., 2012). McNally analyzed 42 internal and external documents of LTC facilities, including mission and value statements, job description, accreditation standards, and professional Standards of Practice. Most of them used general terms in reference to the provision of oral care, such as *personal care.* Only 10 documents used the terms '*mouth/denture care'* or '*oral care'*, but without any further description of what that entailed (McNally et al., 2012).

The inadequate documentation of oral health echoes the regulations that govern LTC facilities. The California code on hygiene for nursing homes, Title 22 CCR §72315(d), simply states that nursing homes need to provide necessary assistance with personal needs, listing oral care along with hair and nail care and without any further details (California Advocates for Nursing Home Reform, 2013). The regulations do not define who is directly responsible for providing daily oral care for patients and how the oral care should be administered.

In addition to missing specifications of oral health care, standards are not widely enforced, leaving little motivation for staff to comply (Haumschild & Haumschild, 2009; MacEntee et al., 1999). Daily oral care in LTC facilities is usually provided by certified nursing assistants (CNA), personal care providers, or continuing care assistants without sufficient knowledge and skills (McNally et al., 2012; Haumschild & Haumschild, 2009). According to Haumschild & Haumschild (2009), CNAs receive only 30 minutes of oral care instruction as part of their training.

Additionally, nurses who instruct the unlicensed care providers often rely on outdated textbooks that present oral care as self-care without emphasizing the high risk of poor oral health to overall systemic health. In a study observing CNAs oral care provision, CNAs brushed only 16% of the residents' teeth; did not wear clean gloves; did not offer flossing, and did not perform any assessments (Coleman & Watson, 2006). Studies repeatedly indicated that LTC staff was

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lacking the knowledge and ability to recognize oral disorders and to properly assist with oral care, especially for residents who have cognitive deficits and resistant behavior (MacEntee et al., 1999; McNally et al., 2012). Studies also revealed that CNAs commonly believe that their oral care and knowledge is sufficient (Jablonski et al., 2009).

Current practice for oral care delivery ranges widely. Some facilities provide basic oral care supplies, such as toothbrushes and toothpaste, while others leave the responsibility to residents and their family. While tooth brushing is the *gold standard* of good oral care (Stein & Henry, 2009), many care providers use lemon and glycerin swabs and liquid mouth rinse (Gottschalck, 2003; Haumschild & Haumschild, 2009). Contrary to claims that lemon and glycerin swabs can cause decalcification and xerostomia due to their acidity (Haumschild & Haumschild, 2009), a high-quality study disproved any negative effects due to the use of such products (Gottschalk, 2003).

While there is general agreement about the need to improve oral care, educational in-services, lectures, and demonstrations to nurses and care aides have not been very effective (MacEntee et al., 1999). Staff education programs have been inconsistent due to organizational culture, time constraints, and staff turnover (MacEntee et al., 1999; McNally et al., 2012).

Consequences of Poor Oral Care

The mouth is the gateway into the body's immune system and can be a major indicator of the condition of the other bodily systems. Bacterial levels can reach up to a 100 billion microorganisms per mg of dental plaque in the mouth (Li, Kolltveit, Tronstad, & Olsen, 2000). Proper oral care assists with nutritional intake, communication, and essentially can lead to an overall sense of well-being (Health, 2011; Sloane et al., 2013).

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Proper oral care in long term patients becomes especially important for individuals who are immunocompromised because research suggests poor oral health leads to secondary systemic diseases through metastatic infection, injury, or inflammation. A metastatic disease is a disease that moves passed its original location. Thus, oral infections move from the mouth to other areas in the body through transient bacteria via blood circulation. Secondary diseases associated with poor oral health include cardiovascular disease, coronary heart disease, stroke, and bacterial pneumonia (Azarpazhooh & Leake, 2006; Li et al., 2000; Sloane et al., 2013; Stein & Henry, 2009).

Moreover, common aspiration pneumonia has been found to be one of the leading causes of death in nursing homes. In fact, it was found that nursing homes with the least amount of proper oral care have the largest amount of deaths caused by pneumonia (Binkley, Furr, Carrico, McCurren, 2004; Limeback, 1988).

Poor oral care can also simply lead to tooth loss. Tooth loss then leads to poor nutritional intake as eating habits change due to diet restrictions. As diets change, lack of nutrition follows. Patients are then forced to eat unappealing foods and thus begin to lose weight (Chauncey, Muench, Kapur, & Wayler, 1984; Jablonski et al., 2009; Stein & Henry, 2009; Van Dyke, Dowell, Offenbach, Snyder & Hersh, 1986).

Based on current research, it is evident that proper oral care is not only crucial, but vital to the overall well-being of all patients. Quality interventions can decrease the rate of hospital-acquired infections and even cut hospital costs, as evidenced by a study from 2007 (Harris et al., 2011). In this study, a pediatrics acute care facility implemented an oral care and hand wash intervention that showed hospital acquired infections declined. In fact, patients on average spent 2.3 fewer days in the hospital, mortality rates declined, and the hospital costs were lowered by

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$12,136 per patient. The projected yearly savings for one facility was said to be 12 million dollars (Harris et al., 2011). Therefore, quality oral-hygiene care is not only vital for patient health, but can also reduce hospital costs significantly.

Evidence-based Guidelines for Best Practices for Oral Hygiene in Long-term Care

General recommendations.

Evidence-based best practice protocol suggests that elderly patients in LTC settings should receive daily, consistent attention to oral hygiene that is guided by an individualized oral care plan (Bissett & Preshaw, 2011; Chalmers & Johnson, 2004; U.S. Department of Health and Human Services, 2011). Daily oral hygiene should include manual removal of plaque and food on and between teeth with a toothbrush and interdental cleaners in order to reduce the chance for tooth decay (Chalmers & Johnson, 2004; Johnson & Quinn, 2013). The literature also promotes the use of products containing fluoride or chlorhexidine to prevent tooth decay (Bissett & Preshaw, 2011; Chalmers & Johnson, 2004; Johnson & Quinn, 2013; U.S. Department of Health and Human Services, 2011). Maintenance of healthy gums and oral mucosa is also important (Bissett & Preshaw, 2011). It should be clearly established which staff member is responsible for providing an individualized daily oral hygiene regimen to patients who require assistance, and the individualized oral care plan should be updated as often as necessary (Chalmers & Johnson, 2004).

The U.S. Department of Health and Human Services (2011) emphasizes the importance of documentation in order to optimize oral hygiene provision for geriatric patients. Documented information enhances and improves the ease of oral care delivery to patients who need assistance with this essential daily self-care task. Finally, best practice recommendations include access to a dental practitioner for regularly scheduled routine care with as few interruptions as possible

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and as needed (Chalmers & Johnson, 2004; Johnson & Quinn, 2013; U.S. Department of Health and Human Services, 2011).

Assessment.

Assessment is another critical element in best practice guidelines for oral hygiene in LTC for older adults (Bissett & Preshaw, 2011; Chalmers & Johnson, 2004; Johnson & Quinn, 2013; U.S. Department of Health and Human Services, 2011). All patients entering a LTC facility should receive an oral health assessment upon admission (Johnson & Quinn, 2013). Intake information regarding oral health should include records of preexisting periodontal disease, which contributes to declining oral health as a person ages. It should also include any pharmaceutical prescription medications patients are taking, as many prescription drugs can impact oral health (Chalmers & Johnson, 2004; U.S. Department of Health and Human Services, 2011).

An assessment of the patient's current oral care regimen should be conducted, noting the patient's ability to independently complete a sufficient oral care routine and use of or need for oral hygiene adaptive equipment (Bissett & Preshaw, 2011; U.S. Department of Health and Human Services, 2011). A formal assessment of cognitive functioning is also suggested by evidence-based oral care guidelines (Chalmers & Johnson, 2004; U.S. Department of Health and Human Services, 2011). Additionally, patients should be assessed for their ability to chew and swallow efficiently, safely, and without pain (Chalmers & Johnson, 2004).

Identification of at-risk patients.

Bissett & Preshaw (2011) suggest that an oral health risk assessment should be performed on patients as changes occur to their cognition, vision, skeletomuscular abilities, and general health due to aging and illness. Changes in oral tissues, musculature of the mouth, and saliva

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production may also occur as a natural consequence of aging, which can impact both, the quality of daily oral hygiene performance and oral health (Johnson & Quinn, 2013). Identifying patients who may be at risk for declines in oral health is recommended so that they can receive assistance in maintaining daily oral hygiene routines (Bissett & Preshaw, 2011; Chalmers & Johnson, 2004; U.S. Department of Health and Human Services, 2011).

Specific factors have been cited in research literature that can hinder the maintenance of oral health and daily oral hygiene routines, thereby increasing risk for declines in oral health. Institutionalized older adults are at greater risk for decreased oral health compared to older adults living in community-based settings (Chalmers & Johnson, 2004; U.S. Department of Health and Human Services, 2011). Cognitive impairments, resistive behavior as a result of cognitive decline, physical impairments affecting functional independence, changes to posture and movement, and any significant declines in overall health and medical stability, all put patients at risk for decreased oral health (Bissett & Preshaw, 2011, Chalmers & Johnson, 2004; U.S. Department of Health and Human Services, 2011).

Barriers to Providing Proper Oral Care

Multiple barriers to optimal oral care or avoidance of proper oral care altogether have been identified in the literature (Couch, Mead, & Walsh, 2013; Pettit, McCann, Schneiderman, Farren, & Campbell, 2012). These barriers can be grouped into five broad themes: inadequate human resources, resistant behavior by residents and their family, lack of education and training in oral, negative attitudes and perceptions of the nursing staff, and lack of standardized oral care procedures (Couch et al., 2013; McNally et al., 2012; Pettit et al., 2012, Sloane et al., 2013,Stewart, 2013).

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Nursing staff that are often unavailable, inconsistent, or lack the time or training to provide proper oral care for LTC residents (McNally et al., 2012). When nursing staff are inadequately staffed, they do not have enough time to perform the needed oral care (McNally et al., 2012; Sloane, et al.). According to a study by Pettit and colleagues (2012), oral care was low on the priority list of nurses due to stress from caring for more critically ill residents and lack of time. Inconsistency in the delivery of oral care further undermined the quality of oral care and was the result of staff turnover and absenteeism (McNally et al., 2012; Sloane et al., 2013). McNally and colleagues (2012) found good rapport between the residents in LTC facilities and their oral care provider beneficial. Sloane and colleagues (2013) found that positive rapport led to residents to greet their oral care provider enthusiastically, express gratification throughout the visit, and verbalize disappointment when their oral care provider was absent. Inconsistency and turnover of nursing staff can make it difficult to build a good rapport between the oral care provider and the resident.

Another common barrier to the delivery of oral hygiene is not only resistant behavior from residents and family (Couch et al., 2013; McNally et al., 2012; Sloane et al., 2013). Residents' refusal, lack of cooperation, and agitation can cause nonperformance of oral care. Couch and colleagues (2013) found that nursing staff were faced with family resistance when the resident appeared to experience discomfort. Families often do not want their loved ones to be bothered, or oral care to be performed because they think it will cause pain for the resident (Couch et al., 2013).

The third barrier to oral care provision is staff lack education and training in proper oral care procedures (McNally et al., 2012; Pettit et al., 2012; Sloane et al., 2013; Stewart, 2013). Nurses are not trained in the management of oral care, and LTC facilities do not employ people

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specifically to address oral care, such as dental hygienists (Pettit et al., 2012 & Sloane et al., 2013). The education of nurses is medically oriented, and oral health education is a low priority for nurses (Pettit et al., 2012). If nurses received better oral health education, the oral care practices of nurses might improve (Pettit et al., 2012). Advances and improvements in oral care products and practices are unknown to nursing staff (Sloane, et al., 2013). Pettit and colleagues (2012) found in their study that nurses felt ill prepared to provide proper oral care, and did not know if they were responsible for providing oral care.

The fourth theme of oral-care barriers is the negative perception of and attitude toward oral care among nursing staff. Nursing staff may have a distaste for performing oral care, believe that oral care is unimportant, and lack interest in learning about oral care (McNally et al., 2013; Pettit et al., 2012; Sloane et al., 2013; Stewart, 2013). The nursing staff often report the performance of oral care is unpleasant and disgusting (McNally et al., 2013; Pettit et al., 2012) and they lack comfort and confidence when performing the procedures. The nursing staff members are also fearful about oral care delivery because they are afraid they will be bitten, coughed, or spit on by a resident, or cause the resident to gag, drop or break dentures.

The fifth theme of oral-care barriers was the lack of standardized oral care procedure (Couch et al., 2013; McNally et al., 2012; Pettit et al., 2012). There are no government policies or standards for LTC facilities that outline what proper oral care entails (McNally et al., 2012). The lack of standards for oral care can affect the oral care practices of the nursing staff leading to inconsistency (Pettit et al., 2012) and even to contraindicated procedures within the same facility (Couch et al., 2013; Gottschalck, 2003). Studies have indicated that in LTC facilities, oral care procedures are deficient or inconsistent and are poorly monitored (Pettit et al. 2012; Stewart, 2013). In some LTC facilities, nurses are not required to perform oral care and there is

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confusion about who is responsible for addressing oral care (Pettit et al. 2012). Nurses studied reported they want and need better supplies and equipment (Couch et al., 2013; McNally et al., 2012; Pettit et al. 2012) but that needed supplies are lacking or not readily available to perform proper oral care, such as toothbrushes, toothpaste, light sources, and dental mirrors (McNally et al., 2012; Pettit et al. 2012). In a study, Couch and colleagues (2013) found the nursing staff wanted standardization of oral care through the education of staff and oral care guidelines to improve the application of oral care. Conflicting priorities and attitudes from administration, and lack of governmental guidelines have prevented older adults living in LTC facilities from receiving proper oral care (Stewart, 2013).

Occupational Therapy Practitioners can Support Oral Hygiene Delivery

According to the Occupational Therapy Practice Framework: Domain & Process (AOTA, 2014), oral care is part of personal hygiene and grooming, which is part of ADLs. In addition, occupational therapy practitioners have specialized skills and knowledge regarding oral functions such as eating, feeding and swallowing. Even though occupational therapy practitioners possess the necessary qualifications to improve oral hygiene care, the project team found only one research study focusing on occupational therapists' role in improving oral hygiene care within a LTC setting. In a randomized controlled study in Geneva, occupational therapists trained 61 residents in oral care (opening toothpaste and denture brushing) at a LTC facility in Geneva. The study demonstrated significant improvement in oral care measures with the greatest improvement for subjects with impaired cognitive state (Bellomo et al., 2005).

Statement of Purpose

From reviewing the literature, the project team determined that oral health in LTC facilities is frequently of low priority and does not follow evidence-based best practices

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(Coleman & Watson, 2006; MacEntee et al., 1999; McNally et al., 2012). The project's goal was to improve oral care by establishing evidence-based standards for the provision of oral hygiene care for patients and residents in LTC settings. Occupational therapy practitioners have traditionally been responsible for the domain of self-care, also referred to as personal hygiene, in healthcare settings (American Occupational Therapy Association, 2014) and have specialized skills and knowledge to assess and treat oral related conditions, such as difficulty with feeding, eating, and swallowing (Cox, Holm, Kurfuerst, Lynch, & Schuberth, 2007).

Due to their specialized knowledge and skills, occupational therapy practitioners are well qualified to address the nuances of oral hygiene care provision in LTC facilities. Occupational therapists' approach health care from a holistic perspective. Therefore, holistic self-care should include the domain of oral care. The original plan for this project was to develop a comprehensive toolkit to equip occupational therapy practitioners to assist LTC facilities in the implementation and delivery of appropriate oral hygiene care. The toolkit consisted of tools and information necessary to evaluate LTC facility's current oral hygiene care and to implement an evidence-based oral hygiene practice. Additionally, the toolkit contained the necessary support structures and specialized skills unique to occupational therapy. During the implementation, the project was modified to reflect the results of the needs assessment and to follow the request of the LTC management. Instead of applying the full oral-care toolkit, the project team designed an educational in-service for the CNAs to improve their delivery of oral hygiene care and measured the short and long-term effects of the in-service.

Theoretical Frame of Reference

Two theoretical frameworks guided the design of the project, Lewin's change management model (Lewin, 1951) and adult learning theory (Bastable, Gramet, Jacobs &

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Sopczyk, 2010). Change management model provided direction on how to promote the necessary institutional change for improving oral hygiene, while the adult learning theory provided guidance on how to facilitate learning with the targeted adult population.

In the Change Management Model, Kurt Lewin theorized a three-stage process of change, known as *unfreeze-moving-refreeze. Unfreeze* refers to the first stage of change which involves getting an organization to realize a change is necessary. The second stage, *moving,* describes the step of facilitating team cohesion and working towards the same goal (Lewin, 1951). The third stage *refreeze* is the silent stage in which the change has been implemented and all issues have been worked through. The *refreeze* stage anchors the change and communicates to all persons involved that the change has taken place. Staff members internalize the change and new practice is institutionalized. (Lewin, 1951).

Knowles' adult learning theory, called andragogy, was the second theoretical framework used to inform the project (Bastable et al., 2010) as the project is essentially about educating adults about a new approach to oral hygiene care. Knowles defined his theory as the "art and science of teaching adults" (Bastable et al., 2010, p. 173). Adult learning theory states that adults become ready to learn when they feel there is a need to know something that will essentially make their job or life more effective (Bastable et al., 2010). Moreover, the adult learning theory alleges adults are motivated by both extrinsic and intrinsic motivators (Bastable et al., 2010).

Methodology

Agency Description

The oral wellness project was implemented at a 116-bed rehabilitation and LTC facility in northern California, but was designed to be applicable to any LTC facility. Primary diagnosis

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of the residents included orthopedic conditions, dementia, cardiovascular disease, coronary heart disease, strokes, and bacterial pneumonia, all common conditions related to poor oral care (Azarpazhooh & Leake, 2006; Li et al., 2000; Sloane et al., 2013; Stein & Henry, 2009).

Patient's length of stay varied depending on diagnosis and living situation and lasted from weeks for rehab patients to indefinitely. The staff included registered nurses, certified nursing assistants, physical therapists, occupational therapists, speech therapists, and physical and occupational therapy assistants.

Design

The core of the original project design was an oral care toolkit that would enable occupational therapists to implement evidence-based oral hygiene practices in LTC facilities. The oral care toolkit consisted of an educational in-service, an oral hygiene care policy (see Appendix A), assessments (see Appendix B), oral hygiene care plans (see Appendix C), and an audit tool. Depending on the outcome of an initial needs assessment (see Appendix D); the toolkit would have been customized to meet the facility's specific needs.

For the original project plan, the facility's occupational therapy practitioners played an essential role in the implementation and attended the oral hygiene in-service along with the RNs, CNAs, management, and other relevant staff. As specialists who address ADLs, occupational therapists were designated as the appropriate health care team member to direct attention towards daily oral hygiene, guide oral care assessments, provide caregiver education and recommendations on improving oral hygiene routines.

The objective of the in-service was to educate interdisciplinary staff and management on the benefits of proper oral hygiene maintenance, the consequences of insufficient oral hygiene, and evidence-based oral care practices; and to provide suggestions on how to improve oral care

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delivery to address resident's individual capabilities and needs. The planned instructional tools for the in-service were a PowerPoint presentation, discussions, demonstration of adaptive methods and strategies to facilitate oral hygiene care.

The toolkit also included individualized oral hygiene care plans for improved documentation, samples of adaptive equipment that can improve oral hygiene performance, and suggestions for overcoming common challenges in oral hygiene delivery. The individualized oral hygiene care plans were combined with a color-coded visual system entitled *Rainbow Teeth* (see Appendix E). The project team created this visual system to alert facility care staff to the level of assistance patients need with oral care. Color-coded visual systems have been used in healthcare settings and research projects both to alert healthcare providers about important information regarding patient care and to improve the delivery of intervention (Hindley, 2012; Pratinidhi et al., 2013; Watson, 2009; Woodcock, Hatchett, Winser, & Uzzell, 2013). Following the delivery of the educational toolkit, the project team planned to use an audit tool and a follow up survey to explore the effectiveness of the project in improving oral hygiene delivery at the LTC facility.

The project team's rationale for using an educational toolkit approach was driven by the two chosen theoretical frameworks, Lewin's change management model (Lewin, 1951) and Knowles' adult learning theory (Bastable et al., 2010). The overall goal was to advocate for, promote, and support improvements to the facility's current oral hygiene protocol, which would require change. Lewin's change theory suggests that in order for change to occur, facility staff and stakeholders need to be made aware that change is necessary (Lewin, 1951). The project team aspired to educate facility staff to facilitate Lewin's *unfreeze* stage of change and educate them about the importance of giving oral hygiene adequate attention.

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Secondly, because the toolkit was educational, Knowles' principles of adult learning shaped the project design. Adult learning theory suggests that adult learners are practical, more motivated to learn information that seems relevant, and unlike child learners, have a wealth of personal experiences and knowledge to reference as they learn anything new. Telling adult learners what to do can hinder receptivity to learning and applying new information. Therefore, the project design was tailored to present relevant information to facility staff so that they felt inherently motivated to make any changes to their current oral hygiene protocol that improve the wellbeing of their patients, and to support them in overcoming any existing challenges in oral hygiene delivery identified in the needs assessment.

Target Population

In the implemented project, the target population were the CNAs who provided the daily oral care to the LTC residents. Originally, occupational therapists, RNs, CNAs, and representatives of the management were the primary stakeholders. Occupational therapists would have been responsible for the oral care evaluations, initial education, and consultation of appropriate oral care documentation. The CNAs would have been responsible for following through with the daily oral care or cueing patients to complete oral care according to individualized oral care plans. The registered nurses would have acted as the quality controllers and completed weekly reviews of patients' charts to confirm oral care had been completed. The management would have been responsible to update and revise oral care documentation and policies to conform to best practices.

Project Development

The project development arose from the literature review that revealed a serious gap between current knowledge of best oral hygiene care and actual practice of oral hygiene care in

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LTC facilities despite increased educational efforts (Coleman & Watson, 2006; MacEntee et al., 1999). The project team informally interviewed nurses and occupational therapists about their experiences in oral care. One project team member was an intern at a skilled nursing facility at the time of project development and had the opportunity to experience the dynamics of the facility and gain relevant information about the on-site oral hygiene care situation. The feedback from the field contacts echoed the findings from the literature review.

Another important factor guiding the project was the identification and resolution of barriers that have limited the successful implementation of best practices in oral care in the past (Dyck et al., 2012; MacEntee, 1999; McNally et al., 2013). The project team concluded that a successful implementation would require a multifaceted and sustainable approach that encompassed an institution-wide cultural shift about the importance of oral care, not only for the benefit of the patient but also for the benefit of the whole institution and its staff. The project team's goal was to develop a model that would be flexible so it could be adjusted to the particular situation of each LTC facility while addressing common shortcomings of current oral hygiene care practices. The goal of the oral-care project was to address identified barriers of lack of consistent and practical oral care policy, lack of knowledge, accountability, and ongoing support (Gottschalck, 2003; MacEntee, 1999; McNally et al., 2013). The project team also identified the need for a specific person dedicated to initiate and establish the framework for a sustainable oral hygiene care practice within the facility and decided that occupational therapists were in the ideal position for this role.

The proposed solution was a comprehensive oral care toolkit for the on-site occupational therapists to initiate and create a customized oral hygiene care protocol. The toolkit provided the educational material to train and educate relevant facility staff and stakeholders, the institution-

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wide oral care policy, assessments and documentation forms, as well as guidance to establish an ongoing internal support structure, such as CNA's as oral care champions, to maintain quality oral care.

Oral assessments and forms included in the toolkit were the result of reviewed assessments currently in use and have been validated through research (Chalmers & Johnson, 2004; Gottschalck, 2003; Kayser-Jones, Bird, Paul, Long & Schell (1995). The project team modified the included individualized oral hygiene care plan by Chalmers & Johnson (2004) by using the *rainbow teeth* color coding system for easy identification. The assessments and hygiene care plan developed by Chalmers used in our tool kit are not copyrighted and are in the public domain.

The project team created an audit tool for tracking daily oral hygiene care and that can be merged with any existing daily record already in use by the facility. Feedback from a piloted hygiene oral care in-service at a local LTC facility was used to refine the in-service module of the tool kit. Finally, as occupational therapy students, the project team members were educated about activity analysis and the required performance skills for oral hygiene care activities which is necessary to assess and address the individual's oral hygiene care ability and need for aid or adaptations.

Project Implementation

The first step in the implementation was the identification of an appropriate and willing facility. Due to an upcoming state inspection, the initial facility that agreed to partner with the project team became unavailable, and another facility in northern California was found. The facility was very enthusiastic about the project. The project team met with the director of rehabilitation and the head nurse to present the project proposal (see Appendix F) in mid-

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February 2014. Following the presentation, the director of rehabilitation indicated that the infrastructure of oral care on which our project was based was already in place. In contrast to our research findings (Dyck et al., 2012; MacEntee et al., 1999; McNally et al., 2012), this facility had already an oral care policy (see Appendix G), individualized oral care plans, oral care skills checks and training of new CNA's, and the documentation capability that allowed the CNA's to take note of any oral care related issues.

However, the director of rehabilitation still indicated an interest in using a modified version of the project for the CNAs who provide the daily oral care. Given the facility's established procedures, the goal of the modified project was to identify ways to assist the CNAs in the delivery of optimal oral care. Rather than completing the entire project, the focus was changed to identify CNAs' perceived barriers, perceptions, and current practices via a survey(see Appendix H), develop an in-service to address any discovered issues, and administer two post surveys (see Appendix I) to measure the short and long-term impact of the in-service on the CNAs' oral hygiene care practice.

Upon the director's request, the initial online survey was trimmed from 27 to 20 questions, printed and handed out by the facility staff. The project team analyzed the results of the survey and developed an in-service to address any uncovered issues. The roughly 20-minute in-service took place on April 11, 2014 in the facility's conference room and was attended by 15 CNAs, the director of rehabilitation, and one occupational therapy student who was present for fieldwork. The CNAs came to the in-service at an ad hoc fashion based on their availability. The project team had a PowerPoint presentation, but due to technical difficulties, the project team was unable to use the PowerPoint and presented the information from memory, resulting into a more intimate and interactive format. The presentation included background information

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about the importance of oral hygiene, the *gold standard* of good oral care (Stein & Henry, 2009), and strategies and adaptations to facilitate improved oral care. The director of rehabilitation enriched the presentation by providing examples of oral care situations in their facility. Each participant then evaluated the in-service (see Appendix J), which based on the results, was deemed a success. As a thank-you for attending, the project team gave each attendee an oral-care goodie bag consisting of a toothbrush and toothpaste, donated by a local dentist, and a floss holder, attached with a tag reinforcing best-practice in oral care.

After the in-service, two post-service surveys were provided, one survey ten days later, and another five months later to assess the short and long-term effects of the in-service. The project adviser and the director of rehabilitation played an important role in ensuring smooth process of the implementation and a toothbrush.

During the whole process, the project team was conscious to ensure the confidentiality and privacy of all participants. All surveys were voluntarily and anonymous. The participation to the in-service was also voluntary but had the added benefit that participants received educational credit.

Project Evaluation

Pre in-service survey.

The project team used a survey to gather the initial information regarding CNAs' perceived barriers, perceptions, and current knowledge and practice to design the content of the in-service. Eight surveys were returned.

Results confirmed the need for an oral care in-service and highlighted many inconsistencies within CNA's educational background and training. When asked who provides oral care delivery, only seven out of eight subjects selected "CNA". In addition, two out of the

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eight also selected “RN” and two included “Patient”. When asked how oral care was documented in the facility’s documentation system, answers were also inconsistent. Only seven out of eight selected for ‘under personal hygiene.’ Additional answers included “under oral care” (2); “includes level of assistance” (2); “includes level of completion” (2); “includes option for patients’ refusal” (2); “includes option to indicate patients’ special oral care needs” (2). The variety of responses indicated a need for better oral care delivery documentation.

When asked if the facility had an oral care policy, only six of eight selected “yes”. When asked to whom they went for oral care questions, answers indicated: “LVN” (3), Charge Nurse” (5); “Occupational therapist” (2); “Nurse Educator” (2); “Staff development” (2); “Other” (2). There did not appear to be any one person identified as specifically in charge of oral care.

Educational levels also differed, ranging from “not much” to “several classes” to “8 weeks of school”. Refresher courses varied from “don’t remember” to “7 months ago”. However, all CNAs responded they felt comfortable and confident in their oral care delivery. When asked why oral care was important, answers included: “to prevent infection”; “to feel confident”; “to prevent decay”; and to “keep weight on patient”. Warning sign results included “dry mouth”, “white coated tongue”, “pain”, “bleeding gums”, “missing teeth”, “sores”, and ”brown areas/dark staining”, but responses were inconsistent and not all eight CNAs selected all warning signs provided as options on the survey.

Seven CNAs responded they felt they had appropriate and sufficient oral care supplies and time. Only one responded “most of the time”. The answers regarding the protocols for cleaning dentures and natural teeth varied but were comparable, and three CNAs did not answer the question. When asked how often oral care was provided, four selected “after every meal”, four selected “twice a day”, one selected “once a day”. When asked what supplies were being

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utilized during oral care delivery, all indicated use of toothbrush, mouthwash, and denture cleaners. Seven also reported use of floss and mouth swabs. Regarding oral care delivery strategies, none listed adaptive equipment and only four listed proper positioning of client. Toothbrush replacement varied from once a week to every six months depending on the need of the client. When asked when a patient was referred to the dentist, answers included, "per nurse"; "any tooth issue" and "every time when needed". Seven out of eight CNAs responded that 25-50% of patients at their facility have natural teeth. The information received from the survey was essential in determining the content of the in-service. Following the analysis of the survey results, the project team scheduled and presented an in-service.

Post in-service surveys.

Following the in-service presentation, 15 CNAs evaluated the effectiveness of the three project team members' teaching style and the content of the presentation. The evaluation form asked the staff to rate the overall presentation on a Likert scale of 1-3 on how well the material was organized, relevant, and how well the presenters were prepared and managed their time. Results concluded a perfect score, with all indicating three points of three, and included additional comments such as "good information", "fun", "interesting", "I understand more-thanks"; "very clear"; "it was short and sweet and hit all the topics"; "did a great job to stay professional and calm despite technical difficulty". Thus, it was concluded that the presentation was well received by all attendees.

To assess the short- and long-term impact of the presentation, the project team distributed two post-surveys, the first 10 days after the presentation, and the second five months later. The purpose of the survey was to see whether the CNAs' understanding of and attitude toward oral

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care had changed and whether it translated into improved daily oral care delivery. The project team received 10 completed surveys from the first and five from the second post-survey.

Results from both post-surveys indicated that perceptions regarding the importance of oral care had improved, as stated first by 40% and after five months by 80% of the participants. When asked why oral care was important, the most common response was health related, such as "to keep the patient healthy," "prevents other diseases," "prevents swallowing issues;" "sore prevention", and "infection and bacterial prevention." Due to the educational in-service, first 30% and at 5 months later 60% of the participants stated that their oral care delivery improved.

The in-service educated the participants on several oral care strategies that were generally adapted at various degrees and contributed to improved oral care (first post-survey:10% - 70%; second post-survey: 0%-40%).

Based on the first post-survey (see Figure 1), the strongest short-term improvements in adopting new strategies were in "positioning" (70%), "rapport/eye contact" (40%), "simple steps" (30%), and "reminders" (30%). In the long-term survey (see figure 2), the biggest gains were made in the use of adaptations ("build-up handles for toothbrushes", 60%), followed by "simple steps", "labeling of supplies", and "rapport/eye contact" (40 % each), while "positioning" dropped to 0 %. "Positioning" to prevent aspiration of people who have difficulty swallowing and adaptation of the toothbrush were two strategies taken from the occupational therapy knowledge and skills.

The answers between the first and second post survey showed inconsistencies that suggest that participants could not remember accurately whether a certain strategy was learned from the in-service or was already an established practice. In the first survey, 70% of the participants indicated positioning as a new learned strategy. However, in the second survey, not

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a single participant remembered to have learned positioning form the in-service but attributed this strategy as an already established practice (40%). The same phenomena occurred with the strategies of flossing, visual and verbal cues, and reminders. However, overall, the application of these strategies increased. While In the first survey, 20% of participants claimed not to use these strategies, in the second survey, everyone claimed to use these strategies, even though, not necessarily attributing them to the in-service. As the inconsistent results demonstrate, participants tend to learn in varied ways and degrees, indicating the need for continuous education and awareness to promote consistent, standardized, and up-to-date knowledge of evidence-based oral care delivery

Before the in-service, only 75% participants knew about the facility's oral care policy; after the in-service, 100% were aware of it. The surveys also asked how often CNAs would be interested in additional in-services about oral health care. Results indicated that with more time passing, participants' interest drastically increased. In the first post-survey, 70% indicated no interest in additional in-services, while 30% stated every year. In the second post-survey, only 40% stated no interest, while 60% were interested in in-services every year or at least every other year. Suggestions on how else to assist CNAs with oral care were few, however, one CNA responded, "make sure they do it".

These survey results indicated the effectiveness and need for current evidence-based oral care in-services to facilitate compliance, education, and commitment from all medical staff including management. From the beginning, the CNAs indicated they had limited oral care education and educational backgrounds were not consistent throughout staff.

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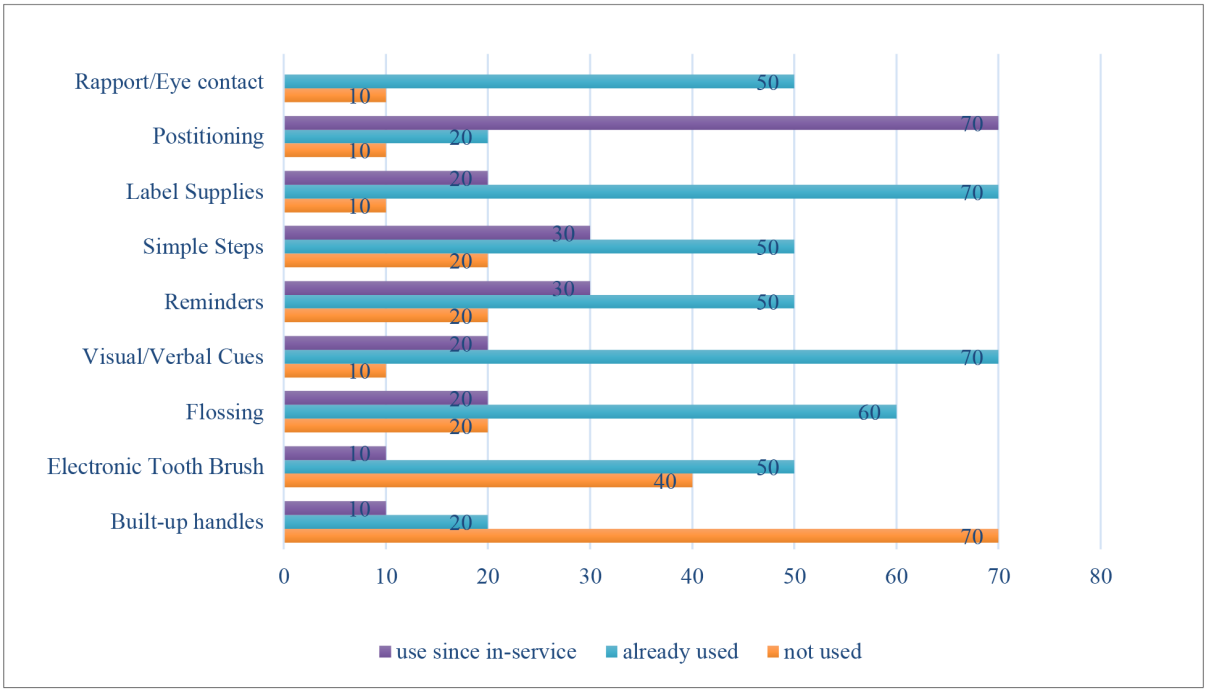

Figure 1: Results of Post In-Service Survey 1, 10 days after the in-service. CNAs indicated which oral care strategies presented at the in-service they do not use, already used, or used since the in-service.

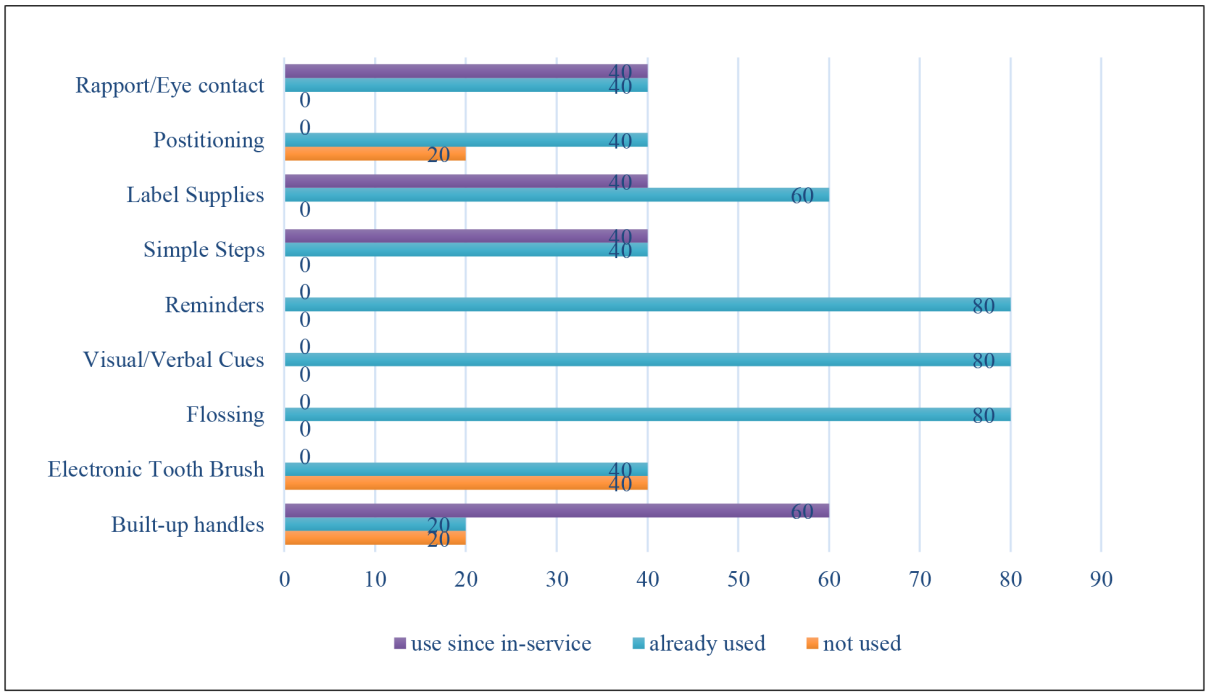

Figure 2: Results of Post In-Service Survey 2, five months after the in-service. CNAs indicated which oral care strategies presented at the in-service they do not use, already used, or use since the in-service.

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Discussion

The project team originally had a LTC facility in place for project implemenation. However, when the original LTC facility became unavailable, it was difficult to find an alternative LTC facility that was up to the challenge to accept the capstone project. Finally, the project team found a LTC facility in northern California.

Once the project team arranged to work with the facility, the capstone project needed to be redesigned to meet the facility's needs. The facility already had an oral care policy, individualized care plans, a procedure for documentation, and an initial skills check for incoming CNAs. The director of rehabilitation informed the project team that the original capstone project was not needed, but instead requested the team provide an in-service to help improve CNAs delivery of oral care.

Thus, the original project changed from providing a LTC facility with an oral care tool kit to the final adapted project consisting of a pre-in-service survey, an educational in-service, an in-service evaluation, and two post-in-service surveys. Based on the project team's pre-in-service survey, the project team designed an educational in-service to increase awareness and education for CNAs, reinforce the best practices of oral care, and reinforce the facility's policy. The CNAs and nurses were identified as the main oral care providers. This was consistent with the research that indicates daily oral care in LTC facilities is usually provided by CNAs (Haumschild & Haumschild, 2009; McNally et al., 2012).

The project team compared the facility's oral care policy with best practices from the research and found the facility's policy to be incomplete (Bissett & Preshaw, 2011; Chalmers & Johnson, 2004; U.S. Department of Health and Human Services, 2011). The facility's oral care policy was generic with a heavy focus on denture care. It also did not discuss in detail the proper

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protocol for natural teeth. The research indicates that residents with natural teeth are more at risk for poor oral health than those with dentures (Jablonski et al., 2009). The facility's policy did not discuss frequency of oral care, when to refer a resident to a dentist, use of adaptive equipment, proper positioning, or strategies for dealing with resistive behaviors.

The educational in-service benefited attendees by demonstrating, educating, and increasing awareness about the importance of proper oral care, and providing strategies for improved oral care delivery. During the in-service, all attendees received a copy of the facility's oral care policy. The in-service attendees were educated about the impact of proper oral care and the consequences of poor oral care. The in-service also educated attendees about adaptive equipment and proper positioning for administering oral care. The project team reinforced best practice of proper oral care based on current research. The project team boosted the confidence of the staff by reinforcing their role and importance, and thanking them for all the work they do day in and day out for their residents.

The use of the change model and adult learning theory provided the foundation of the project and allowed the project team to provide best practice, share current evidence-based findings, and demonstrate oral care strategies to CNAs in a non-threatening manner. Awareness of the importance of proper oral care delivery was promoted and well received by staff. Open discussion during the in-service provided an opportunity for CNAs to ask questions and elaborate on poor oral care research findings, allowing them to take part in the discussion and not just be told what they need to do or what they were not doing.

The capstone project contributed to the occupational functioning of the facility by providing an educational in-service which provided the CNAs with continuing education units. It provided the CNAs with recognition for their important role and work within the facility. The

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project team provided the facility with feedback provided by the CNAs on the pre-in-service survey.

Implications

This project highlights the role occupational therapists can play as project implementers, educators, and resource guides in oral care for residents of LTC. Occupational therapists should be more involved in the process of assessing oral care due to their skilled knowledge and services. Occupational therapists should be more active in creating policies on oral care for different facilities and disciplines. Occupational therapists can also develop collaborations among different healthcare disciplines, and provide staff development. Occupational therapists should be involved in raising oral wellness awareness, improving standards, and advocating for the care of residents.

The project team fulfilled the expectations of the facility and did what the facility wanted them to do, and was willing to take on. The project team would not have changed anything about the way the final product turned out. The project team is happy considering the circumstances and the way things turned out.

The project team learned the importance of a good director of rehabilitation. The director of rehabilitation was the main source of contact and always made herself available throughout the whole process. On the day of the in-service, the director of nursing was unable to attend and the director of rehabilitation stepped in in place of the director of nursing. The director of rehabilitation helped to facilitate the in-service to be more of a discussion and less of a presentation, which was one of the objectives of the project team.

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Limitations

Limitations of the project include that the facility did not have the problems the project team was initially targeting, due to their high standards and practices in oral care. The role of the project team was therefore to reinforce the best practice, the facility's oral care policy, and to provide a focused quality improvement in-service (Bissett & Preshaw, 2011; Chalmers & Johnson, 2004; U.S. Department of Health and Human Services, 2011).

Another limitation was coordination of schedules with the facility. As a result, the project team learned to be flexible, adaptable, brief and effective. During the oral hygiene in-service, the project team ran into some technical difficulties. The prepared PowerPoint presentation was not accessible and the project team members had to think and act *on their feet*. The project team learned that in-services have an *open door* policy. CNAs and nurses are allowed to come in and out of in-services as their schedule allowed. The biggest limitation of the project was that the original project idea could not be implemented. Therefore, the results are limited to the analysis of the CNA's opinions and interpretations of the oral care in-service provided by the project team.

Recommendations

For the future, the project team recommends identifying out a facility that does not follow evidence-based oral care practices and that would allow the implementation of the complete proposed oral care toolkit, including a tracking tool to measure quantities data. The quantitative data then can be used for further research and to inform health policy and oral care reforms in LTC facilities. The capstone project was a good starting point.

The project team further recommends an increase in the number of oral care in-services to achieve a minimum standard of evidence-based oral care knowledge for all staff. The pre-

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education survey found that the levels of education and knowledge about oral wellness vary greatly within one facility. CNAs often provide daily oral care without sufficient knowledge and skills (Haumschild & Haumschild, 2009; McNally et al., 2012), and at the same time commonly believe their oral care knowledge is sufficient, a fact supported by the survey results (Jablonski et al., 2009). Therefore, the next step would be to increase the number of in-services at a facility in order to accommodate all staff and shifts in a future project. A yearly refresher course should be provided to ensure the staff would not forget the best practices of oral care and how to apply them to residents. It may be helpful to monitor oral care practices to ensure staff are following the facility's oral care policies and procedures. Even when facilities have oral care policies in place, they may lack guidance for oral assessment, care planning, and accountability (McNally et al., 2012). Furthermore, LTC caregivers, and their patients and families should be educated on the importance of proper oral care and the consequences of negligent oral care.

It is imperative that oral care be implemented, documented, and regulated in LTC facilities. Oral care evidence-based practices will prevent secondary systemic disease, and increase the quality of patients' lives. Occupational therapists should become involved in the assessment, education, and advocacy of oral wellness for their clients of all ages, but especially older adults. Occupational therapists can play an important role as consultants, educators, and resource guides in raising the standards of oral care in LTC facilities.

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Appendix A

Oral Care Policy & Procedure

Goal: All clients will receive optimal and preventive oral hygiene care in order to maintain optimal health.

Steps for assessment, maintenance:

1. Evaluation of client upon intake by trained staff (occupational therapist [OT], registered nurse [RN]): assessment of oral health, current oral hygiene care, and mental and physical ability of client to perform oral hygiene care at intake (see Appendices C, D).

2. OT or other qualified staff identifies level of oral support needed as per intake assessment (see Appendices E, F) and designs individualized oral hygiene care plan for the client.

3. OT will make recommendations for oral hygiene equipment (electric tooth brush, tooth brush with build-up handles) and environmental modifications (visual aids) needed.

4. The individualized oral care plan will be reviewed and updated if client has changes in cognition, self-care ability, or oral health status.

5. Each client receives an oral health evaluation every 6 months.

6. All staff performing oral care will be trained by an OT in proper oral hygiene care techniques and about the importance for oral care.

7. Staff will refer any oral care performance problems to OT for further evaluation. Patients in need for dental emergency/evaluation may receive direct dental referral.

8. Nursing assistants will provide oral care two times per day after meals as indicated by individualized oral care program.

9. Basic oral care will consist of
    a. brushing all teeth surfaces, natural or of dentures, cleaning the tongue, and gums
    b. flossing
    c. use of fluoride-containing dentifrices (toothpaste, gel, mouth rinse, spray bottle).

10. Toothbrushes will have soft bristles and be replaced every three months.

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Appendix B

Oral Care Toolkit: Oral Health Assessment

TABLE 1

ORAL HEALTH ASSESSMENT

Purpose: To be used to assess the oral health of older adults at baseline and on admission to long-term care *(Note: dental professionals should assist with training of staff to use this assessment).*

Instructions: This tool can be used to assess older adults, both prior to and following implementation of this protocol, by the nurse or other health care provider who is primarily responsible for the specified individual's care.

Scoring: Each item is rated on a 3-point scale (0, 1, 2), with 0 indicating healthy, 1 indicating changes*, and 2 indicating unhealthy*. The final score is the sum of the scores from the 8 categories and can range from 0 (very healthy) to 16 (very unhealthy). While the cumulative score is important in assessing oral health, the score of each item must be considered individually. For example, a resident could have a total score of 2, yet need to be referred to a dentist or physician due to an ulcer lasting 2 or more weeks in duration on the tongue. Items with an asterisk that are underlined require a dentist or physician be notified immediately. This is only a screening instrument and is not a diagnostic tool. It does not replace the need for a periodic examination by a professional dentist.
*Arrange for a dentist to assess the resident.

ORAL HEALTH ASSESSMENT TOOL

Name: _____

Category	0 = healthy	1 = changes*	2 = unhealthy*	Scores at admission and regular reviews (date) __/__/__	__/__/__	__/__/__	__/__/__	__/__/__
Lips	Smooth, pink, moist	Dry, chapped, or red at corners*	Swelling or lump, white/red/ulcerated patch; bleeding/ulcerated at corners					
Tongue	Normal, moist roughness, pink	Patchy, fissured, red, coated	Patch that is red and/or white, ulcerated, swollen					
Gums and tissues	Pink, moist, smooth	Dry, shiny, rough, red, swollen, one ulcer/sore spot under dentures	Swollen, bleeding gums, ulcers/white or red patches, generalized redness or ulcers under dentures					
Saliva	Moist tissues, watery and free-flowing saliva	Dry and sticky tissues, little saliva present	Tissues parched and red, very little/no saliva present, saliva very thick					
Natural teeth	No decayed or broken teeth/roots	1 to 3 decayed or broken teeth/roots	4 or more decayed or broken teeth/roots, or less than 4 teeth					
Dentures	No broken areas or teeth, dentures regularly worn	1 broken area/tooth or dentures only worn for 1 to 2 hours daily	More than 1 broken area/tooth, denture missing or not worn, needs denture adhesive					
Oral cleanliness	Clean and no food particles or tartar in the mouth or on dentures	Food particles/tartar/plaque in 1 to 2 areas of the mouth or on small area of dentures	Food particles/tartar/plaque in most areas of the mouth or on most of dentures					
Dental pain	No behavioral, verbal, or physical signs	Verbal and/or behavioral signs of pain such as pulling at face, chewing lips, not eating, aggression	Physical signs such as facial swelling, sinus on gum, broken teeth, large ulcers, and verbal and/or behavioral signs such as pulling at face, chewing lips, not eating, aggression					
			TOTAL SCORE					

*Arrange for a dentist to assess the resident.

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From "Evidence-based protocol: Oral hygiene care for functionally dependent and cognitively impaired older adults," by J. Chalmers and V. Johnson, 2004, Journal of Gerontological Nursing, 30 (11): 5-12. Reprinted with permission.

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Oral Care Toolkit: Assessment of Oral Hygiene Care

TABLE 2

ASSESSMENT OF CURRENT ORAL HYGIENE CARE

Name: _____Date: _____

Current oral status: ***(Check one or both and circle appropriate description)***
❑ Has natural teeth: Upper Lower
❑ Has removable denture: Upper Lower
Person DOES/DOES NOT wear denture(s) ***(Circle one)***

Self-care ability: ***(Check one)***
❑ Can do oral hygiene by self and without reminding
❑ Needs reminding to do own oral hygiene
❑ Remembers to do but needs assistance
❑ Needs reminding and assistance to complete oral hygiene
❑ Needs all oral hygiene to be done by provider
❑ Needs palliative oral hygiene care

Brushing aid and frequency: (natural teeth)
❑ Soft toothbrush ____X/day ❑ Electric toothbrush ____X/day
❑ Adapted toothbrush ____X/day ❑ Other:_____ ____X/day

Flossing: ***(Check one)*** ❑ Yes ❑ No

Denture care:
❑ Denture cleaner (paste)___X/day
❑ Denture solution (tablets) ___X/day
❑ Denture brush ___X/day

Mouth rinses:
❑ Fluoride ❑ Mouthwash:_____ ❑ Warm salt water

Saliva stimulant:
❑ Artificial saliva ❑ Sialagogue pill ❑ Sugar-free gum ❑ Other: _____

Noted difficulties with daily care for person: _____

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From "Evidence-based protocol: Oral hygiene care for functionally dependent and cognitively impaired older adults," by J. Chalmers and V. Johnson, 2004, *Journal of Gerontological Nursing,* 30 (11): 5-12. Reprinted with permission.

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Appendix C

Oral Care Toolkit: Oral Hygiene Care Plan

TABLE 3

ORAL HYGIENE CARE PLAN

Name:_____ Date:_____ Updates:_____

Dentist: _____ Phone:_____

Medications with xerostomic effects: Dentist examinations:

Dentures: Upper Full/Partial/No denture Named Yes/No
(please circle) Lower Full/Partial/No denture Named Yes/No
Attempt denture cleaning: ❑ Daily ❑ As is possible_____
Best time of day to remove and clean dentures: _____

Natural teeth: Upper Yes/No Attempt teeth cleaning: ❑ Daily ❑ As is possible
(please circle) Lower Yes/No Best time of day to clean teeth : _____

Level and types of assistance needed with oral hygiene care (please check all that apply)
- ❑ No assistance required
- ❑ Use reminding/prompting/task breakdown
- ❑ Use bridging/distraction/chaining/rescuing
- ❑ Caregiver to check oral hygiene please
- ❑ Supervision from caregiver needed
- ❑ Full assistance from caregiver needed
- ❑ Use electric toothbrush
- ❑ Use backward bent toothbrush for access
- ❑ Use chlorhexidine spray bottle/gel daily/weekly
- ❑ Use fluoride spray bottle daily/weekly
- ❑ Use prescription fluoride toothpaste daily/weekly
- ❑ Use suction toothbrush
- ❑ Other_____

Regular problems with oral hygiene care: (please check all that apply)
- ❑ Forgets to do oral hygiene care
- ❑ Won't open mouth
- ❑ Refuses oral hygiene care
- ❑ Does not understand
- ❑ Is aggressive/kicks/hits
- ❑ Can't swallow properly
- ❑ Can't rinse and spit
- ❑ Bites toothbrush and/or caregiver
- ❑ Constantly grinding/chewing
- ❑ Head faces downward
- ❑ Other_____

Staff familiar with person's oral care_____

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Appendix D

Oral Care Toolkit: Needs Assessment for Facility

1. What are your current oral care practices?

   □ Brushing □ Flossing □ 2 X daily □ 1X daily □ 0X daily □ Other_____

2. Who is delivering oral care?

   □ RN □ LVN □ CNA □ OT □ Other_____

3. How is oral care documented?

   _____
   _____
   _____

4. Who provides oral assessments? _

   □ RN □ OT □ Other_____

5. Challenges of delivery:

   □ Dementia □ Resistive behavior □ Stroke □ Decreased Cognition

   □ Cognitive Impairments □ Other

6. Feelings and attitudes toward performing oral care:

   _____
   _____
   _____

7. Knowledge of the impact of proper oral care:

   _____
   _____
   _____

8. Does your facility have a policy or procedure in place for oral care?

   □Yes □No

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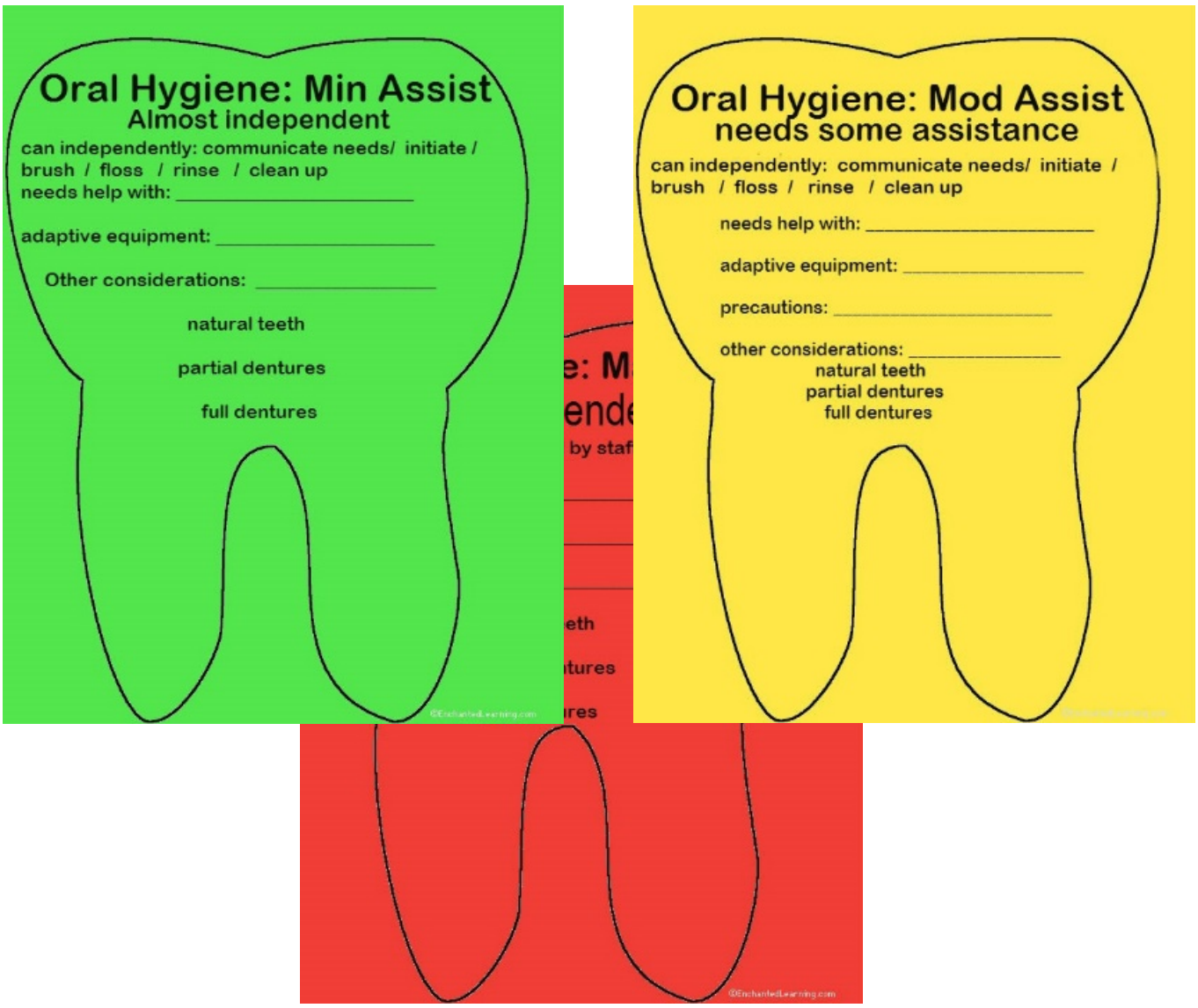
Appendix E

Oral Care Toolkit: *Rainbow Teeth*



From "Evidence-based protocol: Oral hygiene care for functionally dependent and cognitively impaired older adults," by J. Chalmers and V. Johnson, 2004, *Journal of Gerontological Nursing,* 30 (11): 5-12. Adapted with permission.

Rainbow Teeth was developed as part of a master's capstone project by graduate students from the occupational therapy department at Dominican University of California. Those who would like to use this inventory have permission to do so without prior authorization

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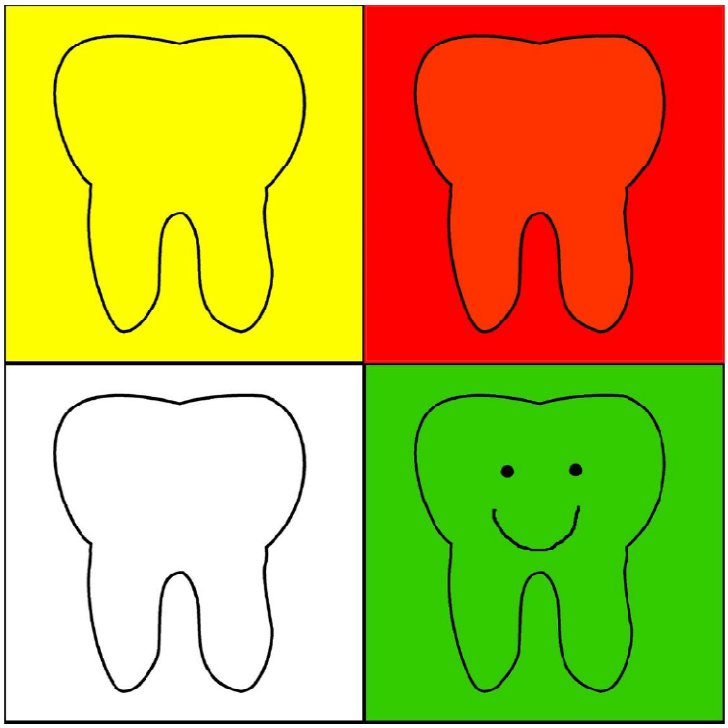
Appendix F

Oral Wellness Project Proposal

Oral Wellness: Improving Delivery of Oral Hygiene in Long-Term Care

Lauryn Banovitz, Liberty Bellah, Rosemarie Lion
Advisor: Dr. Eira Klich-Heartt, DNP, CNS, CNL, RN

Integrative Capstone Experience
Dominican University of California, Occupational Therapy



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Oral Care Wellness Project

Project Goal:

To implement an oral care wellness project that improves the delivery and maintenance of daily oral hygiene routines for patients in LTC.

Research says:

- Oral hygiene is insufficiently addressed in long-term care facilities
- Oral health maintenance is linked to overall systemic health and well-being. Poor oral care can lead to secondary systemic diseases
  - Infection
  - Pneumonia
  - Cardiovascular Disease
  - Diabetes
  - Stroke
  - Tooth Loss
  - Pain
  - Malnutrition

Evidence-based Best Practice Guidelines for Optimal Oral Wellness:

- Preventing tooth decay (removal of plaque/ debris, dentrifices)
- Maintenance of healthy oral mucosa
- Assessment (oral health, current oral hygiene ability, cognition)
- Documentation
- Individualized oral hygiene plan
- Access/ referral to dentist regularly and as needed

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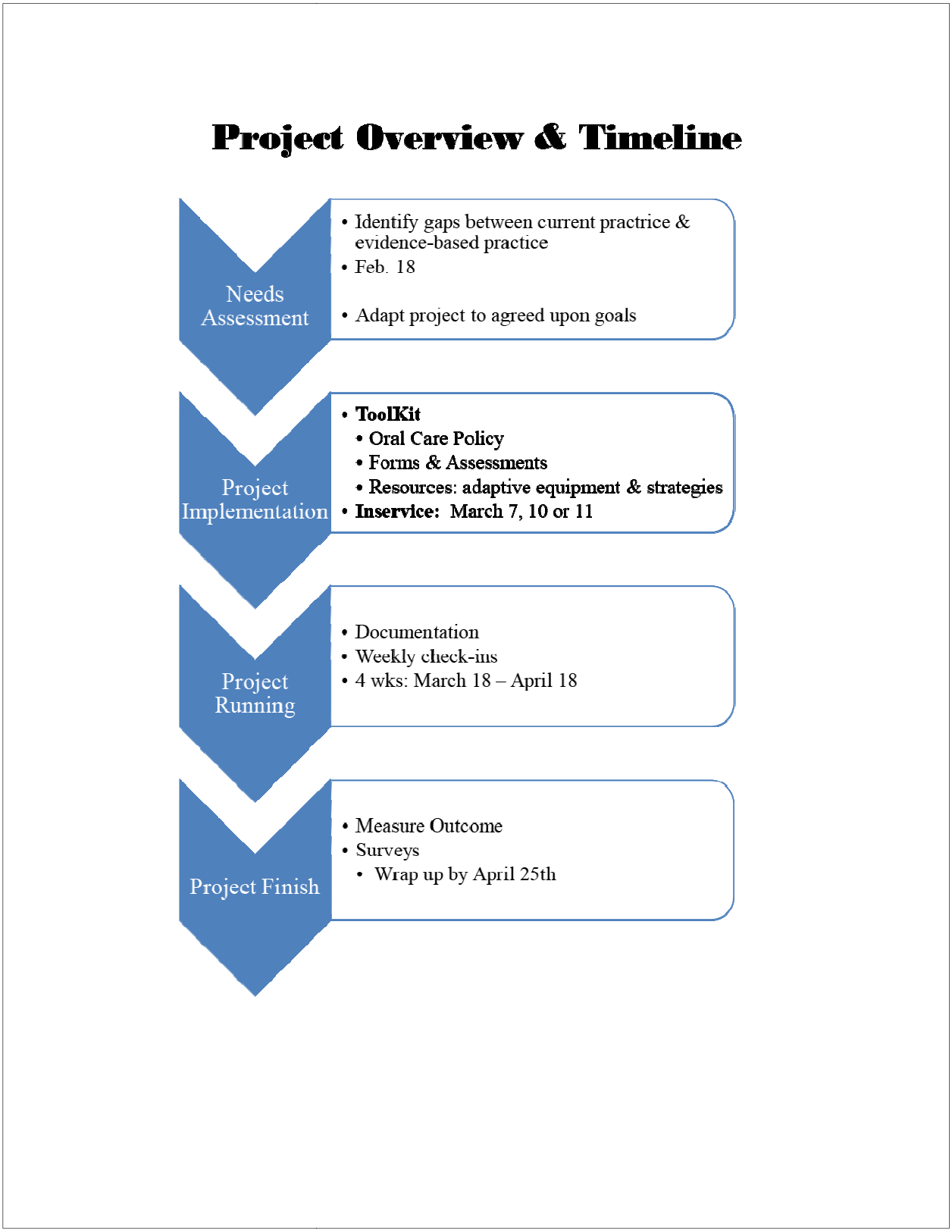

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Project System Overview: Roles & Accountability

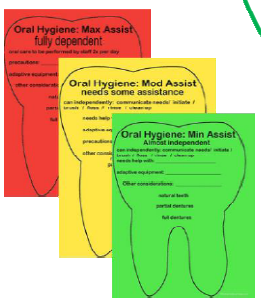
Institution
- Oral Care Policy
- Documentation
- OngoingTraining of care givers

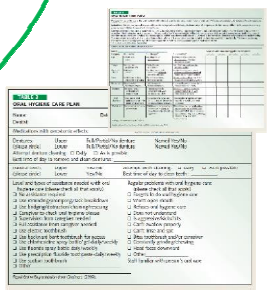
OT/RN
- Oral Care Champion
- Ongoing Resource

OT/RN
Assessment of Clients at Risk

Individualized Care Plan

CNA & RN
Daily Oral Care





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Appendix G

Oral Care Policy of Project Site

Policy / Procedure – Nursing Clinical

Section: **Routine Procedures**

Subject: **Oral Hygiene – Brushing Teeth and Care of Dentures**

Policy Number: NCRP 46

POLICY:

It is the policy of this facility to:

1. Clean the mouth, teeth and gums
2. Remove particles of food
3. Remove bacteria and odor

PROCEDURES:

Equipment:

- Toothbrush
- Toothpaste or powder
- Water, cup or glass, straw
- Face towel
- Denture cup
- Emesis basin
- Mouthwash
- Disposable gloves

1. Explain procedure.
2. Wash hands.
3. Fill cup with water.
4. Bring equipment to bedside.
5. If resident has natural teeth, assist to brush teeth. If resident cannot manage for himself, brush for him. Brush using an up and down motion, from gum line to the edge. Rinse periodically.
6. If resident has dentures, ask resident to remove them for cleaning. If resident is unable to remove dentures, put a piece of gauze over your fingers and take them out for him.
7. Put dentures in denture cup and take to appropriate area for cleaning.
8. Clean with tap water and denture cleaning product. Brush up and down rather than across dentures. Check for broken places.
9. Rinse dentures with tap water.
10. Rinse denture cup or storage container.
11. Return dentures to resident or bedside for storage.
12. If the resident does not put dentures back in his mouth, the denture cup should be filled with water or mouthwash. Keep it in a safe place. Check the resident's mouth for unusual sores. Report any unusual observations to charge nurse.
13. Assist resident to wipe mouth if necessary.

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14. Rinse toothbrush with water, clean, and put all equipment away. The toothbrush may be placed in a toothbrush holder, an emesis basin, or bedside drawer along with the toothpaste or denture cleaner.
15. Wash hands.
16. Chart oral care and appropriate observations.

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Appendix H

Prior In-Service Survey

Oral Care Survey

Dear Participant:

Thanks or taking the time to respond to your survey!

By completing this survey, you are consenting to add this information to an ANONYMOUS study on the practice of oral care at your facility. Your participation will enhance our understanding of current oral care practice. The goal of this survey is to design an inservice to help improve oral care based on your feedback.

The following questionnaire will take approximately 15 minutes. There is no compensation for responding nor is there any known risk. In order to ensure that all information will remain confidential, please do not include your name.

If you choose to participate in this project, please answer all questions as completely and honestly as possible.

Participation is strictly voluntary and you may stop the survey and refuse to participate at any time.

Your participation is greatly appreciated!

The oral care team:

Lauryn Banovitz, Liberty Bellah, Rosemarie Lion

Occupational Therapy Students
Dominican University of California
San Rafael

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1. Who provides oral Care?

- ☐ Patient
- ☐ Family
- ☐ Other):_____
- ☐ RN
- ☐ CNA

2. How is oral care documented? Select all that apply.

- ☐ Under personal hygiene
- Under special oral care category
- ☐ Includes level of assistance
- ☐ Includes level of completion
- ☐ Includes option to mark patient refusal
- ☐ Includes option to indicate patient's special oral care needs
- ☐ Other: _____

3. Does your facility have an oral care policy?

- ☐ Yes
- ☐ No
- ☐ Not sure

4. To whom do you go to for oral care questions?

- ☐ LVN
- ☐ Charge Nurse
- ☐ Occupational Therapist
- ☐ Nurse Educator
- ☐ Staff development
- ☐ Other (please specify)

5. How much education have you received in oral care?

_____

_____

6. When did you receive your last oral care refresher course?

_____

_____

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7. How confident do you feel providing oral care?

- ☐ Very confident
- ☐ Somewhat confident
- ☐ Neutral
- ☐ Not very confident
- ☐ Not confident

8. Why is oral care important?

_____

_____

9. What are warning signs of poor oral care?

- ☐ Dry mouth
- ☐ White coated tongue
- ☐ Pain
- ☐ Bleeding gums
- ☐ Missing Teeth
- ☐ Sores
- ☐ Brown areas/dark staining
- ☐ Other:_____

10. How comfortable do you feel about providing oral care?

- ☐ Very
- ☐ Somewhat
- ☐ Neutral
- ☐ Not very
- ☐ Not at all

11. Do you have appropriate and sufficient Oral Care Supplies?

- ☐ Always
- ☐ Most of the time
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

12. Do you have sufficient time to provide the necessary oral care?

- ☐ Always
- ☐ Most of the time
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

13. What is the protocol for dentures?

_____

_____

_____

_____

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14. What is the protocol for natural teeth?

_____

_____

_____

_____

15. How often do you provide oral care?

- ☐ After every meal
- ☐ Twice a day
- ☐ Other (please specify: _____
- ☐ Once a day
- ☐ Less than once a day

16. What supplies do you use? Check all that apply.

- ☐ Toothbrush
- ☐ Tooth paste/powder
- ☐ Mouthwash
- ☐ Floss
- ☐ Dentures
- ☐ Denture cleaners
- ☐ Toothette/oral swab stick
- ☐ Glycerin Swab sticks
- ☐ Positioning
- ☐ Electric toothbrush
- ☐ Tooth picks
- ☐ Mouth props
- ☐ Built-up handles
- ☐ Disposable gloves

17. How often are toothbrushes replaced?

- ☐ Once a week
- ☐ Once a month
- ☐ Every 6 months
- ☐ Other: _____

18. When are patients referred to a dentist?

_____

19. How many of your clients have natural teeth (including natural with partials)?

- ☐ Less than 25%
- ☐ 25%-50%
- ☐ 50% - 75%
- ☐ 75% - 100%

20. Is there anything else you would like to share about oral care?

_____

_____

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Appendix I

Post In-Service Survey

Oral Care Post Survey

1. How has your perception regarding the importance of oral care changed after the in-service?

- ☐ More important
- ☐ Same
- ☐ Less important

2. Why is oral care important?

_____

_____

3. How has your oral care delivery changed since the in-service?

_____

_____

4. Are you using any of the oral care strategies/adaptations presented in the oral care in-service? Please circle for each:

1 - Don't use
2 – Used already before in-service
3 – Use since the in-service

1	**2**	**3**	Built-up handle (foam) for toothbrushes
1	**2**	**3**	Electronic toothbrush
1	**2**	**3**	Flossing
1	**2**	**3**	Providing visual/verbal cues
1	**2**	**3**	Providing reminders
1	**2**	**3**	Provide simple steps
1	**2**	**3**	Label supplies
1	**2**	**3**	Slight chin tuck for patients that have difficulty swallowing
1	**2**	**3**	Creating rapport/ make eye contact with resident
1	**2**	**3**	Other:

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5. What was the most important thing you learned from the in-service?

_____

_____

6. Does your facility have an oral care policy?

- ☐ Yes
- ☐ Not sure
- ☐ No

7. Would you be interested in additional oral care in-services. If Yes, how often?

- ☐ no
- ☐ every year
- ☐ every 2 years
- ☐ Other: _____

8. Any suggestion how else to assist CNAs with oral care?

_____

_____

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In-Service Evaluation Form

TEACHER EFFECTIVENESS EVALUATION

Directions: Rate the following items on a scale of **1** to **3**:

1 = below standard (poor)

2 = meets standard (fair – good)

3 = exceeds standard (excellent

Please rate each item	1.	2.	3.
1. The teaching session was well organized			
2. The material was relevant			
3. The presentation enriched my knowledge of the topic			
4. Overall teacher effectiveness rating			
Comments:			

Please rate each instructor	1.	2.	3.
Instructor – **Liberty Bellah**			
The presenter was well prepared			
The presenter was knowledgeable			
The presenter was clear in teaching the material			
The presenter managed time well			
The presenter developed good rapport with audience			
The presenter was responsive to questions.			
Instructor – **Lauryn Banovitz**			
The presenter was well prepared			
The presenter was knowledgeable			
The presenter was clear in teaching the material			
The presenter managed time well			
The presenter developed good rapport with audience			
The presenter was responsive to questions			
Instructor – **Rosemarie Lion**			
The presenter was well prepared			
The presenter was knowledgeable			
The presenter was clear in teaching the material			
The presenter managed time well			
The presenter developed good rapport with audience			
The presenter was responsive to questions.			

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