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ORAL HEALTH OF ELDERLY RESIDENTS IN LONG-TERM CARE FACILITIES: A QUALITATIVE STUDY EXAMINING BARRIERS, SOLUTIONS, POLICIES, RULES, AND REGULATIONS

by

Karissa Harper, RDH

A thesis

submitted in partial fulfillment

of the requirements for the degree of

Master of Science in Dental Hygiene

Idaho State University

Fall 2014

COMMITTEE APPROVAL PAGE

To the Graduate Faculty:

The members of the committee appointed to examine the thesis of Karissa A. Harper find it satisfactory and recommend that it be accepted.

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HUMAN SUBJECTS COMMITTEE APPROVAL PAGE

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April 9, 2014

Karissa Harper
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RE: Your application dated 4/9/2014 regarding study number 4076: Oral Health of Elderly Residents in Long-Term Care Facilities: A Qualitative Study Examining Barriers, Solutions, Policies, Rules, and Regulations

Dear Ms. Harper:

I have reviewed your request for expedited approval of the new study listed above. This is to confirm that I have approved your application.

Notify the HSC of any adverse events. Serious, unexpected adverse events must be reported in writing within 10 business days.

Submit progress reports on your project in six months. You should report how many subjects have participated in the project and verify that you are following the methods and procedures outlined in your approved protocol. Then, report to the Human Subjects Committee when your project has been completed. Reporting forms are available on-line.

You may conduct your study as described in your application effective immediately. The study is subject to renewal on or before 4/9/2015, unless closed before that date.

Please note that any changes to the study as approved must be promptly reported and approved. Some changes may be approved by expedited review; others require full board review. Contact Thomas Bailey (208-282-2179; fax 208-282-4723; email: humsubj@isu.edu) if you have any questions or require further information.

Sincerely,

Ralph Baergen, PhD, MPH, CIP
Human Subjects Chair

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DEDICATION

This thesis work is dedicated to my husband, who has been a constant source of support and encouragement during the challenges of graduate school and the time dedicated to my research. This work is also dedicated to my parents and grandparents, who have always supported me in all my endeavors and have encouraged me throughout the process. I thank my friends and co-workers for their continued support and words of encouragement, especially during stressful times. I also dedicate this thesis to my son, who is now 17 months old, as he has been my inspiration and my light during challenging times, as well as to my son or daughter that is currently growing as I am now 8 weeks pregnant. I hope one day they will read this and be proud of what I have accomplished, as I know I will always be proud of them and their future accomplishments.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my major thesis advisor, JoAnn Gurenlian, for her continuous support of my masters thesis research, and for her patience, motivation, encouragement, and immense knowledge. She was always there for me when I had even the smallest question, and offered everything she could to help me with my thesis research. I could not imagine completing this research without her guidance, knowledge, experience, and expertise.

I also would like to thank the rest of my thesis committee, Kristin Calley and Mary Nies, for all of their help and suggestions in making this thesis research successful. I have learned a lot from both of them and am blessed that they were a part of this journey.

I would also like to thank the administrators who allowed me to come into their facilities to interview their staff, and for allowing me to interview them as well. Thank you also to all of the participants who let me interview them, even though they were very busy and had a lot on their plate during their work day. I could not have completed this research without all of them.

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ABSTRACT

The purpose of this study was to identify barriers, propose solutions, and address the policies, rules, and regulations that influence the conduct of oral health care in long-term care facilities. This study employed a qualitative design using semi-structured interviews conducted among key staff members of three long-term care facilities. Interviews were recorded, transcribed, and analyzed using a general inductive analysis approach. Five main themes emerged through this research: the oral health of residents, oral care provided to residents, barriers to care, solutions to improving oral care, and knowledge of administrative policies and state and federal rules and regulations. Given the lack of knowledge about oral health care for residents in long term settings, a logic model was proposed. This model can provide improved collaboration among caregivers. Improvement in the oral health of elderly residents in long-term care facilities requires the efforts of all caregivers, administrators, and oral health professionals.

CHAPTER 1

Introduction

Background

It is known that oral disease can have an effect on an individual's well-being and can increase the risk and severity of systemic diseases such as cardiovascular disease and diabetes (Pino, Moser, & Nathe, 2003). Different types of bacteria that are found in plaque cause oral diseases such as periodontal disease and dental caries. Periodontal disease can result in tooth mobility, tooth loss, bleeding and tender gingiva, and oral pain. Both periodontal disease and dental caries can have an impact on an individual's overall well-being as it impacts daily functions such as: food selection, speech, taste, hydration, appearance, and social behavior (Putten, Visschere, Schols, Batt, & Vanobbergen, 2010). Daily removal of dental biofilm is essential to the prevention of oral diseases. This requires tooth brushing, interdental cleansing, mouth-rinsing, and may also involve the use of other oral hygiene aides depending on each individual's specific needs.

Residents of long- term care facilities are at a greater risk for developing caries due to high consumptions of refined carbohydrates, inadequate daily oral hygiene, xerostomia caused by a variety of medications, and decreased access to dental care (Dharamsi, Jivani, & Wyatt, 2009). It is important that residents maintain good oral hygiene to reduce the risks of oral diseases such as caries and periodontal disease. Some

elderly residents in long-term care facilities do not need to brush and floss their teeth daily because they no longer have any natural teeth. Gammack and Pulisetty (2009) found the proportion of edentulous elders decreased from 71% to 43% over a total of fifteen years in one long-term care facility population. A reduction in edentulous individuals is occurring due to advances in dental treatment and prevention (Thompson & Kreisel, 1998).

Although there is a decrease in edentulous elders, there are still many members of the geriatric population that have some form of artificial teeth and some of this population will reside in long-term care facilities. The proper care of partial dentures and full dentures is importnt for individuals who wear them because these prostheses can accumulate the same bacteria as natural teeth in the oral cavity, and can act as a reservoir for oral and respiratory bacteria (Paju & Scannapieco, 2007). Ill-fitting dentures can cause ulcers in the mouth that may result in poor nutrition due to pain experienced during eating. Dentures that are not cleaned regularly can cause oral mucosal lesions including inflammation, ulcers, papillary hyperplasia, and fibrotic hyperplasia (Nevalainene, Narhi, & Ainamo, 1997). Hence, it is important that staff members of these facilities not only know how to provide proper oral hygiene care, but also, proper care for all removable dentures and prosthesis.

An illness that may be attributed to oral biofilm is bacterial pneumonia, which is a common cause of sickness and death in individuals and is the leading cause of death in elderly residents residing in long-term care facilities (Paju & Scannapieco, 2007). Oral bacteria found in dental plaque may cause the initiation and progression of pneumonia if the bacteria are relocated from the oral cavity to the respiratory tract. Paju and

Scannapeico (2007) stated that poor oral hygiene and periodontal disease can increase the chances of high risk individuals contracting pneumonia and that improved oral hygiene can reduce the risk of getting certain types of pneumonia. Thus, oral hygiene care and assistance is crucial for the residents of long-term care facilities in order to reduce their chances of getting bacterial pneumonia.

Along with periodontal disease and dental caries, hyposalivation, or dry mouth, is another condition that many elderly residents of long-term care facilities may experience and is associated with the symptom of xerostomia. Hyposalivation can be caused by some systemic diseases such as Sjogren's syndrome and human immunodeficiency virus *(*HIV*)*, and is a side effect of many different types of drugs (Flink, Bergdahl, Tegelberg, Rosenblad, & Lagerlof, 2008). Gerdin, Einarson, Jonsson, Aronsoon, & Johansson (2005) identified xerostomia as being a determinant for a decreased quality of life in elderly, medically compromised patients. A decrease in saliva can impair the “protection of soft tissues and teeth, appetite, swallowing, talking, and sense of well-being” (Gerdin et al.). Many elderly residents of long-term care facilities take one or more prescription and/or over-the-counter drugs, and some residents may also have a systemic disease that affects salivary gland function. Thus, it is important that staff members of long-term care facilities be able to recognize and identify the causes, symptoms, and effects of this condition in elderly residents, and be able to offer methods to alleviate the symptoms if present.

Although many people experience some form of periodontal disease in their lifetime, the population with the poorest oral health are older individuals living in long-term care facilities or those who receive care through in-home services (Nitscheke,

Majdani, Sobotta, Reiber, & Hopfenmuller, 2010). Between 2010 and 2050, the United States is projected to experience rapid growth in the elderly population. The population of those 65 and older is thought to double in the next 40 years due to the baby boomer generation crossing into this category (Vincent and Velkoff, 2010). The major growth of this population will affect the amount of elderly residents needing long-term care in nursing homes and other facilities. According to the National Institute of Dental and Craniofacial Research (NIDCR), the elderly residents of nursing homes are a group of individuals with significant health disparities in the area of oral health (Jablonski, 2010). "The majority of nursing home residents arrive with some or all of their dentition but without the resources to continue preventive dental care" (Jablonski, 2010). Because many of the residents of long-term care facilities rely on the staff for oral care, it is important for key staff members to know the administrative policies regarding oral care and the state and government regulations that exist regarding the oral health of the elderly residents.

Statement of Problem

Because many residents of long-term care facilities cannot properly provide oral hygiene care for themselves (Stein & Henry, 2009) it is important that staff members of these facilities provide the required oral hygiene assistance. "In a systemic view, where multiple elements interact to generate a result, oral healthcare is understood as one of the essential components of the healthcare system, in its many dimensions" (Mello & Erdmann, 2007). Having a healthy mouth can increase the quality of life for individuals and prevent those individuals from an increased risk of developing different health conditions, such as stroke, heart disease, and diabetes (Helgeson, Smith, Johnsen, &

Ebert, 2002). Since many of the elderly residents in long-term care facilities already have medical complications and may be physically or mentally impaired (Ellis, 1999) , it is especially important for them to get quality oral hygiene assistance and care from the caregivers of the long-term care facilities. Unfortunately, as Nitschke et al. (2009) stated, the elderly residents are not getting the assistance and care that they need. Thus, it is important to conduct research to further discover why there is a lack of oral care being given to the residents and the associated barriers so that these barriers can be overcome and practical solutions can be identified. A key issue to be addressed in long-term care facilities is that of government and state policies and regulations regarding oral health in these settings, as well as facility policies. It is important that the different staff members of the facilities, including the executive administrator, nursing director, nurses, and nursing aides are aware of the rules and regulations and the importance of their adherence.

Gammack and Pulisetty (2009) explained that oral hygiene needs are being neglected in residents of long-term care facilities and that the proper amount of care is not being given. Dharamsi et al. (2009) determined that 32% of residential caregivers believed incorrectly that tooth brushing is not necessary to remove dental plaque. They also found that 51% believed that tooth loss is a natural process, and 72% believed that oral hygiene care could not be provided to residents that were not conscious. Ninety percent of caregivers believed that oral hygiene improves one's quality of life, yet only 29% agreed that residents should receive mouth care on a daily basis.

Many different studies (Dharamasi et al., 2009; Gammack & Pulisetty, 2009; Nitschke et al., 2009) have been conducted regarding caregivers of long-term care

facilities and the quality and quantity of oral hygiene assistance they provide to the elderly residents of these facilitates. Several studies have also evaluated the impact educational programs have on the oral care delivery provided to the residents (Isaksson et al., 2000; Frenkel et al., 2002). However, little research has been performed examining the polices, rules, and regulations regarding the administration of oral care to residents of long-term care facilities and the adherence of staff members to these regulations. This study can provide information on why proper and adequate oral hygiene assistance is not being given and can identify the barriers the administrators and caregivers feel they face on a daily basis when trying to provide this care. The oral health of the residents in long-term care facilities will not improve until solutions to these barriers are identified and implemented.

Purpose of Study

The purpose of this study was to propose solutions to overcome barriers and to address the policies, rules, and regulations that influence the conduct of oral health care in long-term care facilities. By acquiring information through this research, a logic model was designed and proposed to create change.

Significance of the Study

Oral disease and tooth-loss can greatly reduce the quality of life of individuals as well as restrict major life functions (Helgeson et al., 2002). Pino et al. (2003) identified several life-threatening conditions that can be caused by poor oral health in geriatric populations, including malnutrition, brain abscess, valvular heart disease, joint disease, and pneumonia. They also identified that poor oral health can affect mortality, digestion, speech, and social activities. Chronic oral infections may also be associated with diabetes

and stroke (Helgeson et al., 2002). Many systemic conditions and diseases have oral manifestations as well. “These manifestations may be the initial sign of clinical disease and serve as an indicator to clinicians and individuals for further assessment” (Pino et al., 2003, p. 169). Thus, it is important for residents of long-term care facilities not only to be given proper oral hygiene care, but also to be provided with regular oral assessments.

Barriers to oral care exist for the elderly residents of long-term care facilities. One barrier is the lack of oral health education given to staff members. “Nurses are frequently unaware of the importance of oral health within holistic care. They lack the appropriate knowledge and skills to perform oral health care, and are therefore unable to train care assistants who perform up to 90% of all personal care in nursing homes” (Frenkel, Harvey, & Needs, 2000, p. 91). Putten et al. (2010) agreed that the lack of knowledge and skills of even qualified nursing staff can inhibit an acceptable level of residents' oral hygiene care. Wardh, Andersson, and Sorensen (1997) found crucial obstacles that inhibited oral care by staff members to be a dislike for the task, a lack of time for giving oral hygiene care, and the existence of residents that could either perform the duty themselves or that did not want help. Concern about the residents' privacy and dignity were also a deterrent in providing oral hygiene care.

Along with identifying barriers, this study addressed several topics described in the American Dental Hygienists' Association National Dental Hygiene Research Agenda (2007).

- Investigate how environmental factors influence oral health behaviors.
- Identify how public policies impact the delivery, utilization, and access to oral health care services.

- Information provided during the interviews will help identify how policies of the long-term care facilities impacts the delivery, utilization, and access the residents have to oral health care services.

Several of the goals and objectives of Healthy People 2020 can be applied in this research as well. One goal of Healthy People 2020 is to improve the health, function, and quality of life of older adults (U.S. Department of Health and Human Services, 2013). Another goal is to prevent and control oral and craniofacial diseases, conditions, and injuries, and improve access to preventive services and dental care. This includes preventing and controlling dental caries, periodontal disease, oral and facial pain, and oral and pharyngeal cancers (U.S. Department of Health and Human Services, 2013).

The overarching goals of Health People 2020, as defined by the Centers for Disease Control and Prevention (2011), pertain to this research as well. They include:

- Attain high-quality, longer lives free of preventable disease, disability, injury, and premature death.
- Achieve health equity, eliminate disparities, and improve the health of all groups.
- Create social and physical environments that promote good health for all.
- Promote quality of life, healthy development, and healthy behaviors across all life stages.

Research Questions

The following research questions were answered by conducting this thesis study:

1. What are the perceived solutions to overcoming barriers in order to provide a high standard of oral care for the geriatric residents of the long-term care facilities?
2. How do the administrative policies of the long-term care facilities and the

government and state rules and regulations on oral care in long-term care facilities impact the delivery, utilization, and access the residents have to oral health care services?

Definitions

The following 10 terms were used throughout this study and are defined below.

Administrative policies - defined as governing principles that mandates or constrains actions, is applied throughout the institution, helps ensure compliance with regulations of the facility, promotes operational efficiencies and reduces risk of the institution. Policies do not change often and sets a course for the future (University of Arizona, 2011).

Aides - Within the context of this study, a nursing aide is a person who helps patients perform the most basic day-to-day tasks, such as oral hygiene (American Dental Education Association, 2012).

Barriers - Something immaterial that impedes or separates (Merriam-Webster, 2013). Examples of barriers for this study include lack of finances, lack of resources, or poor education.

Long-term care facilities - defined as a "facility that provides rehabilitative, restorative, and/or ongoing skilled nursing care to patients or residents in need of assistance with activities of daily living. Long-term care facilities include nursing homes, rehabilitation facilities, inpatient behavioral health facilities, and long-term chronic care hospitals" (Medicine Net, 2003).

Nurses – a person who cares for the sick or infirmed (Merriam-Webster, 2013).

Oral health - defined as "being free of chronic oral-facial pain conditions, oral and pharyngeal cancers, oral soft tissue lesions, birth defects such as cleft lip and palate, and

scores of other diseases and disorders that affect the oral, dental, and craniofacial tissues" (U.S. Department of Health and Human Services, 2000).

Oral hygiene assistance – For the purpose of this study, oral hygiene assistance refers to assistance by a caregiver/aide for tooth brushing, flossing and other interdental care, mouth-rinsing, and denture care.

Regulations - a rule or directive made and maintained by an authority (Oxford Dictionaries, 2013).

Rules - one of a set of explicit or understood regulations or principles governing conduct within a particular activity or sphere (Oxford Dictionaries, 2013).

Solutions - A means of solving a problem or dealing with a difficult situation (Oxford Dictionaries, 2013).

CHAPTER II

Literature Review

Introduction

Many elderly residents residing in long-term care facilities have poor oral health and rely on the nurses and nursing aides for assistance in daily oral hygiene practices (Nitschke, Majdani, Sobotta, Reiber, and Hopfenmuller (2010). Research has shown that there is a correlation between oral health and systemic health, and that poor oral conditions can increase the risk of developing conditions such as heart disease, stroke, and diabetes (Hegleson, Smith, Jonsen, & Ebert, 2002; Gammack & Pulisetty, 2009; Dharamsi, Jivani, Dean, & Wyatt, 2009; Ishikawa, Yoneyama, Hirota, Miyake, & Miyatake, 2008; Smith, Ghezzi, Manz, & Markova, 2010; and Fikleman, Lawrence, & Glogauer, 2012). By maintaining proper oral health with the assistance of nurses and aides, elderly residents of long-term care facilities may be able to reduce their risk of developing certain systemic conditions and improve their quality of life.

The number of elderly individuals residing in America is growing quickly due to the “baby boom” generation becoming older. As individuals age, many face barriers when it comes to their oral hygiene due to physical or cognitive impairment, especially those residing in long-term care facilities (Stein & Henry, 2009). Studies have demonstrated that there are high rates of caries, poor oral hygiene, gingivitis, periodontal disease, and

dry mouth in the elderly residing in long-term care facilities (Pino, Moser, & Nathe, 2003; Gil-Montoya, Ferreira de Mello, & Lopez, 2006; Gammack & Pulisetty, 2009).

There are multiple factors that can be responsible for the poor oral health seen in residents of long-term care facilities. The lack of daily oral care and hygiene assistance is likely the strongest factor (Stein & Henry, 2009). Since the residents often rely on the nurses and aides for hygiene care, it is the responsibility of these caregivers to deliver proper oral care and assist the residents in daily oral hygiene tasks. It is the responsibility of the administrators and nursing supervisors to make sure the nurses and aides know the roles they are to perform. Studies have identified barriers to providing care and assistance (Dharamsi et al., 2009; Smith et al., 2010; Gammack & Pulisetty, 2009.). Other studies have researched the effects of oral health educational programs given to the caregivers in order to create a solution to overcome barriers. (Wyatt, So, Williams, Mithani, Zed, & Yen, 2009; Gammack & Pulisetty, 2009; Frenkel, Harvey, & Needs, 2002). Few studies, if any, have focused on state and federal rules and regulations regarding oral care given to elderly residents of long-term care facilities and their impact on the amount and type of care given. Facility policies on providing oral care have only been slightly addressed as well.

A review of the literature was performed to gain information regarding previous studies implemented on the topic of oral care in long-term care facilities. Several search engines were utilized including CINAHL, Cochrane Library, EBSCOhost, PubMed, Research Gate, and Google Scholar. Key terms used to find relevant articles included: oral health, long-term care facilities, nurses, aides, systemic health, residents of long-term care facilities, policies and regulations in long-term care facilities, and oral hygiene

assistance. This review of the literature will address the issue of the poor oral health of the residents of long-term care facilities. The literature will review the following areas: oral health of long-term care facility residents, barriers administrators and caregivers face regarding providing oral care, creating practical solutions to overcome barriers, improving the oral care of long-term care facility residents, and addressing policies, rules, and regulations regarding oral care given to residents.

Oral Health of Long-term Care Facility Residents

The oral health of elderly long-term care facility residents is usually poor despite the improvement of oral health in some of the independent elderly population (Rabbo, Mitov, Gebhart, & Pospiech, 2012). Many elderly individuals are admitted into long-term care facilities with poor oral health and their health continues to decline due to different barriers that they face when trying to obtain oral care and hygiene assistance (Yoneyama et al., 2002). Poor oral health can increase the incidence of individuals getting caries and periodontal disease, which in turn can affect their diet, nutrition, sleep, psychological status, and social interactions (Helgeson et al., 2002).The following studies have researched the oral health of residents residing in long-term care facilities and have addressed some of the barriers that need to be overcome.

Finkleman, Lawrence, and Glogauer (2010) investigated the integration of dental services on oral health in long-term care by using a qualitative approach. Three facilities with three different approaches to health care were chosen. Facility A had a fee-for-service hygienist available, facility B had a dentist on premise once a week and facility C had a full dental team available to provide screenings and care to all patients. Twenty residents from each site were questioned and interviewed regarding their oral health

upon review of medical history and completion of intra-oral photographs. Field notes and transcribed conversation were recorded. Data was read and reread to analyze for patterns in which common themes were identified. The authors did not state whether informed consent or committee approval was obtained for this study.

The two major themes that were identified were oral hygiene and oral discomfort, along with general health, appearance, and dental access. Participants from all three sites complained of dental discomfort, especially at facility A and B. Discomforts included sensitivity, dry mouth, and burning tongue. Oral hygiene issues included lack of assistance brushing and caregiver's lack of knowledge in providing oral care. Medical issues and language barriers often created oral health difficulties and barriers. Many residents felt they did not have access to dental treatment due to transportation or expenses. Appearance of teeth was a common concern among participants as well. Caregivers were perceived to be overworked or not comfortable in providing assistance.

Finkleman, Lawrence, and Glogauer (2010) concluded from this study that different institutions vary widely with respect to oral health care polices in regards to funding, management and employees. Many residents enter long-term care facilities with active dental needs, so it is important for oral screenings to be completed upon their entrance into the facility. Consensus needs to be made on how to evaluate long-term care facility oral health programs. Cost effective ways needs to be found to improve the oral conditions of long-term care facilities.

A strength of this study is that it identified and addressed issues that need further research and that need to be further addressed. The authors concluded that oral health provisions need a solid foundation in understanding oral health and its implications.

Predominant players in the oral health of residents need to be identified and addressed.

Yoneyama et al. (2002) investigated the concept that oral care reduces pneumonia in older patients in nursing homes. Many older patients in long-term care facilities have poor oral health due to no access to professional dental care and poor oral hygiene (Yoneyama et al, 2002). Pneumonia is a common infection in older people and can be acquired by infection by bacteria found in dental biofilm. Thus, the purpose of this study was to investigate whether oral care lowered the frequency of pneumonia in institutionalized older people.

The study took place in Japan and consisted of residents in 11 nursing homes consisting of 50 to 100 beds. Participants were either physically handicapped or had mental disorders. However, those that were not mentally capable of providing informed consent were not included in the study. Residents had to be stable for at least three months with no acute infections to be included in the study. Each participant was randomly selected from the same floor and nursing team using a random numbers table and was picked by individuals not included in the study. Four hundred and seventeen patients without pulmonary disease were assigned to either an oral care group or a no oral care group and were studied for two years. Before the study was conducted, all participants were given a physical exam and chest radiograph. Pneumonia was diagnosed during the study by radiographs by two radiologists not involved with the study, and either cough, fever, or dyspnea. Those in the oral care group received assistance with five minutes of brushing after meal times, or oral cleaning with iodine if no teeth were present. A dentist or hygienist provided a dental prophylaxis on their teeth once a week or as needed. Those not in the oral care group did not receive any oral care assistance and

often brushed on their own once a day. Those with dentures received daily denture care whether they were in the oral care group or not. Fifty one patients were eliminated as participants during the two year study due to dying from reasons other than pneumonia. Results were analyzed by 2-way analysis of variance with a p value of <.05.

Findings of this study showed that a large majority of participants had neglected oral health including high plaque scores, frequent cases of periodontal disease and caries, and poor denture condition. Pneumonia was diagnosed in 19% of participants receiving no oral care assistance and in 11% of participants receiving oral care. Sixteen percent of those who obtained pneumonia in the non care group died from this disease, while only 7% died in the oral care group. Few denture patients in the oral care group developed pneumonia or died from this condition as compared to denture patients in the no oral care group. The researchers also found that oral care significantly reduced the debris index. Yoneyama et al. (2002) concluded that those who received oral care were less likely to develop or die from pneumonia. The risk of pneumonia in patients followed for two years was significantly reduced in patients receiving oral care. Eighty percent of participants eventually died after getting pneumonia, but the mortality rate was half in patients that received oral care compared to those that did not receive oral care. Oral care appeared to be much more effective in decreasing the mortality rate than medical treatment. The authors concluded that it is important for health care providers to support and advocate the expansion of oral health benefits for older adults. Strengths of this study are that it was randomized and included control groups. A large sample size was used to ensure external validity.

Ishikawa, Yoneyama, Hirota, Miyake, and Miyatake (2008) researched if

professional oral health care reduced the number of oropharyngeal bacteria. The purpose of their study was to evaluate the longitudinal prevalence of oropharyngeal bacteria in the elderly, dependent residents of care facilities after a five month intervention of professional oral cleanings and/or disinfectant gargling as well as to find an effective method of administering oral health care to these residents.

Three nursing homes were selected in Japan. Participants gave verbal agreement and the directors of the facilities gave informed consent for those with cognitive impairment. Baseline data was collected prior to the study. Sixty-two participants in facility A received professional care once each week from a dental hygienist for five months. Fifty-nine participants in facility B received no professional care for the first two months, then professional care from the hygienist once each week for the remaining three months. Forty-one participants in facility C gargled with .35% povidone iodine for the first two months, then received professional care the last three months once each week. All participants received daily oral care from the general caregivers employed through the facilities. The initial oral exam and following five clinical exams were performed by two previously calibrated dentists not blinded to the study. Periodontal pocket depths and a debris index were obtained from participants during each exam. Febrile days and aspiration pneumonia were monitored during the study. Thirty individuals from each facility were also randomly selected to receive a bacteriological exam tested blindly in the lab.

Most of the participants had few teeth and the presence of oropharyngeal bacteria was higher in those that were bed bound. Findings of the study showed that those in facility A showed a decrease in periodontal pocket depths and in the debris index from

two to five months as compared to baseline data. Those in facility B had a decrease in periodontal pocket depths after the third month, but little change in the debris index. Those in facility C did not have significant reduction in periodontal pocket depths or debris index. However, the bacteria count was reduced in the participants tested from all three facilities after professional care was given. During the study period, eight participants obtained pneumonia in facility A while none obtained pneumonia in facility B or facility C.

The authors concluded that oropharyngeal bacteria decreased or disappeared in participants in every facility after professional care was given. They also concluded that oral health care reduced the incidence of oropharyngeal pneumonia in the elderly participants. Thus, is is important for dental professionals to make an effort to inform medical doctors, nurses, and caregivers of the importance of residents receiving professional oral care. Weaknesses of this study were that the length of the study was too short to draw definitive conclusions, and the study occurred during the winter months when the elderly are more prone to colds and infections. There was no control for the use of antibiotics or the presence of respiratory disease in the participants, which could have influenced the findings and altered the internal reliability of the study.

The three studies reviewed all provided similar results. Finkleman, Lawrence, and Glogauer (2010) concluded that most of the residents in the long-term care facilities suffered from dental discomfort and poor oral health. A lack of access to dental care and expenses were barriers that many of the residents faced. Yoneyama et al. (2002) and Ishikawa et al. (2009) found that most of the residents had neglected oral health, including high plaque scores and high rates of periodontal disease and tooth decay.

Proper oral hygiene assistance and care on a daily basis could help prevent dental diseases such as caries and periodontal disease, which would require less residents needing to obtain extensive dental treatment. The studies showed that with better oral health came a better quality of life and less illness related to oropharyngeal bacteria. In order for proper oral hygiene care to be given, the caregivers must be identified and made aware that it is their duty to provide this care as a preventive measure. Policies, rules, and regulations regarding the quality and quantity of oral care given to the residents should be identified and understood.

Barriers to Oral Health

One of the first issues to be addressed in order to improve the oral care given to elderly residents of long-term care facilities is that of perceived barriers to providing care. It is important to discover what the different types of staff members feel are barriers to care in order to gain a comprehensive picture of the situation. Key staff members include the administrators, nursing supervisors, nurses, and aides. Some caregivers have negative feelings about providing oral care to the elderly and others are not educated or informed of the importance of oral health and its impact on one's well-being (Dharmasi, Jivani, Dean, & Wyatt, 2009). It is important to identify and address the barriers of the caregivers before further intervention is planned and implemented. The following studies address caregivers employed in long-term care facilities and the barriers they face when providing care.

Rabbo, Mitov, Gebhart, and Pospiech (2012) found that the importance of dental treatment as part of general healthcare is a fact often ignored by directors of nursing and executive directors. A survey of the nursing home directors was completed by the

Department of Prosthetic Dentistry at the University of Sarrland to assess the attitudes of the administrators regarding the oral health of the residents of their long-term care facilities.

A questionnaire was sent to administrators of 114 long-term care facilities registered in Sarrland; 43 questionnaires were completed and returned. Several questions were addressed, including the attitudes of the administrators concerning the oral hygiene status of the residents, their need for regular dental examinations, and the need for oral hygiene education of personnel; cooperation with general dentists was also addressed.

Results showed that only two facilities performed a dental examination upon admission and regular dental examinations only occurred in three facilities, although 86.8% of the administrators felt oral exams where necessary on a regular basis. In 97.6% of the facilities, the administrators arranged the dental appointments for the residents. Forty seven percent of the administrators claimed to be informed of the state of dentition of the resident and 84.2% rated it as 'sufficient to good'. Ninety five percent of the facility managers would appreciate further education on providing oral care of the residents for the staff.

A weakness of this study was that less than half of the long-term care facilities participated in the study, so the results of the study may not be representative of all long-term care facilities. The low response rate of this study led the researchers to believe that the topic of oral care was of low importance to most of the administrators. They believed that the establishment of an oral care training program conducted by the dental community can benefit the oral care residents receive in long-term care facilities. Rabbo, Mitov, Gebhart, and Pospiech (2012) concluded that there is a lack of consistency of oral

health policies in Sarrland nursing homes, as seems evident in long-term care facilities in the United States as well.

Nitschke et al. (2010) investigated the dental care of frail older people and those caring for them. The purpose of their study was to describe the oral health patterns of the frail elders and contrast these with the attitudes and patterns of their caregivers. The study took place in Berlin, Germany.

A list of all institutions providing care to the elderly was obtained, including long-term care facilities and facilities providing at home care. Two stages were used in the sampling procedure. Fifteen percent of facilities were approached in the first procedure and administrators were interviewed. In the second, 55 home-care services and 55 long-term care facilities were chosen randomly and asked by letter for participation. A subgroup of ten home-care services and ten long-term care facilities was randomly chosen from those consenting to participate. Finally, 3-12 subjects from each subgroup were randomly chosen, which resulted in participation from 89 staff members and 95 clients from long-term care facilities, and 57 staff members and 77 clients of in-home services. Each participant was given a structured, standardized interview and a five-point likert scale was used to obtain information regarding staff and clients attitudes on oral health. Data was analyzed with a chi-square test and Fisher's extract with a type 1 error set at 0.05.

Findings of the study showed that 47.2 percent of long-term care facilities and 10.2 percent of in-home services required a medical exam of each client on admission, but only 2.0% of in-home services and 13.2 percent of long-term care facilities required an oral exam. Fifty-five percent of administrators had no routine services available. Only

22.3% arranged oral exams. The median time elapsed between clients seeing a dental professional was 12 months, and many said they did not see the dentist regularly because they had “no problems”. However, staff members saw a dental professional much more frequently, and 96.2% regarded the client’s oral health as important as their own.

Information from this study led the authors to several conclusions. Facilities should establish routine oral exams of their clients in order to obtain data and identify clients with dental needs. Because the demand for routine and preventive services of clients is low, it is up to the care providers to promote these services. The oral health of the clients is part of a professional triangle, including the dental team, the nursing team, and the clients' physicians. The efforts of educating the staff should be increased and educational measures need to be tailored to fit individual needs. Education programs should consider the individual's knowledge and intent. The staffs' attitudes and awareness regarding oral health is the starting point to address issues preventing them from improving the oral care for the clients. Strengths of this study included the randomization process, which can increase reliability and decrease bias; and a large sample size was used consisting of different service providers and clients.

Wardh, Anersson, and Sorensen (1997) conducted research to identify the attitudes and barriers faced of staff members of long-term care facilities and intensive care units concerning oral care. They also wanted to determine if there were any differences in attitude among the different personnel. A sample of 364 personnel consisting of registered nurses, nursing assistants, and home care aides participated in the study. They were each given a survey consisting of 27 items divided into four sections which included: personal data and information on employment, personal oral hygiene

habits, attitudes towards assisting residents with oral care, and willingness to provide oral care to residents. Each participant could also express their opinion on these issues.

Results of the study showed that 95% of caregivers visited a dentist at least once a year. Half performed some type of inter-dental cleaning on themselves. Registered nurses expressed that oral care was a part of proper care more than the other types of personnel. Forty percent of participants found oral care to be “somewhat” repulsive and 30% had some level of embarrassment in providing oral care assistance. All those surveyed believed that more education and training would increase the quality of care given to patients and influence more positive attitudes. They also believed they needed practical help from a dental professional.

The authors concluded from this study that registered nurses found oral care assistance to be more important, but were usually not directly involved with providing this care. Barriers to care that were expressed by the caregivers included: negative attitudes about providing oral care assistance, resident refusal of assistance, thinking that the resident did not need help, and a lack of time. In order for an educational program to be effective it needs to address personnel attitudes on oral health and providing oral care assistance. More priority needs to be given to the education of nurses and aides and practical training and allowance of open discussion pertaining to oral care assistance should be allowed. Finally, the assistance provided should be monitored. Although this study was conducted over ten years ago, it provides details on background information that can be used in future surveys and questionnaires to address this issue.

Smith, Ghezzi, Manz, and Markova (2010) researched the oral healthcare access and adequacy in alternative long-term care facilities. The purpose of this study was to

gain information on the perceptions of administrators of alternative long-term care facilities in Michigan regarding oral care access, adequacy, and barriers to improve oral health. A list of 4,529 facilities was obtained and from this 2,275 facilities were selected to participate in the study. Facilities needed to provide care to elders 60 or over and a valid mailing address was needed. Facilities included homes for the aged, congregate homes, and adult foster care homes. A cross-sectional census survey was mailed to the administrators after IRB approval. The survey consisted of four pages including 24 close-ended questions regarding demographics, oral health barriers, resources, policies and procedures, and administrator knowledge and perceptions. Pilot testing and refinement of the survey was completed to strengthen the research. Surveys returned were given identification numbers to ensure anonymity. Of the 2,275 surveys mailed, 508 were completed and returned, equaling a 22% return rate.

Findings of the study showed that 11% of facilities had a written oral plan of care, but only 20% of these plans were written by a dental professional. Eighteen percent had a dentist perform an initial oral examination on clients on admission. Thirty percent had staff members whose primary responsibility was to monitor the resident's mouths and record potential problems. Fifty-seven percent had regular staff that were responsible for the oral care of the residents. Resident oral healthcare characteristics were recorded. Fifty- two percent of residents had received dental treatment beyond the initial exam in the past year. Twenty-five percent needed some assistance with oral care while 17% needed full assistance.

Administrative perception and satisfaction was recorded. Ninety percent recognized dental problems could lead to serious illnesses and 80% were satisfied with

oral care given to the residents. Barriers that were considered significant included finances and willingness of a dental professional to provide care at the facility. Thoughts on improving care included obtaining more resources for free or low cost care and free training for the staff of the facilities.

The authors concluded from this research that the status of oral care given to residents is influenced by policy, availability of resources, and the knowledge and perception of decision makers. There was little to no regulation of care at the different alternative long-term care facilities and most of the care given was not meeting the standard of needs. Administrative perceptions on adequate care were not consistent with dental professional standards and the economic downturn had created more barriers to care. The authors concluded change needs to be made in funding and collaboration in order for the current situation to improve. Weaknesses of this study were identified by the authors as having a low response rate which increases the potential for non-response bias and which can lower external validity.

Willumsen, Karlsen, Naess, and Bjorntvedt (2012) conducted a study to research if the barriers to good oral hygiene in nursing homes stem from the nurses or the patients. The purpose of their study was to explore if the resident's oral hygiene was acceptable and to explore observations and nurses' assessments concerning the need for improvements in the residents oral hygiene. They questioned whether the barriers to improvement in the oral hygiene of the residents were related to:

- difficulties with the patient, including resistance to oral care;
- knowledge and attitudes of the nurses regarding oral health care; and
- organization of oral health routines.

The study included a questionnaire to the nurses and a clinical examination of the elderly nursing home residents. A dental hygienist performed a screening of the residents. During this time, 674 nurses, including registered nurses, auxiliary nurses, and the nursing aides, were invited to participate by completing the questionnaire. The examination of the elderly residents included sex, age, number of teeth, cognitive status, mucosal plaque index, and amount of resistance to receiving oral care by caregivers of the facility. The questionnaire included information such as sex and age of the nurses, educational level, experience working in nursing home, evaluation of patient's resistance to oral care, and knowledge and attitudes towards oral health care. The data was analyzed using PASW edition 16.0, chi-square test, and Mann-Whitney test.

Results of the study showed that 35.6% of the residents had mild dementia, 40.6% had moderate to severe dementia, 73.5% received help with tooth cleaning, and 45.3% resisted help with their oral care some or all of the time. Forty-one percent of residents had an unacceptable mucosal plaque index. No significant difference was found between patients who had help with oral care compared to those that completed their own oral care. Ninety-seven percent of nurses perceived resistance to oral care to be a barrier. Significantly more registered nurses than auxiliary nurses and aides considered oral hygiene to be considered in their duties. Only 22.8% of registered nurses and 18.2% of aides thought they always had enough knowledge on providing oral care.

The researchers concluded that 40% of the elderly residents had unacceptable oral hygiene, thus oral hygiene in this population needs to be improved. Resistant behavior of many of the residents proved to be a major barrier for the nurses in providing proper oral care. This led the researchers to question whether the use of force in providing oral care

would benefit the patients or if it would violate their principle of autonomy. They concluded that further research should focus on procedures to improve oral hygiene in resistant residents. Also, improving the oral care of residents in nursing facilities requires an increase in education, organizational strategies, and improvements in methods and routines to cope with resistant individuals.

Three of the studies reviewed showed that few of the facilities required an oral examination upon admittance into the facility. Many caregivers found oral care to be repulsive and some were also embarrassed at performing oral hygiene assistance on the residents. However, most of the participants viewed the oral health of the residents to be important and many were aware that it was part of their responsibility to provide oral care and assistance. Because the demand from clients for oral care is often low due to the belief that they have “no problems”, it is up to the caregivers to promote these services (Nitschke et al., 2010).

Very few of the facilities had a written plan of care to specify what oral care procedures needed to be done on a daily basis. A written plan of care can help identify specific tasks that need to be performed, for how long, and how often. Having a facility policy regarding oral health care given to residents can inform the caregivers of what is expected of them so proper oral care can be given daily.

Improving the Oral Care of Long-term Care Facility Residents

Once barriers are addressed and policies are understood, the next obstacle to overcome is how to improve the oral care of residents in long-term care facilities. Barriers need to be identified and different ways to overcome them need to be addressed and implemented. Organizational policies and practices need to be researched and

identified, as well as policies regulating oral care at the state and federal level. Medical determinants, including diseases and disabilities, and social determinants, including access to care and socioeconomic factors, also need to be addressed (Dharamsi et al., 2009).The following studies provide more information on the quality of oral care residents are receiving in long-term care facilities and ways to improve the care and assistance given by caregivers.

Ferreira de Mello and Padilha (2009) conducted a qualitative study of oral health care in private and small long-term care facilities in Porto Alegreo, Brazil. The purpose of their study was to identify the characteristics of the oral care care given to residents of long-term care facilities by smaller institutions. A sample size of 12 facilities with less than 20 elderly residents was randomly selected. The managers of each facility and a total of 36 caregivers were interviewed for the study. The authors interviewed only caregivers who actually performed oral care assistance within a 24 hour period.

Semi-structured interviews were used to gain information from each participant and answers were recorded and transcribed. Data were analyzed using content analysis. Three different categories were used to organize data and included: responsibility for oral care, oral care routines, and difficulty with daily routines.

The authors found that there were a lack of nurses in many of the facilities and that the number of nurses and their capabilities sometimes did not meet legal requirements. There was an absence of dental professionals to offer dental screenings and treatment to the elder residents of the long-term care facilities. One facility did not have any rules regarding the oral care provided to the residents, and there was no mention of a program of oral health among the facilities. Rules and standards of providing oral care

assistance were not clearly defined. Most of the supervisors felt that the residents and their family members were mainly responsible for the oral health of each resident. Many participants believed they were not responsible for making sure residents received dental treatment.

Barriers perceived by the participants to providing oral care to residents included finances, lack of family cooperation, difficulty with the residents, and ill-informed concepts of oral health. The most common obstacle identified was the lack of co-operation by the elderly residents. Ferreira de Mello and Padilha (2009) concluded from this study that oral care provided in the facilities did not follow any kind of protocol or standard. Difficulties present in smaller long-term care facilities consisted of the high cost of dental professionals, lack of cooperation, the oral and general health of the residents, and lack of time to provide oral assistance duties. In order to improve the oral care given to the residents by the caregivers, strong relationships between the caregivers, managers, residents, and their families needed to be developed. Caregivers should be aware of obstacles to providing care and how to overcome them, and oral care could be improved by a continuous evaluation process.

This study had several strengths and weaknesses. Facilities were randomly chosen in order to decrease bias. Information obtained from interviews was recorded and transcribed, although the authors did not state how many people transcribed the information to increase validity and reliability. A weakness was that no controls were used for this study because it was qualitative in nature. The sample size was smaller and no interventions were developed to help improve the oral care given to the residents of the facilities studied.

Ferreira de Mello, Erdmann, and Brondani (2010) completed another study that investigated the oral health care of elderly people residing in long-term care facilities in Brazil. The purpose of their study was to present a multidimensional theoretical model to understand oral health care practices of the elderly living in these facilities. Four facilities were selected for this study which staffed 52 members and housed 125 residents. Two sets of participants were selected. The first set included those directly involved with resident care such as the elderly residents, nurse, aides, technicians, and managers. The second set consisted of dentists in the public health sector, managers of public health, and members of support groups for the elderly in long-term care. In total, 19 participants were selected to receive one 45 minute interview. Grounded theory was used for this study and comparative analysis was used to code information and organize the codes into components, then to subcategories, and finally to develop a core category.

The information was placed into seven sub-categories, including:

- Meaning of oral health;
- Oral health conditions;
- Oral health and the aging process;
- Interactions in oral care for the elderly;
- Managing oral care in the elderly;
- Including care in political-organizational dimensions; and
- Conjecturing better practices.

All sub-categories led the researchers to develop a core category of promoting oral health care for the elderly in long-term care facilities.

The authors identified two stages needed for those providing care to the elderly in

long-term care facilities: the promotion of oral health care and the need for continuous improvement. They found that different meanings were given to oral health by the participants and ranged from it being a broader aspect of health to it being associated with discomfort or pain by the elderly residents, with many variations in-between. Barriers associated with oral health care included forgetfulness, omission, lack of delegating tasks, lack of supplies and resources, and negligent behavior. No health promotion plan existed in the facilities. Ferreira de Mello, Erdmann, and Brondani (2010) claim that the ultimate goal discovered from their research is to improve care practices to improve the oral health of the elderly residents of the long-term care facilities.

Although this research provided good qualitative information, many details of the study were not included in this article. The authors did not state who performed the interview or the analysis of information, which can affect the validity of the study. They did not state whether interviews were recorded or transcribed or which type of interviewing process was used. It was not stated if informed consent was obtained and the sample size was rather small. However, information in the results and discussion sections provided important information to base future research and can be used to develop and implement education programs directed at their ultimate goal of improving oral care practices for the elderly in long-term care facilities.

Thorne, Kazanjian, and MacEntee (2001) researched the implications of organizational culture on oral health in long-term care. The purpose of their study was to extend their understanding of the problem of oral health among institutionalized elderly. The original study consisted of 117 participants from 12 different facilities offering a variety of oral health service options. These options included on-site dental facilities, a

staff of dental professionals, and fee-for-service vs salary paid dental staff. Participants included residents, family members, aides, nurses, dental staff, and the administrators. Data collection methods to obtain information included documentary analysis, clinical oral exams, observation, and individual interviews. After accessing the data, the authors decided on secondary analysis to reinterpret the data base to see why certain oral health educational programs utilized in the facilities worked and why some did not. The research question used to guide this secondary analysis was: How do stakeholders in long-term care facilities explain the effectiveness or ineffectiveness of their dental services?

The main findings of this analysis were that there were three central pillars needed for effective programs; they included dentistry, oral hygiene, and assessment. An organized culture needs to be present among the facilities, and administrators need to be able to control a caring environment within the facility. The presence of a “champion” is important to promote the oral health of the residents and motivate staff members to provide oral care. Organizational values are also essential in creating and implementing effective programs.

The authors concluded from their research that factors such as size, administrative structure, physical space, and resources play a role in the quality of care that is given to the residents. However, these are all mediated by the influence of organized culture. Comprehensive models are required to understand how and why care is delivered. Simply educating the staff and implementing guidelines may not be enough to produce long-lasting benefits in providing oral care. Educational programs need to promote the quality of life of the elderly residents and support interactions that specify duties among the staff.

Three components are needed for a successful educational program: shared responsibility among the caregivers staffed in the facilities, administrator support, and a shared awareness of the importance of oral health as it is related to quality of life. When educational programs are developed, they should focus at the level of the organization rather than the individual clinical case. This study offered valuable information that can be used when developing and implementing an oral health education program in future research.

Dharmasi, Jivani, Dean, and Wyatt (2009) studied the knowledge, attitudes, and practices of long-term care staff regarding oral care for frail elders. The research was conducted for three purposes:

- Examine the impact of the Geriatric Dentistry Program on the level of knowledge, attitudes, and practices of care givers regarding daily oral care;
- Identify enablers and barriers; and
- Assess self-perceptions of oral health of the caregivers.

Two hundred and eleven product audits were completed twice in the resident's rooms to see if residents had bedside mouth cards, essential dental products, and proper labeling/storage of these products. Ninety caregivers were given surveys consisting of seven multiple choice questions, 17 Likert items, and ten open ended questions. The first draft was pre-tested and revised as needed. Twenty six caregivers with previous experience in the Geriatric Dentistry Program were interviewed using semi-structured, open ended format. Surveys and audits were analyzed with descriptive statistics in SPSS. Interviews were recorded, transcribed, and organized with thematic analysis.

Eighty percent of caregivers surveyed felt it was their duty to provide mouth care,

but identified barriers as a heavy workload and challenging residents that often hindered the care that was given. Seventy-seven percent thought that their knowledge on oral health was adequate, but a knowledge gap was evident during the study. Seventy percent thought mouth care cards were important, but only 22% of residents had them at their bedside. Only 29% of caregivers agreed that residents should receive oral care daily. Twenty-five percent of residents did not have a toothbrush or toothpaste, 40% had products kept in unhygienic locations, and 90% did not have their products labeled. Many caregivers interviewed stated that they felt mandatory attendance of the education program would be required to address gaps in knowledge and that this should be provided when they are not attending patients.

Reinforcing factors were found to be incentives, a non-threatening learning environment, better accountability, and knowledge of the link between oral health and quality of life. Enabling factors that hindered patient care included gaps in knowledge, a lack of time, and poor labeling and storage difficulties. The authors concluded from their research that residents of long-term care facilities are not getting proper oral care on a daily basis. Caregivers need to be educated properly on the importance of oral health and how to provide proper care. Educational programs should be primarily hands-on to enable learning, and caregivers should obtain achievable and long-term goals. Participants of the educational programs should be able to engage actively in decisions and be able to provide feedback with one another. Hands on training with challenging patients should be addressed and demonstrated to overcome this obstacle.

Gil-Montoya, Ferriera de Mello, and Lopez (2006) studied an oral health protocol for the dependent institutionalized elderly. The objective of their study was to develop a

protocol for the elderly patients admitted to an acute care hospital with a long-stay unit after studying the oral health status and cooperation level of the patients. They also studied the dental practices existing at the center to help develop the protocol.

The study was conducted in Spain in a facility that housed patients with acute or chronic debilitating illnesses. Information was collected from 114 patients that were 65 years of age or older. Information collected included demographics, cause of admission, medications taken, status of teeth and oral mucosa, presence of prostheses, oral dryness, and oral hygiene conditions. Dental practices carried out by the nursing staff were observed and recorded. The dental examinations were performed by one examiner and patient cooperation was recorded. A questionnaire was also given to the nursing staff to assess existing oral care practices and the difficulties the staff faced while implementing them. Based on the results obtained, oral health care guidelines were created and a staff meeting was held to unify oral care criteria.

The oral health protocol developed for the staff aimed at systemizing the oral care given to the patients. It included regular oral examinations and daily cleaning of the teeth or prostheses, specifying the staff, equipment to be used, frequency, timing, and duration, An oral health history form was to be completed at each patient assessment during admission into the facility. If staff identified a need for immediate dental care, they were to report it to the medical staff and have the patient transported to get dental care.

Of the patients studied, 41.2% were edentulous but only 13.2% wore prostheses. Half of those with natural teeth had inflamed gingiva and ten had oral mucosal disorders. The nursing staff questionnaire was completed by 45 licensed nurses and ten registered nurses. Findings showed that only 34% received specific information on oral care for the

elderly. Difficulties faced by the staff when providing oral care included lack of time, little or no patient cooperation, and lack of knowledge and experience. The most frequently observed obstacle was that caregivers did not consider oral health to be a priority of their daily hygiene responsibilities to the patients.

This study reinforced that it must be emphasized to care providers that preventive procedures such as brushing and flossing teeth can reduce high-cost outcomes caused by poor oral care. Training should be given on oral health issues and their importance, and staff should have guidelines to follow for providing oral care. This study provided information on developing a comprehensive protocol for oral health care implementation. However, it did not evaluate the effect the protocol had on the care given to the patients by the nursing staff.

The five studies reviewed offered relevant information regarding ways that oral health can be improved for the resident's of long-term care facilities. Results from the studies showed that often there were not enough caregivers available to provide the amount of oral hygiene attention needed from the residents. Most facilities did not have a program of oral health, and rules and standards were not clearly defined. The studies addressed barriers that caregivers face when providing oral care including: lack of supplies, resources, and funding; inappropriate delegation of tasks; heavy workload, and challenging residents. However, solutions were not created and implemented based on current state and federal rules and regulations or facility polices.

Thorne, Kazanjian, and MacEntee (2001) concluded that the caregivers need a "leader" in oral care, someone who will encourage, motivate, and educate them to provide proper oral care to the residents. This leader can be a dental professional or

someone with authority and knowledge of oral health. They also recommended that duties should be written out for the caregivers in a written plan. The main concept that these studies emphasized that is crucial when developing a solution to improving oral health is that it should make the caregivers share responsibilities and be aware of expected duties, share awareness of oral health, and have administrative support.

Proposed Solutions to Oral Health

After policies, barriers, and other factors have been identified that affect the oral care given to residents, an intervention can begin. Studies have shown that many caregivers are not thoroughly educated on oral health and oral hygiene practices, and that the majority of caregivers would like to receive more knowledge and training by dental health professionals (Harvey & Needs, 2002). The following studies have researched oral health programs as a proposed solution to improving the oral health of the residents of long-term care facilities.

Van der Putten, Visschere, Schols, Baat, and Vanobbergen (2010) researched supervised versus non-supervised implementation of an oral health care guideline in residential care homes. The aim of their study was to compare a supervised versus a non-supervised implementation of the guideline “oral health care in care homes for the elderly”. Five research questions were developed in comparing these two types of implementations.

- Is there any difference between oral hygiene levels of the elderly residents?
- Is there any difference in the attitude and knowledge level of nurses and aides?
- Is there any difference in impact on the outcome variables of questions one and two between homes in the Netherlands compared to Belgium?

- Which factors are stimulating or inhibiting the implementation of the guidelines?
- What is the compliance of and which barriers are perceived by the nurses and their aides?

The study was a cluster randomized intervention trial. A random sample of 12 care homes in the Netherlands and 12 care homes in Belgium were randomly allocated to an intervention or control group. Thirty residents in each of the 24 homes were monitored during a six month period. The study was supervised and monitored by two of the authors with the primary outcome variable being the oral hygiene level of the participating residents. Those in the intervention group received an oral presentation on guidelines, daily oral health protocol, and the supervised implementation project. They were also given a two hour lecture, three hours of practical education, and a one and a half hour theoretical and executive education session.

Research data in both the intervention and control group included an institution, resident, and staff questionnaire, oral examination of residents, and process evaluation. All research data was analyzed using MANOVA. A flowchart of the study protocol was developed and presented in the research article for clarification. The methods and design section of this study were very detailed and explanatory, but the specific results of the study and the process evaluation were not addressed. The main objective of this implementation project was to improve the oral health knowledge and oral care attitudes and skills of the nurses and aides. The authors stated that the guidelines used in this study provided an easy to use daily oral care protocol which can enable the nurses and aides to adhere to instructions and recommendations more easily.

Wardh, Hallberg, Berggren, Anderson, and Sorensen (2003) completed a one year

follow up of oral care aides at a nursing facility. The purpose of their study was to investigate how the oral care aides had performed their new duties regarding oral healthcare after an oral healthcare program was completed. The study population included two nursing assistants and two nursing aides who were selected to be trained as oral care aides in the facility. The initial training given to the aides included auscultation training one day per week for four weeks in a dental clinic as well as a three hour oral healthcare education session.

Ninety minute personal interviews were used as the research method for this study. An outline of their function as aides was used as a guideline to direct the interview. The data was analyzed by the interviewer using a three step procedure including open coding, axial coding, and selective coding. A model of the oral care aides' experiences of expert competence was created with the sub-categories courage, coping with reality, confirmation, and empathy.

The oral care aides considered themselves to be competent in providing oral care six months after receiving training. The use of specific aides to assist in oral care was rated successful, but few of the facilities aides were interested in this position (Wardh et al., 2003). The authors stated that it is important for staff members to be sure of their role and feel they are able to communicate their beliefs. Professional support is effective in changing clinical practice in nursing facilities, include oral care. Creating a specific task force of oral care aides in the facilities seemed to be effective in increasing oral care given to residents. However, dental health education has only shown limited success in changing attitudes towards dental issues and short term increases in knowledge.

Gammack and Pulisetty (2009) studied the impact of educating caregivers on oral

health and its effect on the improvement of oral care delivery in long-term care. The purpose of their study was to assess the quality of oral care given to residents of long-term care facilities in order to determine if an oral care education program for the staff would improve the quality of oral care given to the residents. Their study was a prospective, single blind, observational study.

Twenty eight staff members from two nursing homes participated in the study. They each were observed two weeks prior to the educational program during their oral care routines. Activity observed included oral surfaces cleaned, cleaning time, oral supplies used, denture care, flossing, mouth rinsing, problems noted, and clean gloves worn. Participants were also observed 4-6 weeks after the educational program using the same criteria. Only nine of the 29 participants attended the facility-wide 30 minute presentation, which included a lecture, demonstrations, and hands-on training. The presentation was given by a clinical, research-experienced dental hygienist. Each participant received educational materials and oral care supplies after the presentation.

Findings showed that 2.4 minutes of oral care were provided for the residents prior to the educational program, while 2.0 minutes were provided after. Less than 20% of residents had tongue care provided and only one resident received flossing. One third of residents were given a mouth rinse and one third of caregivers did not use gloves while providing care. Of those with dentures, only half received both denture and oral cavity cleaning. There were no significant changes in results from the pre-observation compared to the post-observation.

Research does not consistently demonstrate a benefit of a staff oral care education program and its effects on the oral care given to residents of long-term care facilities. The

reason no significant improvement was seen in this study could be due to the fact that there was insufficient exposure to the intervention, unmeasured barriers, and a lack of supplies. Future studies need to be completed to further test the effect of an oral care educational program on the oral care that resident's receive. According to Gammick and Pulisetty (2009), standards of care must first be established and methods of measuring and monitoring need to be developed.

This study did not show significant improvement with the educational program that was used. A different educational program needs to be developed and tested to see if different results improved outcomes. Inter-rater reliability was strong for this study, but participation was low, which could have influenced the results of the study.

Isaksson, Paulsson, Fridlund, and Nederfors (2000) evaluated the clinical oral health outcome in residents of special housing facilities after their caregivers had undergone an oral care educational program. One hundred and seventy residents were given an oral examination before the intervention and three to four months after the educational program was offered. The oral examination was completed by an individual dentist who calibrated for the study. The different items in the oral examination included: dental status, oral mucosal status, oral hygiene status, mucosal index, presence of dry mouth, and treatment index. The oral health program was offered to the nursing personnel of the facilities. It focused on knowledge about a healthy oral cavity and was presented by a specially trained hygienist in a four hour session.

Improvement in the oral health of the residents was observed after the educational program based on color changes of the gingiva, plaque index, mucosal index, and prosthetic hygiene. The authors concluded that a close collaboration between the

nursing and dental professionals is mandatory in order to improve the oral care given to the residents. They recommended further research concerning the attitudes of the nursing personnel regarding providing oral care as well as evaluating the long-term effect of the educational programs. More information could have been presented in this article to explain details about the methods involved with the study. The study did not include information on how many nursing personnel participated in the educational program, which could have affected the results of the oral examinations given to the residents after the program was completed.

Frenkel, Harvey, and Needs (2002) assessed the effect of caregiver's oral health care education by measuring knowledge and attitude scores and the client's oral health outcomes. A randomized, controlled trial was completed which included self-administered questionnaires to 322 caregivers. The questionnaire consisted of 26 true - false questions, 25 5-point Likert Scale questions, and open-ended questions to obtain qualitative data. The questionnaire was given to the caregivers employed in 20 different facilities. Caregivers in 11 of these facilities were randomly chosen to receive the intervention after it was piloted in three other facilities. A health promoter presented the educational program two months after baseline data was obtained. Each session was one hour and included oral health skills demonstrated on teaching aides and manikins. A book on oral health was given to each participant of the intervention. The same questionnaire used for baseline data was given to the participants one month after the intervention and six months after the intervention. After data was collected, the control groups were also given the oral health educational program and booklet.

The response rates to the questionnaires were 80.5% for baseline data, 81.1% for

the questionnaire given one month after the intervention, and 77.2% for the questionnaire given six months after the intervention. Two thirds of the intervention group attended the educational program. Findings from the questionnaires showed that 16% of caregivers felt comfortable brushing the resident's teeth, 65% believed that they were responsible for the client's oral health, and 40% thought they could help prevent oral hygiene related disease. The intervention program raised awareness of cross-infection, improved knowledge that there is higher risk for caries in the elderly, there is a need for routine oral exams, and that it is important to brush dentures. The majority of the participants felt more confident in providing oral health care after the program.

The authors concluded that the oral care educational program improved the knowledge and attitudes of the caregivers. They believed that periodic enforcement, preferably annually, is needed for the caregivers of the facilities in order to improve the oral health of the residents. Also, the knowledge and attitudes of the caregivers needs to be addressed and if needed, changed, in order to obtain behavioral change. Future research is needed to find ways to address obstacles to providing intra-oral care and the success of this program should be built upon in future studies.

Due to the community setting of the research, internal validity and generalization were high. The sample size was large and the dropout rate of participants was low. The intervention was given at the facilities which caused interruptions to care provided to the residents. The number of those attending the intervention may have been greater if it was not during times when the participants were tending to the residents.

Wyatt, So, Williams, Mithani, Zed, and Yen (2006) studied the development, implementation, utilization, and outcomes of a comprehensive dental program for older

adults residing in long-term care facilities. The purpose of their study was to document the planning, implementation, utilization, and outcomes of the University of British Columbia's Geriatric Dentistry Program with the emphasis on the dental treatment needs of patients in their first year of operation. The goal of the geriatric dentistry program was to provide access to dental services to all elderly residents residing in Providence Health Care long-term care facilities.

The program required residents be given an oral health assessment within one month of admission and yearly thereafter. A dental hygienist educated the staff of the long-term care facilities in daily mouth care and educational materials were provided to the staff. Oral hygiene products were included in the facility’s supply inventory and included a fluoride mouth rinse, toothpaste, toothbrush, inter-proximal brush, dental floss, water-based oral lubricant, denture brush and container, and foam mouth prop.

Of the 894 residents initially assessed, 564 were re-examined one year later. The dentition, caries, and periodontal status of most of these patients were similar at baseline compared to one year later. The dentistry program achieved its goal of providing access to dental services, but only one quarter of the residents received treatment. The authors stated that further analysis is needed to explain why one third of the residents with oral disorders were not recommended for treatment. Observed changes in oral health status might have been affected by inter and intra-examiner inconsistencies because assessments were not calibrated or standardized. Even though there was not much change in oral conditions of the residents, the dentistry program was seen by staff as valuable. Because so few residents used the program for treatment, the authors claim that the emphasis of the program should be placed on prevention of disease rather than treatment.

Of the research reviewed, two studies showed that oral care programs were successful and two showed that no significant change resulted from the program. Gammick and Pulisetty (2009) did not produce outcomes that showed a significant improvement in the oral health of the residents after the intervention as compared to prior to the intervention. However, few of the participants attended the educational program. If more caregivers had attended the educational program, the probability that the oral health of residents would improve would be higher.

Isaksson, Paulsson, Fridlund, and Nederfors (2000) had a better response to their educational program and had successful results from the intervention. They found that the oral health of the residents did improve after the educational program and the caregivers felt more confident in providing oral care to the elderly residents. Further research needs to be performed on the effects of oral health programs on the oral health of residents of long-term care facilities. Many of the studies existing today are several years old, so more recent research and conclusions are needed to address this situation.

Policies, Rules, and Regulations on Oral Health

The Omnibus Budget Reconciliation Act of 1987 (OBRA) helped establish requirements for nursing facilities related to dental services and periodic evaluations of health including oral health (Guay, 2005). Long-term care facilities that receive Medicare or Medicaid funds must provide dental care and periodically assess the oral health of the residents using the Minimum Data Set (MDS). However, the American Dental Association and Special Care Dentistry believe the MDS to be insufficient at appraising the oral health of residents of long-term care facilities. The individual that completes the oral health section of the MDS 3.0 does not have to be a dental

professional.

The parameters for oral health data are found in Section L of the MDS 3.0 (Centers for Medicare and Medicaid Services, 2006) and include the following.

- Broken or loosely fitting denture or partial
- No natural teeth or tooth fragments
- Abnormal mouth tissue
- Obvious cavity or broken natural teeth
- Inflamed or bleeding gums or loose natural teeth
- Mouth or facial pain
- None of the above
- Unable to examine.

The Nursing Home Reform Law was enacted by OBRA. The final regulations concerning dental services provided in long-term care facilities included assisting residents in obtaining routine and emergency dental care and providing dental services by either hiring a dentist to be on the staff or contracting with a dentist (University of Michigan, n.d.) Facilities must also assist the residents in making appointments and arranging for transportation to a dental office, and must promptly refer a resident with lost or damaged dentures to a dentist.

California regulations exist concerning the dental needs of elderly residents of long-term care facilities. Title 22 California Code of Regulations Division 5 states that there are seven general requirements for dental services.

- Written policies and procedures shall be developed and maintained by the person responsible for the service in consultation with other appropriate health

professionals and administration. Policies shall be approved by the governing body. Procedures shall be approved by the administration and medical staff where such is appropriate.

- The responsibility and the accountability of the dental service to the medical staff and administration shall be defined.
- A physician member of the medical staff shall be responsible for the care of any medical problem arising during the hospitalization of dental patients.
- There shall be a well-defined plan for oral health care, based on patient need, the size of the hospital and the type of service provided.
- There shall be a well-organized plan for emergency dental care.
- There shall be a record of all dental services provided to the patient and this shall be made a part of the patient's medical record.
- Periodically, an appropriate committee of the medical staff shall evaluate the services provided and make appropriate recommendations to the executive committee of the medical staff and administration.

Given that policies exist for some long-term care settings, it is important to determine the extent to which these policies are upheld and the impact they have on the oral health of the residents. Unfortunately, research specific to this topic has not been identified.

Conclusion

Most of the elderly residents residing in long-term care facilities suffer from poor oral health, which in turn can affect their systemic health and well-being. Many suffer from either physical or cognitive disorders and rely on assistance from their caregivers

(nurses and aides) for their oral hygiene care. However, the caregivers are not providing the quantity and quality of care that is needed due to a variety of reasons including a lack of time, supplies, resources, finances, and knowledge (Dharmasi et al., 2009; Smith et al., 2010).

Few, if any, qualitative studies have been conducted that address all of the key staff members of long-term care facilities, including the administrators, nursing directors, nurses, and aides. By interviewing different staff members that have different roles in the facility, a comprehensive understanding can be obtained concerning why residents of long-term care facilities are not getting the oral care they require. Few studies have incorporated rules, policies, and regulations on a federal, state, and facility level into their research. It is important to use these topics as a foundation in the research and to make sure that staff members are aware of and abide by them. By interviewing the key staff members on their knowledge and interpretation of rules, regulations, and policies, a logic model can be created to offer practical solutions to improve the oral care of elderly residents in long-term care facilities. Thus, the purpose of this study is to propose solutions to overcome barriers and address the policies, rules, and regulations that influence the conduct of oral health care in long-term care facilities.

CHAPTER III

Methods

Introduction

A preliminary pilot research study was developed, implemented, and evaluated to answer the research questions described in chapter one. The study was designed to correlate with the purpose of the study to propose solutions to overcome barriers and to address the policies, rules, and regulations that influence the conduct of oral health care in long-term care facilities. This section will include information describing how the research was conducted and consists of the design, description of settings, participants, data collection, proposed statistical analysis, and the assumptions and limitations of the study.

Design

This study employed a qualitative design. The design of the study was influenced by the approach of grounded theory. The intent of a grounded theory study is to move beyond description and discover an abstract analytical scheme of a process (Creswell, 2007). Creswell (2007) also explains that in grounded theory, participants would have experienced the process and the development of a theory might help explain practice and provide a framework for future research.

Participants were selected from three different long-term care facilities within Southern California. Each facility shared similar characteristics. Approval was first granted by the Human Subjects Committee of Idaho State University (#4076). The following research questions were used to guide the development of this study.

1. What are the perceived solutions to overcoming barriers in order to provide a high

standard of oral care for the geriatric residents of the long-term care facilities?

2. How do the administrative policies of the long-term care facilities and the government and state rules and regulations on oral care in long-term care facilities impact the delivery, utilization, and access the residents have to oral health care services?

The study consisted of individual interviews with twelve different staff members of the facilities. The different key staff members interviewed included three administrators, three supervisors/nursing directors, one registered nurse, and five nursing aides. The nursing aides and registered nurse provided direct oral care to the residents, while the nursing directors and administrators supervised this care. Participants were asked the same general, semi-structured, open-ended questions regarding their perceived barriers to providing oral care to the geriatric residents, perceived solutions to overcome these barriers, and their knowledge and acceptance of the policies, rules, and regulations regarding the standard of oral care required for the residents of the long-term care facilities.

Description of Settings

Administrators of three long-term care facilities were contacted and asked for consent to conduct the study with staff members of their facility. The facilities were small to medium facilities that had less than 100 beds each. Facilities included residents that are housed and include residents that are primarily given care on a long-term basis. Each interview took place at the staff member's facility of employment.

The research participants included the administrators, nursing directors, registered nurses, and nursing aides that work in the facilities. Each participant received a letter

explaining the study in detail and what was to be expected. Several delimitations exist for this study in regards to participant selection and methodology. Caregivers could only participate in the study if they were involved with some form of oral hygiene assistance to the elderly residents on a daily basis or supervise this care. Also, participants had to be employed for at least three months in the long-term care facility. That criterion was mandatory so that all participants had some level of experience and knew the expectations of the facility regarding the oral health of the residents.

Each participant had the option of discontinuing the study at any time for any reason and was informed of this prior to consenting to the interview. Informed consent was obtained from each participant prior to the study.

Data Collection

The interviews included ten main questions and several sub-questions that addressed the information sought in the research questions. The interviewer used these questions to guide the session. Each interview was audio recorded and transcribed at a later time by an outside source. Care was taken to encourage all participants to answer honestly and thoroughly. The interview questions appear in Appendix A.

Proposed Statistical Analysis

Data analysis was employed after data collection has been obtained. To analyze the data collected in this thesis study, a general inductive analysis approach was used. Inductive analysis refers to “approaches that primarily uses detailed readings of raw data to derive concepts, themes, or a model through interpretations made from the raw data by an evaluator or researcher” (Thomas, 2006). The primary purpose of this approach was to allow findings to emerge from the frequent or significant themes found in the raw data.

The following procedures, as explained by Thomas (2006), are used for the inductive analysis of qualitative data.

- Preparation of raw data files
- Close reading of text
- Creation of categories
- Overlapping coding and uncoded text
- Continued revision and refinement of category system

The intended outcome of this process was to create a small number of summary categories that the researcher believed were key aspects of the themes found in the raw data and were assessed to be the most important themes following the research objectives (Thomas, 2006).

Validating the results is an essential component of data analysis in qualitative research (Johnson 2006). The strategies used to promote qualitative research validity for this study were triangulation and low-inference descriptors. Triangulation involves analyzing a research question from multiple perspectives (Guion, Diehl, & McDonald, 2002). Triangulation uses different sources of information in order to increase the validity of the study. Data triangulation was used for this study and was achieved by interviewing different staff members that have different roles in the long-term care facilities. The second method of validating research is by the use of low-inference descriptors, which are the use of descriptions phrased very closely to the research participant's accounts, such as direct quotations (Johnson, 2006). This was achieved by including direct quotations from the interviewees in the research study.

Limitations

Several limitations exist for this thesis study. First, the study was conducted using purposeful sampling rather than random sampling. Another limitation was volunteers of the study may be more interested in the oral health of the residents than the general population of staff of long-term care facility caregivers as they volunteered their time while others did not. Last, the study was limited to small facilities so findings may not be representative of larger, state -run facilities.

Summary

This research study was qualitative in nature and used individual interviews to obtain information that can be used to answer the research questions identified in chapter one. The grounded theory approach was used to guide this study. The research study was developed and implemented to answer the research questions proposed and findings correlate with the purpose of the study, which is to propose solutions to overcome barriers and address the policies, rules, and regulations that influence the conduct of oral health care in long-term care facilities. The manuscript created for this thesis will be submitted to the Journal of Dental Hygiene. Guidelines for manuscript preparation appear in Appendix B.

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APPENDIX A

INTERVIEW PROTOCOL AND QUESTIONS

Time of Interview:

Date:

Place:

Guidelines: Please try and respond to each question openly and honestly

Questions:

- How would you each describe your role in this facility?

- How would you describe your influence on the oral health of the elderly residents in this facility?

- How would you describe the oral health of the residents?

- How would you rate the oral care given to the residents?

- What barriers do you face that may inhibit the oral care the residents receive?
    - How do you think these can be overcome?

- What barriers do you feel other staff members face when providing oral care to the elderly residents of the facility?
    - How do you think these could be overcome?
- What barriers do you feel could be easily overcome and which do you feel could not be overcome?
- Do you have any ideas on how the oral health of the residents could be improved?
- What policies does your facility have on oral care that you are aware of?
    - How do you abide by these policies on an everyday basis?
- What state or federal regulations on the oral care given to residents of long-term care facilities are you aware of?
    - If you are not aware of any, why do you think this is?

(Thank each individual for participating in the interview. Assure them of confidentiality of responses.)

APPENDIX B

JOURNAL OF DENTAL HYGIENE MANUSCRIPT GUIDELINES

Author Guidelines

Starting with the Summer 2004 issue, the Journal of Dental Hygiene has been published online. The online format provides searching capabilities to Journal readers by establishing a link to dental hygiene research indexed through the National Library of Medicine and Medline. Click here to read the Journal of Dental Hygiene Author Guidelineson the ADHA site. Click here to learn more about NDHRA Statements.

Manuscripts are evaluated for quality, depth and significance of research, comprehensive evaluation of the available literature and the expertise of the author(s) in the given subject. Content must provide new information and be of general importance to dental hygiene. The Journal discourages submitting more than one article on related aspects of the same research. If multiple papers are submitted from the same project, significant differences in the papers must be evident.

Journal of Dental Hygiene - Author Guidelines

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Starting with the Summer 2004 issue, the *Journal* has been published online. The online format provides searching capabilities to *Journal* readers by establishing a link to dental hygiene research indexed through the National Library of Medicine and Medline.

Manuscript Requirements

Manuscripts are evaluated for quality, depth and significance of research, comprehensive evaluation of the available literature and the expertise of the author(s) in the given subject. Content must provide new information and be of general importance to dental hygiene. The *Journal* discourages submitting more than one article on related aspects of the same research. If multiple papers are submitted from the same project, significant differences in the papers must be evident.

Originality

Manuscripts must be original, unpublished, owned by the author and not submitted elsewhere. Authors are responsible for obtaining permission to use any materials (tables, charts, photographs, etc.) that are owned by others. Written permission to reprint material must be secured from the copyright owner and sent to ADHA when the manuscript is accepted for publication. The letter requesting permission must specifically state the original source, using wording stipulated by the grantor.

Disclosure

Authors are obligated to identify any actual or potential conflict of interest in publishing the manuscript. This includes association with a company that produces, distributes or markets any products mentioned, or with funding provided to help prepare the manuscript. Disclosures should appear at the beginning of the manuscript.

Manuscript Categories

The *Journal* publishes original scientific investigations, literature reviews, theoretical articles, brief reports, and special feature articles related to dental hygiene. Specific Categories of articles are as follows: Research, Critical Issues in Dental Hygiene, Innovations in Education and Technology, Literature Reviews and Short Reports. All submissions are reviewed by the editor and by members of the Editorial Review Board.

Original Research Reports – limited to 4000 words (excluding references and Tables/Figures)

Include reports of basic, behavioral, clinical and translational studies that provide new information, applications or theoretical developments. Original Research Reports include an Abstract, Introduction (including the review of the literature and ending with a statement of the study purpose), Methods and Materials, Results, Discussion and Conclusion.

Title Page: This page should include: 1) title of article, which should be concise yet informative, 2) first name, middle initial and last name of each author, with highest academic degrees, 3) each author or coauthor's job title, department and institution or place of employment if other than academic, 4) disclaimers/disclosures, if any, 5) name, address, all contact information of author responsible for correspondence about the manuscript and 6) funding sources for the project, equipment, drugs, etc.

Abstract: Approximately 250 words. Use the headings "Purpose" (purpose), "Methods" (design, subjects, procedures, measurements), "Results" (principal findings), and "Conclusion (i.e. Major conclusions.)" The abstract must be able to stand alone. References should therefore be avoided.

Keywords: Four to ten keywords should be chosen that are consistent with Medical Subject Headings (MSH) listed in Index Medicus. These key words will be used for indexing purposes. Keywords should be listed at the end of the abstract.

NDHRA: Identify how the study supports a specific topic area and related objective from the National Dental Hygiene Research Agenda. For example: This study supports the objective: Assess strategies for effective communication between the dental hygienist and the client, under Health Promotion/Disease Prevention. NDHRA statements can be found at: http://www.adha.org/downloads/Research_agenda%20-ADHA_Final_Report.pdf

Text: The body of the manuscript should be divided into sections preceded by the appropriate subheading. Major subheadings should be in capital letters at the left-hand margin. Secondary subheads should appear at the left-hand margin and be typed in upper and lower case and in bold face.

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Oral Health of Elderly Residents in Long-Term Care Facilities: A Qualitative Study Examining Barriers, Solutions, Policies, Rules, and Regulations

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Abstract

Purpose

The population group with the poorest oral health is older individuals living in long-term care facilities. Though research has identified the disparities, very little improvement in oral health status has been documented. Therefore, the purpose of this study was to identify barriers, propose solutions, and address the policies, rules, and regulations that influence the conduct of oral health care in long-term care facilities.

Methods

This preliminary pilot study employed a qualitative research design using a grounded theory approach that consisted of semi-structured interviews conducted among key staff members of three long-term care facilities. Participants included administrators (n=3), nursing supervisors (n=3), a registered nurse (n=1), and nursing aides (n=5). Interviews were audio recorded, transcribed, and analyzed using a general inductive analysis approach.

Results

Five main themes emerged through this research: the oral health of residents, oral care provided to residents, barriers to care, solutions to improving oral care, and knowledge of administrative policies and state and federal rules and regulations. Most staff members, including facility administrators, were not aware of the administrative polices and state and federal rules and regulations concerning the management of oral health care in long-term care settings.

Conclusion

Given the lack of knowledge about oral health care for residents in long term settings based on this small sample, a logic model was proposed. This model, if integrated, can provide improved collaboration and support among caregivers. Improvement in the oral health of elderly residents in long-term care facilities requires the efforts of all caregivers, administrators, and oral health professionals.

Keywords: Oral Health, Oral Hygiene, Nursing Homes, Long-Term Care, Elderly, Nursing Education

NDHRA-

This study supports the objective:

- Investigate how environmental factors influence oral health behaviors, under Health Promotion / Disease Prevention
- Identify how public policies impact the delivery, utilization, and access to oral health care services, under Health Services Research.

INTRODUCTION

Although many people experience some form of periodontal disease in their lifetime, the population group with the poorest oral health are older individuals living in long-term care facilities or those who receive care through in-home services.[1] Between 2010 and 2050, the United States is projected to experience rapid growth in the elderly population. It is anticipated the population of those 65 and older will double in the next 40 years due to the aging of the baby boomer generation.[2] The major growth of this population will affect the amount of elderly residents needing long-term care in nursing homes and other facilities. According to the National Institute of Dental and Craniofacial Research (NIDCR), the elderly residents of nursing homes are a group of individuals with significant health disparities in the area of oral health.[3]

Research has shown that there is a correlation between oral health and systemic health, and that poor oral conditions can increase the risk of developing conditions such as heart disease, stroke, and diabetes.[4, 5-9] Studies have demonstrated that there are high rates of caries, poor oral hygiene, gingivitis, periodontal disease, and dry mouth in the elderly residing in long-term care facilities.[4, 10]

The challenges faced by residents and caregivers in long-term care facilities have been investigated both nationally and internationally. Both qualitative and quantitative studies have identified oral hygiene issues including lack of assistance with tooth brushing and oral care procedures; lack of access to dental treatment due to transportations, cost, or availability of oral health professionals; caregiver's lack of knowledge in providing oral care; medical issues; language barriers, and resistant behavior of the residents. [7, 8, 11, 12]

Illustrating these issues, Ferreira de Mello and Padilha[13] conducted a qualitative study to identify the characteristics of the oral care given to residents of long-term care facilities by smaller institutions. The authors found that there was a lack of nurses in many of the facilities and that the number of nurses and their capabilities sometimes did not meet legal requirements, coupled with the absence of dental professionals to offer dental screenings and treatment to the elderly residents of the long-term care facilities. One facility did not have any rules regarding the oral care provided to the residents, and there was no mention of a program of oral health among the facilities. Rules and standards of providing oral care assistance were not clearly defined in this investigation, and most supervisors felt that the residents and their family members were mainly responsible for the oral health of each resident. Many participants believed they were not responsible for making sure residents received dental treatment. The authors concluded from this study that oral care provided in the facilities did not follow protocol or standards. Difficulties present in smaller long-term care facilities consisted of the high cost of dental professionals, lack of cooperation, the oral and general health of the residents, and lack of time to provide oral assistance duties.

Finkleman, Lawrence, and Glogauer[8] investigated the integration of dental services on the oral health of elderly residents in long-term care by using a qualitative approach. The two major themes that were identified were oral hygiene and oral discomfort, along with general health, appearance, and dental access. The residents examined complained of oral discomforts including sensitivity, dry mouth, and burning tongue. Oral hygiene issues included lack of assistance brushing and caregivers' lack of knowledge in providing oral care. Medical issues and language barriers often created oral

health difficulties and barriers. Many residents felt they did not have access to dental treatment due to transportation or expenses. The authors concluded that different institutions vary widely with respect to oral health care polices in regards to funding, management and employees. Consensus needs to be made on how to evaluate long-term care facility oral health programs. Cost effective ways needs to be found to improve the oral conditions of long-term care facilities.

Because many of the residents of long-term care facilities rely on the staff for oral care, [14] it is important for key staff members to know the administrative policies regarding oral care and the state and government regulations that exist regarding the oral health of residents. Unfortunately, research specific to this topic has not been identified. Further, few, if any, qualitative studies have been conducted that include the key staff members of long-term care facilities: administrators, nursing directors, nurses, and aides. By interviewing staff members that have different roles in the facility, a comprehensive understanding can be obtained concerning why residents of long-term care facilities are not receiving the oral care they require. Few studies have incorporated rules, policies, and regulations on a federal, state, and facility level into qualitative research. Thus, the purpose of this study was to identify barriers, propose solutions, and address the policies, rules, and regulations that influence the conduct of oral health care in long-term care facilities.

METHODS and MATERIALS

This preliminary pilot study employed a qualitative design influenced by the approach of grounded theory. Participants were selected from three long-term care facilities within Southern California which shared similar characteristics. The study

consisted of twelve individual interviews with the different staff members of the facilities including three administrators, three nursing directors, one registered nurse, and five nursing aids. The nursing aides and registered nurse provided director oral care to the residents, while the nursing directors and administrators supervised this care. Participants were asked the same general, semi-structured, open-ended questions regarding their perceived barriers to providing oral care to the geriatric residents, perceived solutions to overcome these barriers, and their knowledge and acceptance of the policies, rules, and regulations regarding the standard of oral care required for the residents of the long-term care facilities. Interview items were generated based on the literature. Approval was granted by the Human Subjects Committee of Idaho State University (#4076).

Administrators of three long-term care facilities were contacted and asked for consent to conduct the study with staff members of their facility. The facilities were small to medium facilities that had less than 100 beds each. Facilities included a nursing center facility, a memory care facility, and an assisted living facility. Each interview took place at the staff member's facility of employment. Each participant received a letter explaining the study in detail and what was to be expected. Informed consents were signed before interviews were conducted.

Several delimitations existed for this study in regards to participant selection and methodology. Caregivers could participate in the study if they were involved with some form of oral hygiene assistance to the elderly residents on a daily basis or supervised this care. Also, participants had to be employed for at least three months in the long-term care facility. Each participant had the option of discontinuing the study at any time for any reason.

The interviews included ten main questions and several sub-questions that addressed the information sought in the research questions (see figure 1). Each interview was audio recorded and transcribed at a later time by an outside source. Most interviews were conducted within a fifteen minute time frame to accommodate the schedules of the participants. Several participants completed follow-up questions at a later time to obtain more detailed information to improve the study.

Data analysis occurred by using inductive analysis. Thomas[15] explains that the purpose for using this type of approach is to condense extensive text and data into a brief summary format, establish clear links between the research objectives and the summary findings, and to develop a model about the underlying experiences evident in the data. Analysis involved reading through the transcripts several times and identifying patterns and themes expressed by the participants. The strategies used to promote qualitative research validity for this study were triangulation and low-inference descriptors.

RESULTS

A total of twelve key staff members of long-term care facilities were interviewed. Most interviews were of a short duration, approximately fifteen minutes in length, as participants indicated they did not have sufficient time for lengthy discussions and expressed concern about returning to work expeditiously. This limited time frame posed a barrier to gathering substantive information. Several participants completed follow-up interview sessions to gather more detailed information about oral health care of residents and knowledge of policies and procedures. After transcription and analysis of responses, five main themes emerged: the oral health of residents, oral care provided to residents, barriers to care, solutions to improving oral care, and knowledge of administrative

policies and state and federal rules and regulations.

Oral Health of Residents

While questioning the staff members on the oral health of the residents, varying opinions emerged. The administrator of nursing center facility stated "*I guess it depends on the resident. It depends, good or bad depending on the kind of diagnosis they have. It really affects their teeth."* Similarly, the lead nursing aide and nursing director of the facility housing residents with memory loss and dementia reported that each resident's oral health was different depending on their medical condition and compliance. The lead nursing aide stated that some residents *"won't let you near them"*, which can influence their oral health. One participant stated, "*It's a little bit difficult here because we have... They all have Alzheimer's or dementia. There are days when they won't let us brush; they won't let us provide oral care for them"* [nursing director, memory care facility].

In contrast, the nursing director of the nursing center facility felt that the oral health of the residents was very good. She noted, "*We have quite a few residents that have dental issues or poor oral care, self care, before they come to our community. We love when residents have their natural teeth and we do the best we can to take care of them"*. Most nurses and nursing aides indicated that all of the residents had good oral health.

Oral Care Provided to Residents

The amount of oral care provided to the residents varied depending on the type of facility. Staff at the assisted living facility appeared to provide less assistance than those at the memory care facility. The administrator of the assisted living facility stated that "*because they are elderly, we don't really have that much involvement. However, if the*

residents need help, it is in their care plan and the caregivers are to assist them with oral hygiene." The director of nursing felt that the *"-caregivers are very good at making sure that things are done. Also, if the resident isn't good at doing it themselves, then our med techs check on them to make sure they are doing it right"* [assisted living facility]. Further, a nursing aide from the nursing care facility stated, *"we always want every person to brush their teeth of course. It is very important."*

The nursing director of the memory care facility provided the most insight to the nature of the oral care provided to the residents indicating the staff is limited in the assistance they can give many patients because of the resident's medical conditions. Some residents cannot tolerate tooth brushing or mouth rinsing procedures because they cannot control their swallowing reflex, while other residents try and bite the caregivers if they attempt to provide oral care. The lead nurse of this facility stated, "*We all assist. We offer. We assist. We do the best we can. If we run into a difficult resident, then we notify the family and get them involved so they're aware of what's going on."* Another administrator summarized the impact of caregivers as follows: *"some CNAs are going to go the extra mile other CNAs won't. It depends on how busy they are. Certain runs are going to be harder than others"* [nursing center facility].

Barriers to Care

The majority of staff members interviewed felt there were some barriers faced when providing oral hygiene assistance to the residents of the long-term care facilities, although some of the nursing aides said they did not face any barriers. The main barrier that recurred consistently during the interviews was that of resident compliance and cooperation. The nursing director of the nursing center facility described the problem

best. She stated "*Sometimes we run into behavioral changes with the disease process. Residents with Alzheimer's or dementia may be more likely to be combative, especially if you're trying to brush their teeth during mealtimes or at the end of a meal"*. The nursing aides interviewed indicated that patients that are not so alert pose the greatest challenge and are more difficult with whom to work.

The nursing aide at the memory care facility described similar challenges with non-compliant residents as illustrated through her statement, *"Sometimes they spit on me. Or they put it [the toothbrush] in their hair. Sometimes they don't know which way to go. That's why we help them out*". The nursing director of this facility also felt that the mentality of the residents and their level of agitation was the greatest barrier faced. The administrator of the assisted living facility pointed out that residents can be forgetful. "*They basically have to be reminded several times or [we] actually physically put the toothbrush in their hands."* The director of nursing from the assisted care facility reported that a significant barrier was that families did not fully understand that their loved one needed regular oral care and they did not place high importance on daily oral care measures.

Solutions to Improving Care

An overarching theme emerged when discussing solutions to improving oral hygiene care among the interviewees. Most aides and administrators reported that a patient and gentle approach made the most difference when providing care and assistance to the residents. The nursing director of the long-term care facility suggested that the staff be creative and be gentle when providing oral hygiene assistance to resistant patients. She stated that "*a kind and caring approach works best and that 90% is approach, 10% is*

actual task. Getting to know them, gaining their trust, talking to them and letting them know what you are doing helped when gaining compliance." The nursing aide at the memory care facility stated "*you have to have a lot of patience and do what you can to help the residents do as much as they can on their own."* She felt that everyone at the facility had a role to try to help the residents. The lead nurse at the memory care facility stated, "*We all want to have clean teeth... We work in a building where it's really hard because it's Alzheimer's and dementia, so it's pretty hard, but you have to manage on how you do it [provide oral care]. The approach is what really counts."* The nursing director felt that continuously trying to help the residents was key. *"One day may be bad, the next may be good. Consistency is key"* [nursing director, memory care facility]. Several other solutions to improving oral care identified by the interviewees were flossing more, providing better oral hygiene supplies, having a mobile dentist come to the facility, and having more dental professionals participating with the facility to provide oral care to the residents.

Knowledge of Administrative Policies

A variety of answers were provided by participants when asked if the facility they worked at had a policy on providing oral care and hygiene assistance to the residents. The administrator of nursing center facility stated they had a dentist come in once yearly to review policies and procedures with the staff. He stated that *"policies and procedures dictate how we do our oral care. If a caregiver doesn't know how to do it they can look it up*." However, he described the written policy as simply "provide appropriate dental care that meets the needs for each resident." He stated that policy is enforced by feedback of the residents, audits, and outside sources such as dentists and family members. The

nursing director and registered nurse of this facility reported that the policy for the facility was simply to offer oral care after each meal as part of basic grooming assistance, but noted the residents have the right to refuse.

While there was some reference to policy noted by participants at administrative levels, most nursing aides did not appear to know of any written policies for oral care as represented by the nursing aide at the memory care facility who stated that the policy was only verbal and "*they just say to try as much as you can and do the best you can."*

Knowledge of State and Federal Rules and Regulations

When questioned on state and federal regulations regarding oral care of residents of long-term care facilities, the majority of participants were not aware that any existed or had limited knowledge of rules and regulations. This lack of knowledge was represented best by the administrator of the nursing center facility who stated he was *"-not sure what the state or federal rules or regulations are, but I am sure it is what meets the needs of the residents to keep them in good oral hygiene."* The nursing aide stated, "*I know they just have to get their teeth brushed after every meal and before they go to bed and when they wake up" [nursing center facility]*. When the nursing director was questioned on whether the staff members were given information regarding rules and regulations, she stated "*Well, I guess [they are given] just the basic regulations. I don't think they know a great deal about state and federal regulations" [memory care facility]*.

The administrator of the assisted living facility was not aware of state and federal regulations and felt that she did not need to know them since they are not considered strictly a "nursing home". The director of nursing of this facility was not aware of any state or federal rules or regulations as well. The two nursing aides said they were aware

of federal and state regulations, but not anything specific, and one of the aides said she didn't think the information was given to every employee.

DISCUSSION

Based on the results of the semi-structured interviews, two main issues emerged that require the attention of oral health professionals, administrators, and caregivers of long-term care facilities. The first issue pertains to the oral health and care of the residents. Many of the aides stated that all of the residents had good oral health and that adequate oral care was provided. However, when questioned further, the aides indicated that only tooth brushing was performed when residents were not resistant to assistance, and that interdental care was not provided. None of the interviewees indicated that oral assessments were performed to ascertain oral health status of the residents or that these assessments occurred on a regular basis. This coincides with the findings of Nitche et al[1] who found that 47.2 percent of long-term care facilities required a medical exam of each client on admission, but only 13.2 percent required an oral exam. Finkleman, Lawrence, and Glogauer[8] stated that many residents enter long-term care facilities with active dental needs, so it is important for oral screenings to be completed upon their entrance into the facility.

The second issue represented through this study was that the majority of staff members and administrators were not aware of any state or federal mandates governing the oral health and oral care of residents. This study coincided with the findings of Rabbo et al[11] who found that there is a lack of consistency of oral health policies in long-term care facilities. Smith et al[7] also concluded that there was little to no regulation of oral care in long-term care facilities. Relating to this issue, none of the participating facilities

implemented a specific written oral care policy that the caregivers were aware of or followed.

This study represents an effort to further understand parameters associated with oral health care of residents of long-term care facilities from the perspective of administrators, nurses and caregivers. However, limitations existed for this study. The study was confined to three facilities in one state and was confounded by the interviewees limiting the time frame needed to gather comprehensive information. Concerns about returning to work impeded the ability of the interviewer to acquire specific details that would have enriched the findings of the study. Although some participants agreed to be interviewed for follow-up questions, the study would have been enhanced by having greater time available to conduct the interviews. Given these limitations, results cannot be generalized to all long-term care facilities.

Despite these limitations, the study does point to the need for greater attention to protocols, rules and regulations for providing oral health care. Therefore, a logic model was created to address these concerns. Table 1 highlights this logic model illustrating inputs, activities, outputs and desired outcomes needed to support oral health practices within long-term care facilities.

Staff members need to be educated on oral health and specific oral hygiene practices that should be provided to residents on a daily basis.[1, 16, 17, 18] To address this issue, inputs and activities (as noted in the first two columns) need to be created and implemented utilizing the expertise of either a dentist or dental hygienist. Development of a professional presentation on oral health, common oral diseases among the elderly, risk factors for oral disease, and daily oral health regimens with hands-on training is

needed to help caregivers fully appreciate the extent of oral care needed as well as how to manage combative or resistant residents. Materials including brochures and pamphlets that reinforce information should be available to all personnel. Procedures for scheduling regular, periodic oral health assessments and dental and dental hygiene appointments need to be established. State and federal policies related to oral health care within long-term care settings need to identified, placed in a handbook, and reviewed with facility administrators, nurses and caregivers. Periodic retraining of caregivers with hands-on activities should be implemented[16]. In addition, a program should be designed for family members of residents so they are aware of the same information as caregivers, and can provide support for their loved ones as needed.

With the above protocols in place, it is anticipated that all staff members will be better educated and able to provide oral health assistance following state and federal mandates. Likewise, families of residents will have an opportunity to be better informed and capable of providing assistance with daily oral care and scheduling of needed dental and dental hygiene treatment either on-site or in other dental settings. Ultimately, outcomes of these protocols will show improvement in the care and assistance provided to residents as well as improvement in the oral health of the residents.

Numerous studies have shown consistent barriers to oral health care of residents of long-term care settings.[1, 5, 7, 11, 12, 19] However, improvements will not be seen unless solutions are addressed. Thorne el al[20] stated that three components are needed for a successful program: shared responsibility among the caregivers staffed in the facilities, administrator support, and a shared awareness of the importance of oral health as it is related to quality of life. The proposed logic model presented incorporates these

components and offers a means to changing the current process employed in these settings. Private practice hygienists can also advocate for residents of long-term care facilities by supplying their family members (patients of the practice) with a handout on ways they can contribute to the improvement of the oral health of their family members residing in these facilities.

This logic model can be used to guide future practices in long-term care facilities. Future research needs to be conducted to evaluate the implementation of this model to determine if the activities proposed will in fact improve the oral care provided to the residents, and in turn, improve the oral health of elderly residents in long-term care facilities. The effects of reinforcement training every six months, as proposed in the model, can also be used as a topic for future research, as can the effects of an educational program for family members of the residents.

CONCLUSION

The majority of elderly residents residing in long-term care facilities need assistance with oral care and hygiene, yet findings of this study showed that providing adequate oral hygiene is challenging. Inconsistencies were evident among the knowledge of staff members regarding state, federal, and facility policies, rules, and regulations. Given the lack of knowledge about oral health care for residents in long term settings, a logic model was proposed. This model can provide improved collaboration and support among caregivers. Improvement in the oral health of elderly residents in long-term care facilities requires the efforts of all caregivers, administrators, and oral health professionals.

Acknowledgments

The administrators and the staff members of the participating facilities are thanked for their contribution to the success of this study.

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Figure 1: Interview Questions

Interview Questions

- How would you each describe your role in this facility?
- How would you describe your influence on the oral health of the elderly residents in this facility?
- How would you describe the oral health of the residents?
- How would you rate the oral care given to the residents?
- What barriers do you face that may inhibit the oral care the residents receive?
    - How do you think these can be overcome?
- What barriers do you feel other staff members face when providing oral care to the elderly residents of the facility?
    - How do you think these could be overcome?
- What barriers do you feel could be easily overcome and which do you feel could not be overcome?
- Do you have any ideas on how the oral health of the residents could be improved?
- What policies does your facility have on oral care that you are aware of?
    - How do you abide by these policies on an everyday basis?
- What state or federal regulations on the oral care given to residents of long-term care facilities are you aware of?
    - If you are not aware of any, why do you think this is?

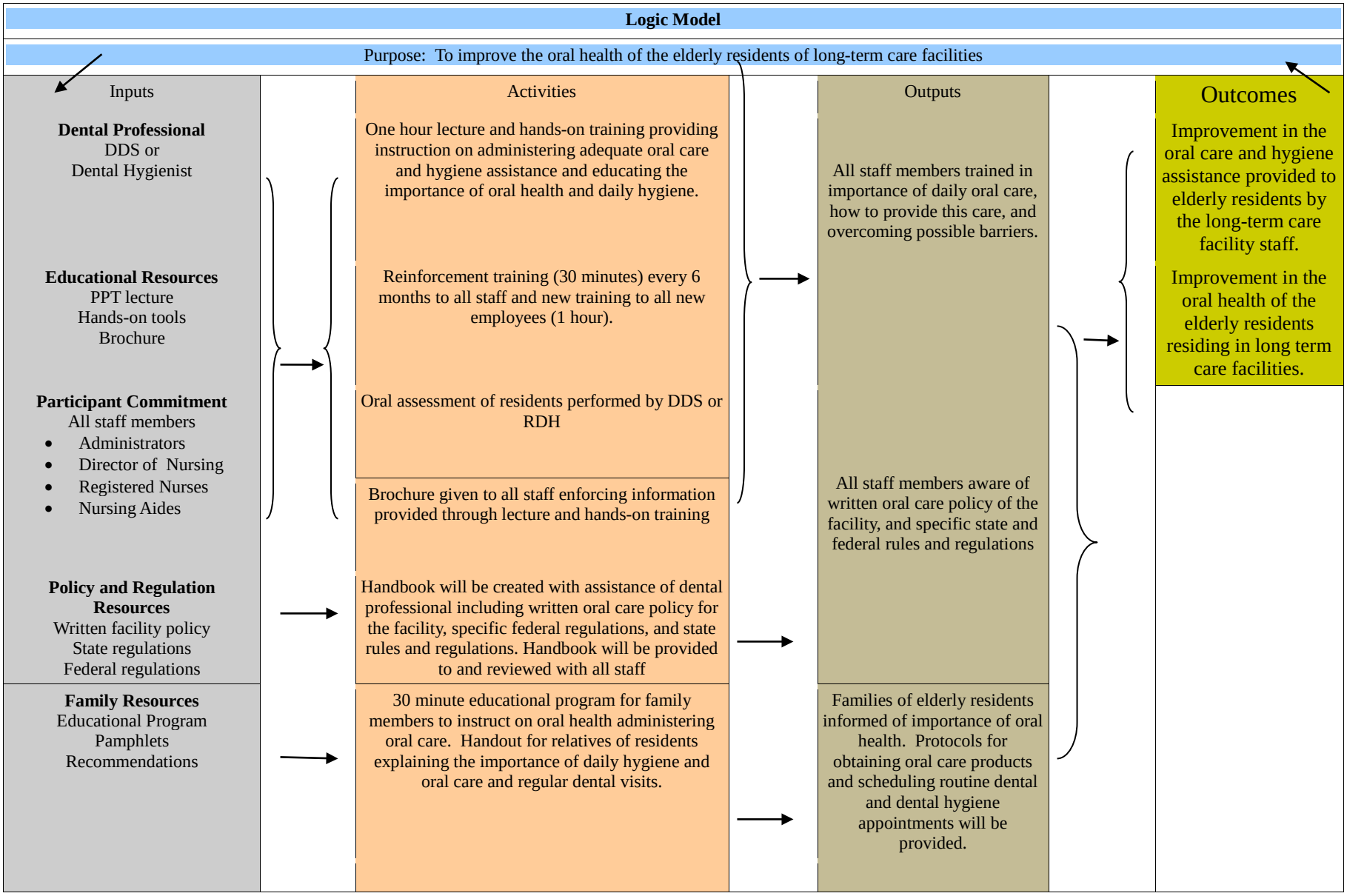

Table 1: Logic Model