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Oral Care Practice Guidelines for the Care-Dependent Hospitalized Adult Outside of the Intensive Care Unit Setting

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This is to certify that the doctoral study by

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Walden University
2015

Abstract

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by

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MSN, University of Phoenix, 2011

BSN, Nova Southeastern University, 2009

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Many nurses lack evidence-based knowledge to deliver appropriate oral care, view oral care in the care-dependent patient as a comfort measure, and give it a low clinical priority. An estimated 44%-65% of hospitalized care-dependent patients do not receive adequate oral care, an intervention that can prevent aspiration pneumonia or pneumonitis. The purpose of this project was to develop a policy for use of an oral assessment tool and evidence-based guidelines for oral care in hospitalized care-dependent adults outside of the intensive care unit setting at a regional health system in the Southeast United States. The project used the theoretical foundations of relationship-based care and the logic model. A 14 member interdisciplinary team of institutional stakeholders from 2 acute care hospitals identified an evidence-based oral assessment tool, developed policy and practice guidelines to inform oral care, and developed both implementation and evaluation plans to pilot the project. The short-term goal of the project was to increase staff knowledge, evaluated with direct observation of assessments and documentation reviews. The long-term goal of this project was to reduce the risk of aspiration and resulting complications as evidenced by discharge diagnosis. The standards developed in this project create a process to ensure that care-dependent adults outside of the intensive care unit setting will receive an oral assessment daily, or every shift, as determined by the oral assessment score. The project advances nursing practice by addressing a gap in practice and promotes positive social change by improving the quality of care provided to all care-dependent patients. Improvement of patient outcomes from reduced risk for aspiration and reduced financial burden of unnecessary resources used to care for patients who aspirate and suffer complications are additional outcomes expected of this initiative.

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Dedication

I dedicate this project to my husband Joe, without whose support I would have never achieved my goal.

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Section 1: Overview of the Evidence based Project

Introduction

There is overwhelming evidence to support oropharyngeal aspiration as a major contributing factor leading to pneumonia in care-dependent adults (Armstrong & Mosher, 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon et al., 2009; Pace & McCullough, 2010). Improper swallowing or regurgitation of oropharyngeal secretions, food, liquids, or gastric contents may cause aspiration. Oral care is an important intervention associated with prevention of aspiration pneumonia (Armstrong & Mosher, 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon et al., 2009; Pace & McCullough, 2010).

Nurses often lack evidence-based knowledge to deliver appropriate oral care (Chan et al., 2011). As a result, many nurses view oral care in the care-dependent adult simply as a comfort measure, making the practice a low clinical priority (Cohn & Fulton, 2006; Dickson, 2012). Changing the perception of the providers from viewing oral care as a comfort measure to oral care as a necessity serves to advance nursing practice, create positive social change by improving the quality of care provided to patients, and improve patient outcomes by providing comfort and decreasing the risk of aspiration. Additionally, the use of oral assessment tools and evidence-based oral care practice guidelines have been shown to result in significantly improved patient oral assessment scores (F=4.79, p=.01, Ames et al., 2011). Chan et al. (2011) reported a statistically significant (p=.006) improvement in oral assessment scores after staff education in using standardized assessment tools. This section of the proposal includes the project's problem statement, purpose statement, goals and outcomes, relevance to practice,

implications for social change in nursing practice, definition of terms, and assumptions and limitations.

Background

This project took place on two adult neuroscience units, outside of the intensive care unit (ICU) setting, within acute care hospitals of a regional health system in the Southeast United States. The health system consists of four acute care hospitals, a children's hospital, and an inpatient rehabilitation hospital. Statistics indicate that as many as one-third of all stroke patients are susceptible to pneumonia, often from aspiration (Armstrong, & Mosher, 2011). With three certified stroke centers, one stroke-ready hospital, and a comprehensive inpatient rehabilitation hospital the health system serves a large population of patients at high risk for aspiration.

Between October 2012 and September 2013, the health system's acute care hospitals reported 1,279 discharges of adults 18 years or greater with a diagnosis of stroke (Florida's Agency for Health Care Administration, n.d.). The average cost for each hospitalization was $19,429 - $40,002 and the average length of stay was 4.62 days (Table 1). During the same period, the health system's acute care hospitals reported 373 hospitalizations of adults 18 years or greater with a diagnosis of aspiration pneumonitis at discharge. The average cost for each hospitalization was $28,437.25 - $64,238.25 and the average length of stay was 8.3 days (Table 2) making the average hospital stay 3.68 days longer and $9,608.25 - $24,236.25 costlier than the health system's average stroke patient (Agency for Health Care Administration, n.d.).

Table 1

Stroke

The Health System October 2012-September 2013

Facility	Hospitalizations	Charges Low	Charges High	ALOS
Hospital A	216	18,954	33,392	4.2
Hospital B	584	21,205	46,122	5.0
Hospital C	157	17,443	32,779	4.2
Hospital D	322	20,115	47,715	5.1
System Average	1,279 total	19,429	40,002	4.62

Note. Adapted from Florida Agency for Health Care Administration. (n.d.). Compare facilities from http://www.floridahealthfinder.gov/CompareCare/CompareFacilities.aspx

Table 2

Aspiration Pneumonitis at Discharge

The Health System October 2012-September 2013

Facility	Hospitalizations	Charges Low	Charges High	ALOS
Hospital A	89	27,633	55,112	8
Hospital B	136	31,869	73,978	8.6
Hospital C	102	26,861	58,235	8.8
Hospital D	42	27,386	69,628	7.8
System Average	373 total	28,437.25	64,238.25	8.3

Note. Adapted from Florida Agency for Health Care Administration. (n.d.). Compare facilities from http://www.floridahealthfinder.gov/CompareCare/CompareFacilities.aspx

Discerning if all patients discharged with a diagnosis of aspiration pneumonitis were stroke patients was not possible; however, Armstrong and Mosher (2011) indicated that as many as one-third of all stroke patients are susceptible to pneumonia, often from aspiration. Although specific statistics for the incidence of hospital-associated aspiration are not available, there was a significant need to address the problem of aspiration or pneumonitis within the health system.

Problem Statement

Providing oral care for care-dependent hospitalized adults is a nursing responsibility and an essential component of nursing care; however, an estimated 44%-65% of hospitalized care-dependent adults do not receive adequate oral care (Cohn & Fulton, 2006; Stout, Goulding, & Powell, 2009). According to Chan et al. (2011), nurses often lack evidence-based knowledge to deliver appropriate oral care. As a result, many nurses view oral care in the care-dependent adult as a comfort measure, placing the practice as a low clinical priority (Cohn & Fulton, 2006; Dickson, 2012). Barriers to care include inconsistent or absent oral assessment tools, varied delivery methods, staff knowledge gaps, reliance on tradition, a lack of standardized oral assessment instruments, and a lack of interdisciplinary collaboration (Ames et al., 2011; Cohn & Fulton, 2006).

The health system where this project took place had a policy and procedure designed to outline assessment and standardize practice guidelines for providing oral care to hospitalized adults in the adult intensive care units. However, once the patient transferred out of the intensive care unit, there were no evidence-based policies or procedures outlining assessment using standardized oral assessment tools, or standardized evidence-based practice guidelines to guide oral care. The lack of standardized evidence-

based processes provided an opportunity for gaps in nursing practice. This project addressed the problem of nonstandardized assessment and oral care for the care-dependent adults outside of the intensive care unit setting.

Purpose Statement

The purpose of this project was to address a potential gap in nursing practice by developing a policy for use of an oral assessment tool and evidence-based guidelines for oral care for the hospitalized care-dependent adult outside of the intensive care unit setting. The health system did not have an evidence-based policy and procedure outlining assessment, assessment tool, or standardized practice guidelines for providing oral care to the hospitalized care-dependent adult outside of the intensive care unit setting. The lack of standardized evidence-based processes provided an opportunity for gaps in nursing practice.

Goals and Outcomes

The long-term goal of this project was to reduce the risk of aspiration for care-dependent adults by developing a policy for use of an oral assessment tool and evidence-based guidelines for oral care to guide nursing practice to ensure higher quality oral care for care-dependent adults outside of the intensive care unit setting. The short-term goal of the project was to increase staff knowledge. The outcome of this project was to create a process so that care-dependent adults outside of the intensive care unit setting received an oral assessment daily, or every shift, as determined by the oral assessment score with care provided according to the practice guidelines to reduce the risk of aspiration. Operationalized, the outcome is measureable with documentation in the medical record.

Theoretical Foundations of the Project

The theoretical foundations of relationship-based care and the logic model guided the project. Relationship-based care is a model that recognizes that the provision of health care occurs using fundamental relationships. The three fundamental relationships recognized in the model are the provider's relationship with patients and families, the provider's relationship with his or her own self, and the provider's relationship with colleagues (Koloroutis, 2004). Relationship-based care provides a model for implementing change that focuses on inspiration, infrastructure, evidence, and education. The basic context of the model is that people will fully participate in change when they are inspired to believe they add value to processes, contribute to a vision, have the appropriate infrastructure to support the vision and operationalize it, have education to perform at the highest capacity, and have clearly articulated goals for outcomes that will demonstrate evidence of desired change. The relationship-based care model will be useful to support a sustainable change in practice that this project created.

The logic model was helpful for project planning. The model uses a visual approach for project management to identify a realistic flow to projects by identifying the goals of a project, necessary resources or inputs to meet the goals, the processes or outputs needed to achieve the goals, and the outcomes of the project including the project's impact or measureable results (Kettner, Moroney, & Martin, 2008).

Nature of the Project

The approach for meeting project goals was to engage an interdisciplinary team to identify an evidence-based oral assessment tool, and develop practice guidelines for oral care for the care-dependent adult. According to the relationship-based care model,

delivery of compassionate quality care happens in health care environments where team members recognize and respect each other's scope of practice and work together to achieve common purposes and problem solve (Koloroutis, 2004). Preventing aspiration in care-dependent adults with reduced motor function, control of the tongue, xerostoma, or cognitive dysfunction is a problem addressed by the scope of practice of several disciplines including nursing, respiratory therapy, speech therapy, and dentists.

Definition of Terms

Aspiration: Pace and McCullough (2010) define aspiration as the misdirection of gastric or oropharyngeal contents into the larynx and lower respiratory tract.

Aspiration pneumonia or pneumonitis: Aspiration pneumonia, or pneumonitis, occurs when gastric or oropharyngeal contents colonized with bacteria gain entrance into the lungs from accidental inhalation, or when oropharyngeal contents leak silently from pooling in the mouth (Pace & McCullough, 2010).

Assumptions

Assumptions of this project were that the health system had appropriate supplies for performing oral care for care-dependent adults including toothbrushes, suction toothbrushes, suction, oral rinses, and toothpaste. The health system already had existing oral care practice guidelines for adults in the intensive care units that required the use of these types of supplies. It was a reasonable assumption that supplies were readily available for requisition from the supply chain.

Scope and Delimitations

The scope of the project was to develop a policy for use of an oral assessment tool and evidence-based guidelines for oral care to guide nursing practice and ensure higher

quality oral care for care-dependent adults outside of the intensive care unit setting. The focus of this problem was important because oral care is an important intervention associated with prevention of aspiration pneumonia (Armstrong & Mosher, 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon et al., 2009; Pace & McCullough, 2010). The boundaries of this project were care-dependent adults over the age of 18, hospitalized outside of the intensive care unit setting on neuroscience units within the health system. The project may be transferrable to other settings treating the same population.

Relevance to Practice

This project provided nurses outside of the intensive care unit setting a policy for use of an oral assessment tool and evidence-based guidelines for oral care to provide consistently adequate oral care to the care-dependent patient. The project will potentially advance policy within the health system by proposing a new policy and procedure for oral assessment and care outside of the intensive care setting.

Implications for Social Change in Nursing Practice

This project had several implications for social change in nursing practice. According to the American Association of Colleges of Nursing (2006), addressing social change using scientific underpinnings for practice, organizational and systems leadership for quality improvement, systems thinking, and clinical scholarship are essential competencies for the Doctor of Nursing Practice (DNP). Philosophy is a scientific underpinning related to nursing practice. Common philosophical themes associated with nursing include holism, quality of life, and the concept that relative truth for the individual are based upon their perceptions (Burns & Grove, 2001).

The standardized oral assessment tool and evidence-based oral care practice guidelines for the hospitalized care-dependent adult outside of the intensive care unit setting proposed by this project, combined with staff education prior to implementation, provided the knowledge and tools to change the perception of oral care from comfort measure to necessity. Changing the perception of the providers from oral care as a comfort measure to necessity will serve to advance nursing practice, create positive social change by improving the quality of care provided to patients, and will potentially improve patient outcomes by not only providing comfort but also decreasing the risk of aspiration. Decreasing the risk of aspiration creates positive social change because patients developing aspiration pneumonia at the health system used additional resources as evidenced by the extended length of stay of 3.68 days and additional hospitalization costs of $9,608.25 - $24,236.25 compared to stroke patients in fiscal year 2013 (Agency for Health Care Administration, n.d.).

Summary

Aspiration can occur when oropharyngeal secretions, food, liquids, or gastric contents enter the lungs from improper swallowing, regurgitation, or when oropharyngeal contents leak silently from pooling in the mouth. Care-dependent hospitalized adults are often reliant upon nursing staff to perform or assist with oral hygiene. The health system where this project occurred serves a large population of adults at high risk for aspiration. The health system did not have an evidence-based policy outlining assessment or standardized procedure for providing oral care to the care-dependent adult outside of the intensive care unit setting. The lack of standardized evidence-based processes provided an opportunity for gaps in nursing practice.

This project provided nurses outside of the intensive care unit setting a standardized assessment tool, and evidence-based oral care practice guidelines to provide consistently adequate oral care to the care-dependent adult. The project potentially advanced policy within the health system by proposing a new policy and procedure. Changing the perception of the providers from oral care as a comfort measure to include oral care as a necessity serves to advance nursing practice, creates positive social change by improving the quality of care provided to patients, and will potentially improve patient outcomes by not only providing comfort but also decreasing the risk of aspiration. Section 2 contains a literature review, context, and background to support the evidence-based project.

Section 2: Literature, Context, and Background

Introduction

This chapter is a concise summation of the current literature used to establish the relevance of this practice problem, the literature search strategy, the rationale for models used as a framework, describe the institutional background, institutional context, and the role of the researcher in the project.

Literature Search Strategy

The literature search occurred electronically using the following databases: CINAHL, Cochrane Database of Systematic Reviews, Medline, Ovid, ProQuest, and PubMed. The search was limited to scholarly articles published within the last 10 years; however, expanded to include articles specific to oral assessment tools. Terms used for the literature search included: *aspiration prevention, aspiration pneumonia, aspiration pneumonitis, hospitalized care-dependent adults, oral assessment, oral assessment tool, oral care, oral health,* and *oral hygiene*. Boolean phrases "*and*" and "*or*" were used between other words to produce a larger volume of search results. The scope of literature reviewed included peer reviewed articles, evidence-based practice, and systematic reviews.

Concepts, Models, and Theories

The relationship-based care and logic models guided the project. Relationship-based care identifies three fundamental relationships that affect quality care: the provider's relationship with patients and families, the provider's relationship with his or her own self, and the provider's relationship with colleagues (Koloroutis, 2004). According to the model, people fully participate in change when they believe they add

value to processes and contribute to a vision, have the appropriate infrastructure to support a vision and operationalize it, have education to perform at the highest capacity, and have clearly articulated goals for outcomes that will demonstrate evidence of desired change and mark success (Koloroutis, 2004).

Relationship based care defines six items to describe the roles of the professional nurse: "sentry, healer, guide, teacher, collaborator, and leader" (Koloroutis, 2004, p. 129). According to Koloroutis, in the role of sentry, the nurse watches and protects the patient from complications to promote healing and provide safe outcomes. As the voice, the nurse reassures the patient and acts as the patient's advocate to ensure that they are receiving the appropriate care. The nurse healer cares for another's "body, mind, and spirit" (Koloroutis, 2004, p. 130) establishing therapeutic relationships to ensure that care provided is based upon an assessment of their needs. The nurse acts as a guide for the patient and family to help them understand what to expect and helps translate information into terms that they can understand so that they can make appropriate decisions. As a teacher, the nurse helps the patient and family to learn and understand information and skills necessary to provide safe care upon discharge (Koloroutis, 2004). The nurse works as a collaborator with other members of the interdisciplinary team to coordinate the plan of care. Finally, the nurse acts as a leader to advocate for the patient and family, supervise delivery of care, and lead the team to improve quality outcomes. The relationship-based care model really identifies why the nurse must provide care for the patient when the patient is unable to provide self-care. This is an important in today's health care world where the nurses often find themselves immersed in technology and

having to prioritize their day (Koloroutis, 2004). The relationship-based care model will be useful to support a sustainable change in practice that this project will create.

Other health care institutions have used the relationship-based care model successfully. For example, the literature review indicated that War Memorial Hospital in Sault Ste. Marie, Michigan implemented relationship-based care, saw dramatic improvement in patient outcomes from the guidance, and structure the model provided to nursing staff (Gerrie, 2010). Specifically, the hospital saw an improvement in the rate of hospital acquired pressure ulcers from 17% to 0%, began meeting core measures in the 95th percentile, and decreased average length of stay from four to 3.5 days (Gerrie, 2010).

The logic model provided a visual approach for project management by identifying a realistic flow to the project, goals of a the project, necessary resources or inputs to meet the goals, the processes or outputs needed to achieve the goals, the outcomes of the project, and the project's impact or measureable results (Kettner et al., 2008). The logic model was helpful for project planning.

Background and Context

Institutional Background

This quality improvement project took place at a regional health system in the Southeast United States. The health system consists of four acute care hospitals, a children's hospital, and an inpatient rehabilitation hospital. With 1,423 beds, the health system is one of the largest public health care systems in the State of Florida. Florida legislation designates the health system as a special unit of government. A publicly elected 10 member Board of Directors governs the health system. The health system's mission is to continue to meet the health care needs and improve the health status of the

people of Southwest Florida (Lee Memorial Health System, 2014). The vision is to be the best patient-and-family-centered health care system by working collaboratively to deliver excellence in quality, safety, efficiency and compassion (Lee Memorial Health System, 2014).

Institutional Context

The health system serves a large population of adults at high risk for aspiration with three certified stroke centers, one stroke-ready hospital, and a comprehensive inpatient rehabilitation hospital. According to Florida's Agency for Health Care Administration (n.d.), between October 2012 and September 2013, the health system's acute care hospitals reported 1279 discharges of adults 18 years or greater with a diagnosis of stroke and 373 hospitalizations of adults 18 years or greater with a diagnosis of aspiration pneumonitis at discharge.

Patients' with a discharge diagnosis of aspiration pneumonitis had an average hospitalization cost of $9,608.25 - $24,236.25 and length of stay of 3.68 days more than the health system's average stroke patient (Table 2,Agency for Health Care Administration, n.d.). It is not possible to determine whether all of the adults discharged with aspiration pneumonitis were stroke patients; however, statistics indicate that as many as one-third of all stroke patients are susceptible to pneumonia, often from aspiration (Armstrong & Mosher, 2011).

The Role of the Researcher in the Project

I functioned as the leader of this interdisciplinary project. The project was of particular interest because I have an interest in improving outcomes and quality of care provided to adult stroke patients and adult patients with movement disorders including

Parkinson's disease, multiple sclerosis, and Huntington's disease who may be care-dependent and susceptible to aspiration. Translation of evidence into evidence-based oral care practice guidelines is important to improving the quality of care and outcomes for care-dependent patients because oral care is an important intervention associated with prevention of aspiration pneumonia (Armstrong & Mosher, 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon et al., 2009; Pace & McCullough, 2010).

Summation of Current Literature

Acutely ill hospitalized adults are often reliant upon nursing staff to perform or assist with oral hygiene; however, studies report that staff are lacking in appropriate knowledge and tools to adequately and consistently provide this care (Ames et al., 2011; Brady, 2011; Chan et al., 2011; Cohn, & Fulton, 2006; Stout et al., 2009). Oral care for hospitalized adults that are care-dependent is a nursing responsibility and an essential component of nursing care (Stout et al., 2009). Forty four to 65% of care-dependent adults do not receive adequate oral care (Cohn & Fulton, 2006). Nursing staff often view oral care for the non-intubated care-dependent adult as a comfort measure (Cohn, Fulton, 2006). This is untrue. The mouth is a window into the overall health of a patient.

Adults dependent for oral care demonstrate a higher risk for development of aspiration pneumonia because secretions colonized by bacteria remaining in the oral cavity provide an opportunity for aspiration and can enter the lungs in adequate quantities to overcome the defenses of the host (Langdon et al., 2009; Marik, & Kaplan, 2003). Aspiration can occur when oropharyngeal secretions, food, liquids, or gastric contents enter the lungs from improper swallowing, regurgitation, or when oropharyngeal contents leak silently from pooling in the mouth. Patients at particularly higher risk for aspiration

include those with motor and cognitive dysfunction, who mouth breathe, receive oxygen therapy, lack oral intake, or who receive treatments or drugs that cause or exacerbate xerostoma (Armstrong & Mosher, 2011; Cohn & Fulton, 2006).

Reduced motor function and control of the tongue, xerostoma, and cognitive dysfunction can make it difficult to independently clear food and secretions from the oral cavity. Oral care is an important intervention associated with prevention of aspiration pneumonia because oral care removes pooled secretions, removes residual debris, reduces plaque, and moistens the oral cavity (Armstrong & Mosher, 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon et al.; 2009, Pace & McCullough, 2010).

Major themes in the literature related to barriers for providing oral care to the care dependent adult include lack of knowledge, reliance on tradition, inconsistent or absent oral assessment, a lack of standardization of oral care standards and practices, insufficient or conflicting evidence, administrative and clinical issues, and lack of interdisciplinary collaboration (Ames et al., 2011; Brady, 2011; Chan et al, 2011; Cohn & Fulton, 2006; Stout et al., 2009; Wilson, 2011). Without the use of standardized oral assessment tools, oral assessment can be subjective (Chan et al., 2011). Administrative issues including inadequate staffing levels and excessive workloads compound this problem often resulting in delegation of oral care delivery to unlicensed personnel (Cohn & Fulton, 2006; Dickson, 2012).

There is a plethora of information available related to oral care for the intubated patient to reduce and prevent the incidence of ventilator associated pneumonia; however, there is a dearth of similar information related to establishing oral care standards for the non-intubated care-dependent adult. Ames et al. (2011) wrote:

> If the benefit of oral care out-weighs the risk, clear, precise oral care procedures and adequate evidence to support these processes are needed. If providing systematic oral care can decrease the incidence of pneumonia and other clinical outcome measures, the care should be considered an important and critical component of critical care nursing. (p. 104)

This statement also applies to nursing outside of critical care areas. Oral care is a nursing responsibility and an essential component of nursing care when the patient is care-dependent (Ames et al., 2011; Brady, 2011; Chan et al, 2011; Cohn & Fulton, 2006; Dickson, 2012; Stout et al., 2009; Wilson, 2011).

It is difficult for any provider, licensed or unlicensed, to provide adequate oral care without standardized practices. For example, researchers repeatedly identify tooth brushing as an effective method of plaque removal and method for reducing oral microbial load; however, according to Chan et al. (2011), tooth brushing seldom occurs in actual practice. Nurses and unlicensed personnel often use foam swabs or gauze to perform oral care instead of using a toothbrush (Chan et al, 2011; Stout et al., 2009). While nurses have traditionally used these methods, they are less effective at removing plaque and reducing bacterial load than tooth brushing (Chan et al, 2011; Cohn, & Fulton, 2006). Implementing standardized evidence-based assessment tools, oral care practice guidelines, and educating staff to increase their knowledge base addresses gaps in nursing practice to improve the quality of oral assessment, oral care, and reduce the rate of pneumonia for care-dependent adults (Brady, 2011; Chan et al, 2011; Cohn & Fulton, 2006; Dickson, 2012; Stout et al., 2009).

Oral Assessment Tools

Researchers have reviewed several oral assessment tools. Ames et al. (2011) reported a multicenter study approved by the intramural institutional review board of the National Institute of Dental and Craniofacial Research and the institutional review boards of institutions involved in the study using a convenience sample with a pre and post study design. Before education and implementation of the intervention, patients in participating intensive care units received the usual standard of oral care. In the second phase of the study, staff received education and all of the participating intensive care units implemented systematic oral care assessment using the Beck Oral Assessment Scale (Beck, 1979) along with oral care guidelines based upon the assessment score. The study used a mucosal plaque score to evaluate outcomes. Exclusion criteria included patients with anticipated intensive care unit stays of less than 48 hours. Patients in the intervention group demonstrated overall improvement in Beck Oral Assessment Scale scores between days one and five. Mucosal plaque scores and Beck Oral Assessment Scale scores showed strong correlations throughout the study. The study reported the highest correlation between the two scores on day 5 (r=0.798, P=<.001, n=43, Ames et al., 2011, p103). The Beck Oral Assessment Scale defines parameters to assess lips, mucosa and gingiva, tongue, teeth, saliva, voice quality, and ability to swallow. The modified Beck Oral Assessment Scale does not assess voice quality or ability to swallow.

Holmes and Mountain's (1993) reviewed three oral assessment guides including oral assessment tools developed by Beck (1979); Eliers, Berger, and Petersen (1988); and Passos and Brand (1966). According to Holmes and Mountain, the validity and reliability of the tools was difficult to assess because the condition of patients' mouths

change rapidly limiting the ability to provide reproducible results. Of all of the tools reviewed, Holmes and Mountain felt that the tool by Eliers et al. was most clinically useful because it was easy to use and provided a good indication of the overall oral condition; however, Holmes and Mountain recommended changes for all tools reviewed.

Chan et al. (2011) reported implementation of an evidence-based project using an oral assessment tool published by Andersson, Persson, Hallberg, and Renvert (1999), a modified version of the tool developed by Elers et al. (1988). The project resulted in improved median pre to post-project implementation scores from 60% to 100% in a sample of 25 patients. Chan et al. (2011) cited Holmes and Mountain's (1993) review as their rationale for choosing Andersson et al.'s oral assessment tool. The tool differs from the tool developed by Beck (1979) and the tool developed by Elers et al. because it describes conditions of the mucosa and tongue including bleeding and ulcerations not assessed in the other tools.

Oral Care Methods

Tooth brushing is an effective method of plaque removal and method for reducing oral microbial load; however, according to Chan et al. (2011), tooth brushing seldom occurs in actual practice. Nurses and unlicensed personnel often use foam swabs or gauze to perform oral care instead of using a toothbrush (Chan et al, 2011; Stout et al., 2009). While nurses have traditionally used these methods, they are less effective at removing plaque and reducing bacterial load than tooth brushing (Chan et al, 2011; Cohn, & Fulton, 2006). Foam swabs and gauze need to be reserved for patients who are unable to tolerate the use of a toothbrush.

Information on oral care for the non-intubated adult is limited. Chlorhexidine is an oral antibacterial agent recommended to reduce the risk of ventilator-associated pneumonia and for oral care post cardiac surgery (Ames et al., 2011; Armstrong et al, 2011; Brady et al., 2011; Chan et al, 2011; Cohn, & Fulton, 2006). Researchers have not supported the use of Chlorhexidine for other patient types. Recommended products for oral care in the non-intubated adult include fluoride toothpaste, diluted sodium bicarbonate, solutions containing hydrogen peroxide, and moisturizers (Ames et al., 2011; Brady et al., 2011; Chan et al, 2011; Cohn, & Fulton, 2006).

Summary

This section was a summary of the literature, the literature search strategy, the rationale for models used as a framework, the institutional background, the institutional context, and the role of the researcher in the project. Section 3 is a description of the approach, project team, and products of the project to address these gaps.

Section 3: Approach

Introduction

The purpose of this project was to address a potential gap in nursing practice by developing a policy for use of an oral assessment tool and evidence-based guidelines for oral care for the hospitalized care-dependent adult outside of the intensive care unit setting at the health system. The goal of this project was to reduce the risk of aspiration for adult care-dependent adults by developing a policy for use of an oral assessment tool and evidence-based guidelines for oral care that will guide nursing practice by serving as practice guidelines to ensure higher quality oral care outside of the intensive care unit setting. This section is a description of the overall approach/rationale, project team, and products of the project.

Overall Approach/Rationale

After approval by the Institutional Review Board of Walden University, the health system's Nursing Research Committee, and exemption from the health system's Institutional Review Committee the DNP quality improvement project took place at the regional health system in the Southeast United States. The health system consists of four acute care hospitals, two specialty hospitals, and is one of the largest public health care systems in the State of Florida. The health system's mission is to continue to meet the health care needs and improve the health status of the people of Southwest Florida (Lee Memorial Health System, 2014). The vision is to be the best patient-and-family-centered health care system by working collaboratively to deliver excellence in quality, safety, efficiency and compassion (Lee Memorial Health System, 2014).

The context of the DNP quality improvement project was that the health system did not have an evidence-based policy and procedure outlining assessment, evidence-based assessment tool, or standardized practice guidelines for providing oral care to the hospitalized care-dependent adult outside of the intensive care unit setting. The lack of standardized evidence-based processes provided an opportunity for gaps in nursing practice. The context, purpose, and goal of the project met well with the mission and vision of the health system.

The elements of the overall project undertaken during the DNP project were:

1. Assembly of an interdisciplinary team of institutional stakeholders,
2. Review of relevant literature with the project team,
3. Identification of an appropriate oral assessment tool,
4. Development of a policy outlining oral assessment and use of evidence-based oral care guidelines,
5. Validation of the policy and care guidelines via external scholars
6. Development of plans for implementation and evaluation

The project did not involve any collection of data by either the researcher or institutional stakeholders. Products of the DNP quality improvement project include a draft policy and evidence-based practice guidelines outlining oral assessment and care using an oral assessment tool, plans for pilot implementation, and plans for evaluation. Implementation and evaluation of the products of the project occurred by the institution after project completion.

Project Team

Assembling the interdisciplinary team of institutional stakeholders required thoughtful and purposeful planning (Kelly, 2011). Involving stakeholders was key to creating sustained change because people will fully participate in change when they are inspired to believe they add value to processes, contribute to a vision, have the appropriate infrastructure to support a vision and operationalize it, have education to perform at the highest capacity, and have clearly articulated goals for outcomes that will demonstrate evidence of desired change (Koloroutis, 2004). Recruitment of team members occurred through the shared governance unit councils of each identified patient-care unit. Team members were chosen because of their expressed interest in the project and ability to serve as subject matter experts. Two external dentists were included based upon willingness to participate in the project to provide expert opinion, and validate the practice guidelines. The members of this quality improvement project included:

1. Researcher writer of the project: Functioned as the team leader and facilitator for the project,
2. Director of the neuroscience-nursing units: Facilitated identification of available resources for the project, lead pilot implementation, and evaluation after project completion,
3. Educator of the neuroscience-nursing units: Facilitated staff education for the project,
4. Staff representatives from two neuroscience-nursing units and a general medical nursing unit: Provided input into existing practices, participated in

developing realistic evidence-based practice guidelines, and served as champions for change when implementing products of the project,

5. A representative from the Rehabilitation Department: Provided expertise in developing realistic evidence-based practice guidelines,
6. External Dentists: Provided expert consultation and validation of the care guidelines in the protocol,
7. A member of the lean transformation team: Expert assistance for developing standard work practices.

The logic model guided the development of a project timeline and plan during the first meeting. The project team met several times over a period of one month to complete this project. Project team members received background information and evidence in the form of a literature review during the first few meetings. Project team members were responsible to perform in-depth reviews of the literature between meetings and came to the meetings prepared to share their expertise to provide contextual insight relative to the project.

Products of the DNP Project

Draft Policy and Practice Guidelines

Providing adequate oral care is difficult for any provider, licensed or unlicensed without standardized practices. Without the use of standardized oral assessment tools, oral assessment can be subjective (Chan et al., 2011). Implementing standardized assessment tools, evidence-based oral care practice guidelines, and educating staff to increase their knowledge base addresses gaps in nursing practice to improve the quality

of oral assessment, oral care, and reduce the rate of pneumonia for care-dependent adults (Brady, 2011; Chan et al, 2011; Cohn & Fulton, 2006; Dickson, 2012; Stout et al., 2009).

The DNP quality improvement project produced a draft policy and procedure with evidence-based practice guidelines outlining oral assessment and care for adult patients. Project team members participated in policy development by sharing their expertise and providing contextual insight. The project team also participated in identifying and reviewing supplies necessary to provide appropriate oral care. The health system already had an existing oral care practice guidelines for patients in the intensive care units that required the use of these types of supplies. The supplies were readily available for requisition from the supply chain and new products were not necessary.

Plans for Pilot Implementation and Evaluation

Implementation of a pilot project for the policy and practice guidelines outlining oral assessment and care for adult care-dependent patients developed during the DNP project will occur after I have fulfilled the developmental/planning role of the project. The DNP project produced plans for pilot implementation, and plans for evaluation of the project outcome. The outcome of this project will be that care-dependent patients outside of the intensive care unit setting will receive an oral assessment daily, or each shift if indicated by the oral assessment score, with care provided according to the practice guidelines to reduce the risk of aspiration.

The following is an outline of a tentative plan for pilot implementation and evaluation of the project. The project team provided input into the plan for pilot implementation and evaluation of the project. The team will use the system-accepted practice of plan, do, check, and act (PDCA) to implement and evaluate the project.

1. The neuroscience units at two of the system's acute care hospitals will pilot the project.
2. All interdisciplinary members providing oral care for patients on the selected units will receive education.
3. The team will implement the pilot policy and practice guidelines.
4. Team will evaluate the project outcome.
5. If necessary, the team will adjust the plan and continue the PDCA.
6. When satisfied with the project outcome, the team will present the pilot policy and practice guidelines to the system policy and procedure committee.

Time, Resources, and Budget

Identifying project timelines, resources, and budget is imperative to project success. The logic model (Figure 1) uses a visual approach for project management to identify a realistic flow to projects. This approach identifies goals of a project, identifies necessary resources or inputs to meet the goals, identifies the processes or outputs needed to achieve the goals, identifies outcomes of the project, and identifies the project's impact or measureable results (Kettner et al., 2008). The project team met several times over a period of one month to complete this project. This timeline was realistic for the quality improvement project.

The budget for the project was relatively simple because the resources for the project were readily available within the health care system. Project team members participated as volunteers causing no expense to the project. The health system encourages project participation in its Professional Nurse Advancement Program (PNAP), which is a clinical ladder type program. The health system had existing oral

care practice guidelines for patients in the intensive care units that required the use of typical oral care supplies. The supplies were readily available for requisition from the supply chain and new products were not necessary. Any supplies previewed by the project team remained in the unopened manufacturers' package causing no expense to the project. The project did not generate any revenue. Therefore, the budget for the project was zero expenses and zero revenue.

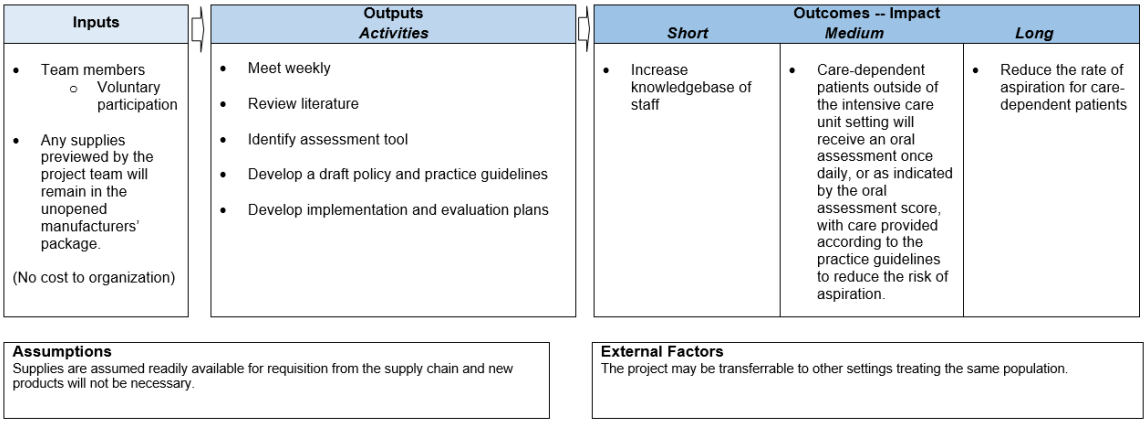

Figure 1. Logic model for oral care project management.

Summary

This section was a description of the overall approach/rationale, project team, and products of the project. The project assembled an interdisciplinary team of institutional stakeholders to review relevant literature, identify an appropriate oral assessment tool, and develop a policy outlining oral assessment and use of evidence-based oral care guidelines. Validation of the policy and care guidelines via external scholars occurred by two local dentists. The project team developed plans for pilot implementation and evaluation to occur after project completion. Section 4 will provide findings, discussion, and implications of the DNP project after project development.

Section 4: Findings, Discussion, and Implications

Introduction

This project addressed a potential gap in nursing practice related to non-standardized oral assessment and care for the care-dependent hospitalized adult outside of the intensive care unit setting. The interdisciplinary project team identified an evidence-based oral assessment tool and developed a policy and procedure for oral care to serve as care guidelines for nursing practice to ensure higher quality oral care outside of the intensive care unit setting and reduce the risk of aspiration. The interdisciplinary project team also developed implementation and evaluation plans. This section is a summary of the products of the project, the implementation plan, and the evaluation plan.

Discussion of Project Products/Results

The interdisciplinary team met several times to identify an oral assessment tool and develop a policy and procedure for the project. The first meeting reviewed the literature, and the system's existing ICU oral care policy. During this meeting, the team discussed the benefits of developing one oral care policy and procedure for the health system, rather than having a policy for the ICUs, and a separate policy for the non-intensive care units. This was an important consideration because the DNP prepared nurse must use a systems leadership approach to ensure that organization-wide changes in care delivery have the ability to provide improvements in health outcomes and enhance patient safety (American Association of Colleges of Nursing, 2006). Adult care-dependent patients in all settings of the health system require oral care.

Oral Assessment Scale

The health care system already had a policy and practice guidelines in-place involving an oral assessment scale for patients in the intensive care unit. Holmes and Mountain (1993) indicated that validity and reliability of oral assessment scales is difficult to assess because the condition of patients' mouths change rapidly limiting the ability to reproduce results. After reviewing the literature, the interdisciplinary team identified the assessment scale used by the intensive care units as the Beck oral assessment scale - modified (Ames et al., 2011, Figure 2.). The only difference between the system scale and the scale modified by Ames et al. was the oral care recommendations based upon the mouth score.

The interdisciplinary project team decided to use the Beck oral assessment scale - modified because use of the assessment scale, along with a bundle of care items, had demonstrated a significant reduction of ventilator-associated pneumonias within the health system. The scale already existed in the electronic health record as the ICU Mouth Score (Figure 3). The project team identified that the scale in the electronic health record would require editing to change the name to eliminate the specific association to the intensive care units.

Table 1
Beck Oral Assessment Scale (BOAS), modified[a]

Area	Score 1	2	3	4
Lips	Smooth, pink, moist, and intact	Slightly dry, red	Dry, swollen isolated blisters	Edematous, inflamed blisters
Gingiva and oral mucosa	Smooth, pink, moist, and intact	Pale, dry, isolated lesions	Swollen red	Very dry and edematous, inflamed
Tongue	Smooth, pink, moist, and intact	Dry, prominent papillae	Dry, swollen, tip and papillae are red with lesions	Very dry, edematous, engorged coating
Teeth	Clean, no debris	Minimal debris	Moderate debris	Covered with debris
Saliva	Thin, watery plentiful	Increase in amount	Scanty and somewhat thicker	Thick and ropy, viscid or mucid
Total score[b]	5 No dysfunction	6-10 Mild dysfunction	11-15 Moderate dysfunction	16-20 Severe dysfunction
Note: Provide moisture more often than oral care.	Minimum care every 12 h	Minimum care every 8-12 h	Minimum care every 8 h	Minimum care every 4 h

[a] Modified from Beck.[21]
[b] Interpretation of total score:
BOAS 0-5: Perform an oral assessment once a day. Follow oral care as outlined in the systematic oral care procedure twice per day.
BOAS 6-10: Perform oral assessments twice a day. Moisten mouth/lips every 4 hours. Follow oral care as outlined in the systematic oral care procedure twice per day.
BOAS 11-15: Perform an oral assessment every shift (every 8-12 h). Follow oral care as outlined in the systematic oral care every shift. Use an ultrasoft toothbrush. Moisten lips and mouth every 2 h.
BOAS 16-20: Perform an oral assessment every 4 hours. Follow oral care as outlined. If brushing not possible, use soft gauze-wrapped finger. Moisten lips and mouth every 1-2 h.

Figure 2. Beck oral assessment scale - modified. Ames, M. J., Sulima, P., Yates, J. M., McCullagh, L., Gollins, S. L., Soeken, K., & Wallen, G. R. (2011). Effects of systematic oral care in critically ill patients: A multicenter study. *American Journal of Critical Care, 20*(5), e103-e113. doi: http://dx.doi.org/10.4037/ajcc2011359 Reprinted with permission.

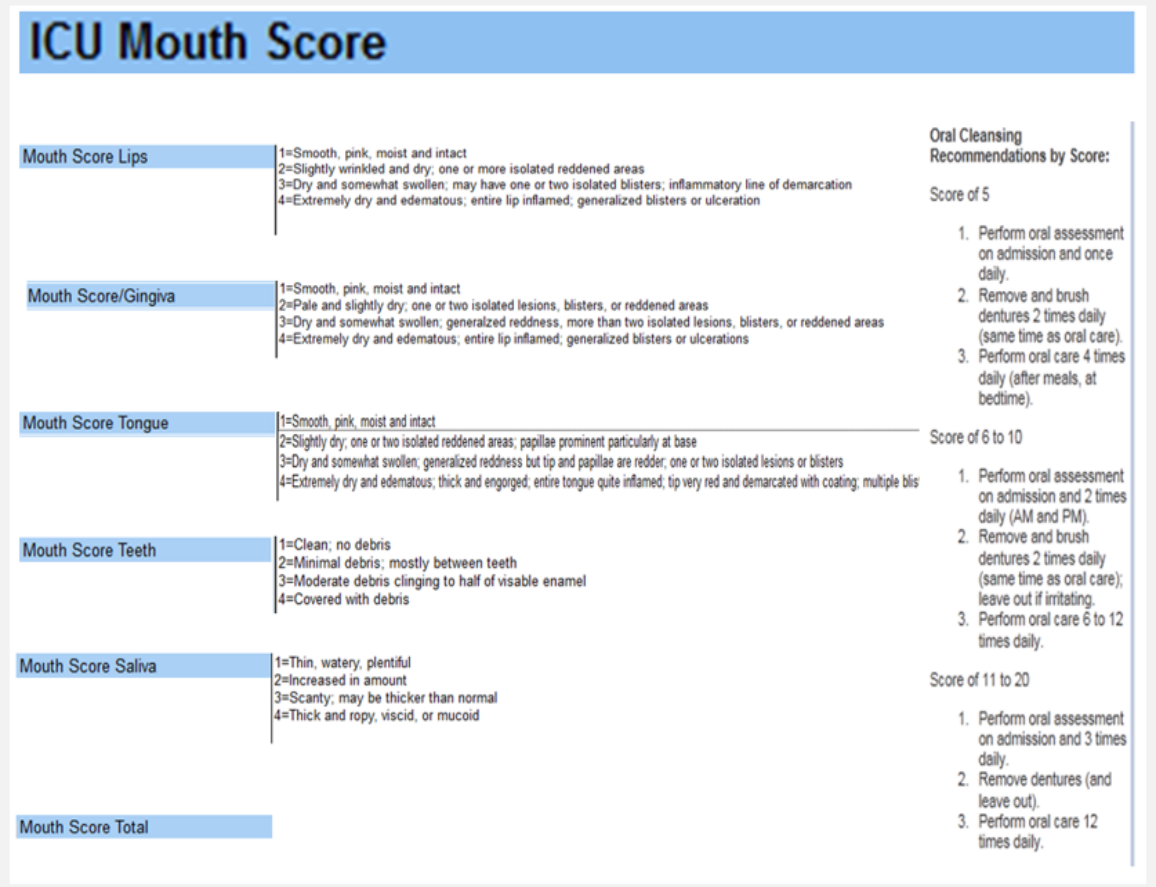

Figure 3. ICU mouth score and oral cleansing recommendations by score. (adapted from Lee Memorial Health System, n.d.).

Collaboration With the Intensive Care Units

The project team contacted the directors of the intensive care units with a request to consider renaming the ICU mouth score in the electronic health record to “oral assessment”, and having one system policy to outline oral assessment and care for hospitalized adults. The directors of the ICUs agreed to rename the oral assessment and to create one system policy and procedure for oral care (Appendix A); however, the directors of the intensive care units did not agree to make any changes to the existing oral care recommendations by score for the patients in the ICU setting.

The oral care recommendations by score provide directions to meet the nursing unit's standard of care. The oral care recommendations by score appear in a reference area of the electronic health record when the oral assessment screen is active to serve as a quick reference for staff. The project team evaluated the ICU oral care recommendations; however, decided to change the recommendations and assessment intervals for adults outside of the ICU to make them more realistic to the nursing standard of care provided on progressive care and medical-surgical units. The directors of the intensive care units agreed to have both ICU and non-ICU oral care recommendations appear in the reference area of the oral assessment screen in the electronic health record.

Policy and Procedure

The project team and the directors of the intensive care units agreed that the purpose of the policy was to provide appropriate effective oral care; thus promoting patient comfort, reducing the risk of oral infection, aspiration pneumonia, and ventilator associated pneumonia. The policy outlines the use of the oral assessment tool, identifies contraindications, and provides an equipment list. The assessment score indicates that a score of five or less is indicative of a normal mouth. The project team recommended oral assessment once daily for all adult patients outside of the ICUs, and every shift for patients with a score greater than five. The rationale for assessing all patients was that all patients need assessment to determine the condition of the mouth and need access to appropriate oral care products.

The procedure outlines how to position the patient, suction, remove dental appliances, brush teeth, rinse the mouth, and document oral care. The policy does not define the frequency of oral care for non-intubated patients. The oral care

recommendations by score (Appendix B) define the frequency of assessment and oral care. Robertson and Carter (2013) supported these recommendations in non-intensive care units. Robertson and Carter anticipated that nurses on neuroscience units might find the recommendations to be an increase to the nurses' workload; however, nurses involved in their study reported anecdotally that the protocol did not have a negative impact.

The unanticipated challenge associated with the plan to change the name of the oral assessment and add non-ICU oral care recommendations by score to the electronic health record was resistance from the information systems department. The nursing representative from the information systems department expressed reluctance to rename the assessment and add a second set of oral care recommendations by score stating that the non-ICU staff should just adopt the ICU standards. The project team addressed the unanticipated challenge by agreeing to use the existing ICU mouth score assessment and documentation during the pilot, and place laminated reference cards for non-ICU oral care recommendations by score on the bulletin board in every patient room.

Implementation Plan

The project team developed the plan for pilot implementation (Appendix C) of the project using the logic model (Figure 4). The neuroscience units at two of the system's acute care hospitals will pilot the project. The team will use the system-accepted practice of plan, do, check, and act (PDCA) to implement the project pilot. Planning has already occurred. Doing is the project pilot. Checking is the evaluation plan. When satisfied with the pilot, the team will act to implement the process permanently as a system policy with appropriate changes to the electronic health record.

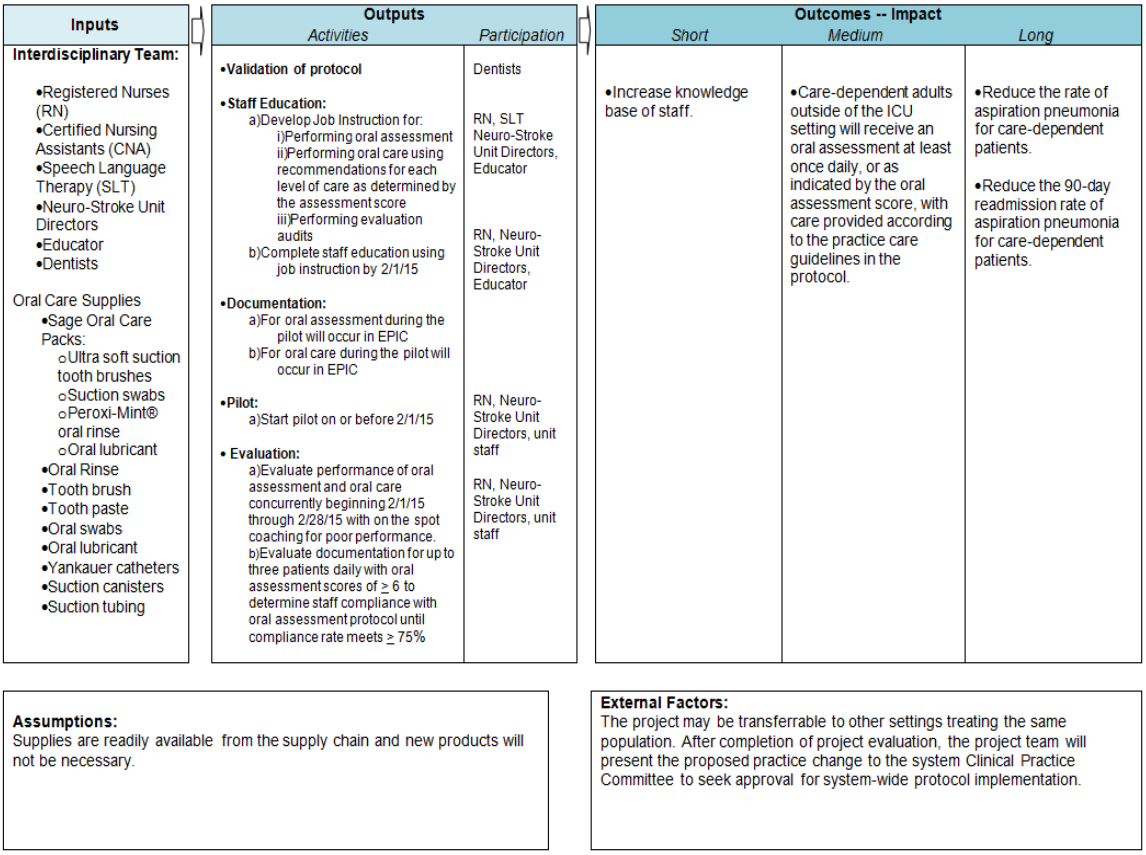

Figure 4. Logic model for oral care project implementation and evaluation plans.

Evaluation Plan

The goal of this project was to reduce the risk of aspiration for care-dependent adults by developing a policy for use of an oral assessment tool and evidence-based guidelines for oral care to guide nursing practice to ensure higher quality oral care for care-dependent adults outside of the ICU setting. The project team participated in developing the evidence-based policy (Appendix A) and non-ICU oral care recommendations by score (Appendix B). Two dentists have validated the policy and non-ICU oral care recommendations by score as appropriate to reduce the risk of aspiration for care-dependent adults.

The outcome of this project was to create a process so that care-dependent adults outside of the intensive care unit setting received an oral assessment daily, or every shift, as determined by the oral assessment score with care provided according to the practice guidelines to reduce the risk of aspiration. The project team developed a plan for evaluation (Appendix D) of the pilot using the logic model (Figure 4). The evaluation plan is a two-step evaluation, which is ongoing during the pilot implementation.

Step 1, the project team will evaluate the nurse's ability to perform the oral assessment appropriately. The oral assessment score used for the project has very specific identifiers to obtain a score of oral health. It is important that the nurse score the patient's mouth appropriately to provide the appropriate level of care established in the practice guidelines. According to of Holmes and Mountain (1993), the validity and reliability of oral assessment tools is difficult to assess because the condition of patients' mouths change rapidly causing limited ability to reproduce results. The strength of this evaluation plan is that when reviewing the mouth score immediately after assessment the condition of the patient's mouth has not changed and thus the score from both nurses should be the same because the assessment score is not subjective.

Step 2 of the evaluation plan occurs after all nurses are competent in assessment. The second step evaluates whether staff provide care according to the practice guidelines. The team has created forms to standardize the chart audits. The audit forms do not contain protected health information or patient specific information. Audits will continue until staff demonstrates at least 75% compliance with the process.

Implications

This project has several implications including the potential to advance health system policy, improve patient outcomes by reducing gaps in nursing practice, and creating positive social change. The project will advance health system policy by providing a standardized oral assessment, a policy, and oral care recommendations for adult patients in outside of the ICU setting. The proposed policy and standardized training will change the perception of the providers from oral care as an optional comfort measure to oral care as a necessity thus reducing gaps in nursing practice and reducing the risk of aspiration for care-dependent adults. Decreasing the risk of aspiration creates positive social change because patients developing aspiration pneumonia at the health system used additional resources as evidenced by the extended length of stay of 3.68 days and additional hospitalization costs of $9,608.25 - $24,236.25 compared to stroke patients in fiscal year 2013 (Agency for Health Care Administration, n.d.).

Strength and Limitations of the Project

One strength of this project was that the topic was timely as the nation moves to reduce the number of preventable complications and improve the quality of care provided to patients. There is overwhelming evidence to support oropharyngeal aspiration as a major contributing factor leading to pneumonia in care-dependent adults (Armstrong & Mosher, 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon et al., 2009; Pace & McCullough, 2010). Oral care is an important intervention associated with prevention of aspiration pneumonia (Armstrong & Mosher, 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon et al., 2009; Pace & McCullough, 2010). With this information, there was strong support from the project team, nursing leadership at the pilot facilities, and

system leadership. Another strength of the project was the use of relationship-based care as a theoretical foundation. Encouraging interdisciplinary staff members to create plans for the project provided incredible buy-in, which was very important to create the culture change necessary to develop a sustainable change in practice.

The limitation of the project included limited availability of evidence to support oral care recommendations outside of the ICU setting. There is an abundance of literature discussing oral care as an effective method of reducing the risk of aspiration and ventilator associated pneumonia in intubated patients. However, there is little information published regarding oral care for care-dependent adults outside of the ICU setting. According to Ames et al. (2011), standardized oral care procedures and adequate evidence to support these processes are required to reduce the risk of pneumonia. Another limitation was that the pilot could not contain a control group to compare for change in practice. This was impossible because the health system did not have a method of assessment or standardized oral care guidelines for patients outside of the intensive care units prior to this project. Any assessment or documentation in the electronic health record will be a direct result of the project.

Research to support the efficacy of oral care in reducing aspiration pneumonia in the care-dependent adult outside of the ICU setting is recommended because the increased cost of caring for the pneumonia creates additional burden to society. While this project specifically addressed the acute care setting, adequate oral care is also a necessity in the post-acute and home settings to reduce the risk of aspiration.

Analysis of Self

This project provided an excellent platform for my development as a leader and transition into the role of DNP. I have held nursing leadership positions for many years; however, this was my first opportunity to produce a plan for a quality improvement project at the system level involving a major change to nursing practice. The project was challenging because project management required input from staff at two facilities who found it difficult to coordinate meeting times or places. The project required advanced communication skills to create changes to the existing ICU policy to make one oral care policy and procedure for the health system, rather than having a policy for the intensive care units, and a separate policy for the non-intensive care units. The project helped to improve my ability to use a systems leadership approach to ensure that organization-wide changes in care delivery have the ability to provide improvements in health outcomes and enhance patient safety, which is a core competency for DNP prepared nurses (American Association of Colleges of Nursing, 2006). I feel that this project has been a beneficial experience to help prepare me for my long-term goal of executive leadership.

Summary

The essential message of this project is that providing oral care for care-dependent hospitalized adults is a nursing responsibility and an essential component of nursing care. The relationship-based care model (Koloroutis, 2004) is supportive of this basic principle and describes the nurses' role as one that watches over the patient to prevent complications, acts as the patient's advocate, collaborates with other professionals, leads the patient to better health by guiding their care, and teaches how to improve outcomes. It is difficult for any provider, licensed or unlicensed, to provide adequate oral care

without standardized practices. Without standardized practices, assessment of the need for care can be subjective.

An interdisciplinary project team used the relationship-based care model and the logic model to develop a draft policy and evidence-based practice guidelines outlining oral assessment and care using an oral assessment tool, plans for pilot implementation, and plans for evaluation. Two external dentists validated the practice guidelines. Implementation and evaluation of the products of the project occurred by the institution after project completion.

Section 5: Scholarly Product

Oral Care to Reduce the Risk of Aspiration Pneumonia: Care-Dependent Adults Outside of the ICU Need it too!

Oropharyngeal aspiration is a key contributing cause of pneumonia in care-dependent adults (Armstrong & Mosher, 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon, Lee, & Binns, 2009; Pace & McCullough, 2010). Improper swallowing or regurgitation of oropharyngeal secretions, food, liquids, or gastric contents may cause aspiration. When oropharyngeal secretions pool in the mouth bacteria colonize the secretions.

Aspiration occurs when gastric or oropharyngeal gastric or oropharyngeal contents colonized with bacteria enter the lungs from accidental inhalation, or leak silently from pooling in the mouth (Pace & McCullough, 2010). If secretions enter the lungs in ample quantities, bacteria can overwhelm the defenses of the host causing aspiration pneumonia (Langdon et al., 2009; Marik, & Kaplan, 2003). Patients have a markedly higher risk for aspiration when they have motor and cognitive dysfunction, mouth breathe, receive oxygen therapy, have insufficient oral intake, or are receiving treatments or drugs that cause or exacerbate xerostoma (Armstrong & Mosher, 2011; Cohn & Fulton, 2006).

Oral care is an important intervention associated with prevention of aspiration pneumonia; however, many nurses make the practice a low clinical priority because they view oral care in the care-dependent adult as a comfort measure, (Cohn & Fulton, 2006; Dickson, 2012). In today's fast-paced technologically demanding health care environment; unfortunately, comfort measures often become a low clinical priority in the

nurses' daily routine (Cohn & Fulton, 2006; Dickson, 2012). This is particularly true outside of the intensive care unit (ICU) setting where the standard of care often does not define specific expectations for oral care and nurses care for several patients each shift.

Oral assessment can be subjective without standardization (Chan, Lee, Poh, Ling, & Prabhakaran, 2011). Standardized oral assessment tools allow objective assessment of the mouth. Providing adequate oral care is also difficult without standardized practices. This article will detail an evidence-based project that occurred at a large public health system in the Southeastern United States using an interdisciplinary team to develop standardized processes to guide staff in providing consistently adequate oral care for care-dependent adults outside of the ICU setting.

The Problem

Oral care is an essential component of nursing care for hospitalized adults. Providing oral care for adults who are unable to provide self-care is a nursing responsibility; however, an estimated 44-65% of these patients do not receive adequate oral care (Cohn & Fulton, 2006; Stout, Goulding, & Powell, 2009). One reason for this is that nurses often lack evidence-based knowledge to understand the importance of oral care or how to deliver it appropriately causing nurses to view oral care in the care-dependent adult as a comfort measure (Armstrong & Mosher, 2011; Chan et al., 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon et al., 2009; Pace & McCullough, 2010).

This project took place in a large public health system where a policy and standardize practice guidelines outlining oral care in the adult ICUs existed; however, nothing existed to standardize oral care once the patient transferred out of the ICU. The lack of standardization of oral care outside of the ICU was a problem because it provided

an opportunity for gaps in nursing practice. This was a particular problem because the system serves a large population of adults at high risk for aspiration with a comprehensive stroke center, two primary stroke centers, a stroke-ready hospital, and a comprehensive inpatient rehabilitation hospital. The health system reported 1,279 discharges of adults 18 years or greater with a diagnosis of stroke between October 2012 and September 2013 (Table 1). During the same period, the health system reported 373 hospitalizations of adults 18 years or greater with a diagnosis of aspiration pneumonitis at discharge demonstrating 3.68 days longer average length of stay and $9,608.25 - $24,236.25 higher cost than the health system's average stroke patient (Table 2). While it was not possible to determine if all of the adults discharged with aspiration pneumonitis were stroke patients, statistics indicate that as many as one-third of all stroke patients are susceptible to pneumonia, often from aspiration (Armstrong & Mosher, 2011).

Table 1

Stroke

The Health System October 2012-September 2013

Facility	Hospitalizations	Charges Low	Charges High	ALOS
Hospital A	216	18,954	33,392	4.2
Hospital B	584	21,205	46,122	5.0
Hospital C	157	17,443	32,779	4.2
Hospital D	322	20,115	47,715	5.1
System Average	1,279 total	19,429	40,002	4.62

Note. Adapted from Florida Agency for Health Care Administration. (n.d.). Compare facilities from http://www.floridahealthfinder.gov/CompareCare/CompareFacilities.aspx

Table 2

Aspiration Pneumonitis at Discharge

The Health System October 2012-September 2013

Facility	Hospitalizations	Charges Low	Charges High	ALOS
Hospital A	89	27,633	55,112	8
Hospital B	136	31,869	73,978	8.6
Hospital C	102	26,861	58,235	8.8
Hospital D	42	27,386	69,628	7.8
System Average	373 total	28,437.25	64,238.25	8.3

Note. Adapted from Florida Agency for Health Care Administration. (n.d.). Compare facilities from http://www.floridahealthfinder.gov/CompareCare/CompareFacilities.aspx

Purpose, Goals, and Outcomes

The purpose of the project was to address a potential gap in nursing practice related to the lack of standardization of oral care outside of the ICU by engaging an interdisciplinary team to develop a policy and evidence-based guidelines for oral care using a validated oral assessment tool. The long-term goal of this project was to guide nursing practice, ensure higher quality oral care, and reduce the risk of aspiration for hospitalized care-dependent adults outside of the ICU setting by developing a policy and evidence-based guidelines for oral care using a validated oral assessment tool. The short-term goal of the project was to increase staff knowledge. The outcome of this project was to create a process so that care dependent adults outside of the intensive care unit setting received an oral assessment daily, or every shift, as determined by the oral

assessment score with care provided according to the practice guidelines to reduce the risk of aspiration.

Significance for Future Practice, Research, and Social Change

While there is significant literature to support oral care as an effective method of reducing the risk of aspiration and ventilator associated pneumonia in intubated patients, there is little information published regarding oral care for care-dependent adults outside of the ICU setting. Future research to support the value of oral care in reducing aspiration pneumonia in the care-dependent adult outside of the ICU setting is necessary. Addressing this issue will create a positive social change because patients developing aspiration pneumonia use a significant amount of resources creating an additional burden for care. Implementing evidence-based nursing interventions to reduce the number of preventable complications is important to creating positive social change and reducing the burden to society.

Literature and Evidence Informing the Project

Aspiration can occur when oropharyngeal secretions, food, liquids, or gastric contents enter the lungs from improper swallowing, regurgitation, or when oropharyngeal contents leak silently from pooling in the mouth. Reduced motor function and control of the tongue, xerostoma, and cognitive dysfunction can make it difficult to independently clear food and secretions from the oral cavity placing patients at high risk for aspiration (Armstrong & Mosher, 2011; Cohn & Fulton, 2006). Mouth breathing, oxygen therapy, inadequate oral intake, and treatments or drugs that cause or exacerbate xerostoma also increase the risk of aspiration (Armstrong & Mosher, 2011; Cohn & Fulton, 2006). Oral care is an important intervention associated with prevention of aspiration pneumonia

because oral care removes pooled secretions, removes residual debris, reduces plaque, and moistens the oral cavity (Armstrong & Mosher, 2011; Cohn & Fulton, 2006; Dickson, 2012; Langdon et al., 2009; Pace & McCullough, 2010).

According to Cohn and Fulton (2006), 44-65% of care-dependent adults do not receive adequate oral care. Major themes in the literature related to barriers for providing oral care to the care dependent adult include a lack of knowledge, reliance on tradition, inconsistent or absent oral assessment, a lack of standardization of oral care standards and practices, insufficient or conflicting evidence, administrative and clinical issues, and lack of interdisciplinary collaboration (Ames et al., 2011; Brady, 2011; Chan et al, 2011; Cohn & Fulton, 2006; Stout et al., 2009; Wilson, 2011).

Nursing staff often view oral care for the non-intubated adult as a comfort measure because they do not have an adequate knowledge base to support the value of oral care in preventing aspiration. Administrative issues including inadequate staffing levels and excessive workloads compound this problem often resulting in delegation of oral care delivery to unlicensed personnel without specific instructions or guidelines for providing the care (Cohn & Fulton, 2006; Dickson, 2012).

Providing adequate oral care without standardized practices can be difficult for any provider, licensed or unlicensed. For example, researchers repeatedly identify tooth brushing as an effective method of plaque removal and method for reducing oral microbial load; however, studies indicate that tooth brushing seldom occurs in actual practice (Chan et al., 2011). Instead of toothbrushes, nurses and unlicensed personnel often use foam swabs or gauze to perform oral care (Chan et al, 2011; Stout et al., 2009). While nurses have traditionally used these methods, they are less effective at removing

plaque and reducing bacterial load than tooth brushing (Chan et al, 2011; Cohn, & Fulton, 2006).

Without the use of standardized oral assessment tools, oral assessment can be subjective (Chan et al., 2011). Several studies report that implementing standardized evidence-based assessment tools, oral care practice guidelines, and educating staff to increase their knowledge base addresses gaps in nursing practice to improve the quality of oral assessment, oral care, and reduce the rate of aspiration pneumonia for care-dependent adults (Brady, 2011; Chan et al, 2011; Cohn & Fulton, 2006; Dickson, 2012; Stout et al., 2009).

Oral Assessment Tools

Researchers have reviewed several oral assessment tools. Ames et al. (2011) reported a multicenter study comparing the pre-intervention and post-intervention results of staff education and implementation of standardized oral assessments using the Beck Oral Assessment Scale (Beck, 1979) along with oral care guidelines based upon the assessment score. The study used a mucosal plaque score to evaluate outcomes. Patients in the intervention group demonstrated overall improvement in Beck Oral Assessment Scale scores between days one and five. Mucosal plaque scores and Beck Oral Assessment Scale scores showed strong correlations throughout the study. The study reported the highest correlation between the two scores on day 5 (r=0.798, P=<.001, n=43, Ames et al., 2011, p103). The Beck Oral Assessment Scale defines parameters to assess lips, mucosa and gingiva, tongue, teeth, saliva, voice quality, and ability to swallow. The Beck Oral Assessment Scale - modified (Ames et al., 2011) does not assess voice quality or ability to swallow.

Holmes and Mountain (1993) reviewed oral assessment guides developed by Beck (1979), Eliers, Berger, and Petersen (1988), and Passos and Brand (1966). According to Holmes and Mountain, the validity and reliability of the tools was difficult to assess because the condition of patients' mouths change rapidly limiting the ability to provide reproducible results. Of all of the tools reviewed, Holmes and Mountain felt that the tool by Eliers et al. (1988) was most clinically useful because it was easy to use and provided a good indication of the overall oral condition; however, Holmes and Mountain recommended changes for all tools reviewed.

Chan et al. (2011) reported implementation of an evidence-based project using an oral assessment tool published by Andersson, Persson, Hallberg, and Renvert (1999), a modified version of the tool developed by Elers et al. (1988). The project resulted in improved median pre to post-project implementation scores from 60% to 100% in a sample of 25 patients. Chan et al. (2011) cited Holmes and Mountain's (1993) review as their rationale for choosing Andersson et al.'s oral assessment tool. The tool differs from the tool developed by Beck (1979) and the tool developed by Elers et al. (1988) because it describes conditions of the mucosa and tongue including bleeding and ulcerations not assessed in the other tools.

Oral Care Methods

Information on oral care for the non-intubated adult is limited. Chlorhexidine is an oral antibacterial agent recommended to reduce the risk of ventilator-associated pneumonia and for oral care post cardiac surgery (Ames et al., 2011; Armstrong et al, 2011; Brady et al., 2011; Chan et al, 2011; Cohn, & Fulton, 2006). Researchers do not support the use of Chlorhexidine for other patient types. Recommended products for oral

care in the non-intubated adult include fluoride toothpaste, diluted sodium bicarbonate, solutions containing hydrogen peroxide, and moisturizers (Ames et al., 2011; Brady et al., 2011; Chan et al, 2011; Cohn, & Fulton, 2006).

Tooth brushing is identifiable as an effective method of plaque removal and method for reducing oral microbial load; however, according to Chan et al. (2011), tooth brushing seldom occurs in actual practice. Nurses and unlicensed personnel often use foam swabs or gauze to perform oral care instead of using a toothbrush (Chan et al, 2011; Stout et al., 2009). While nurses have traditionally used these methods, they are less effective at removing plaque and reducing bacterial load than tooth brushing (Chan et al, 2011; Cohn, & Fulton, 2006). Researchers advise reserving foam swabs and gauze for patients who are unable to tolerate the use of a toothbrush.

Models used to Inform the Project

Using theory to guide an evidence-based project is important because it provides explanations of phenomenon, generates knowledge, and helps to identify the known and unknown. The theoretical foundations of relationship-based care and the logic model guided the project. Relationship-based care is a model that recognizes that the provision of health care occurs using fundamental relationships. The three fundamental relationships recognized in the model are the provider's relationship with patients and families, the provider's relationship with his or her own self, and the provider's relationship with colleagues (Koloroutis, 2004). Relationship-based care (RBC) provides a model for implementing change that focuses on inspiration, infrastructure, evidence, and education.

The basic context of RBC is that people will fully participate in change when they are inspired to believe they add value to processes, contribute to a vision, have the appropriate infrastructure to support the vision and operationalize it, have education to perform at the highest capacity, and have clearly articulated goals for outcomes that will demonstrate evidence of desired change (Koloroutis, 2004). According to the model, individuals bring their own unique perspectives into a project based upon their professional training and personal experiences (Koloroutis, 2004). This highlights the need to involve an interdisciplinary team for development of policies and protocols because nursing does not care for any patient without the assistance or expertise of other professionals. Involving an interdisciplinary team in creating the policies and protocols allows the staff to own the process and support a sustainable change in practice.

The logic model uses a visual approach for project management to identify a realistic flow to projects by identifying the goals of a project, necessary resources or inputs to meet the goals, the processes or outputs needed to achieve the goals, and the outcomes of the project including the project's impact or measureable results (Kettner, Moroney, & Martin, 2008). The project team used the logic model initially to identify the resources necessary for project planning (Figure 1). The project also used logic model to develop the plans for piloting and evaluating the project (Figure 2).

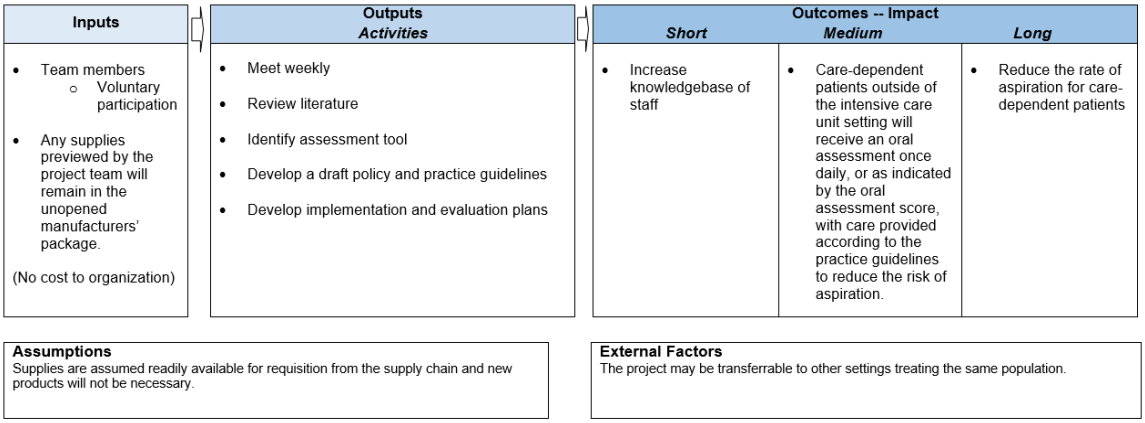

Figure 1. Logic model for oral care project management.

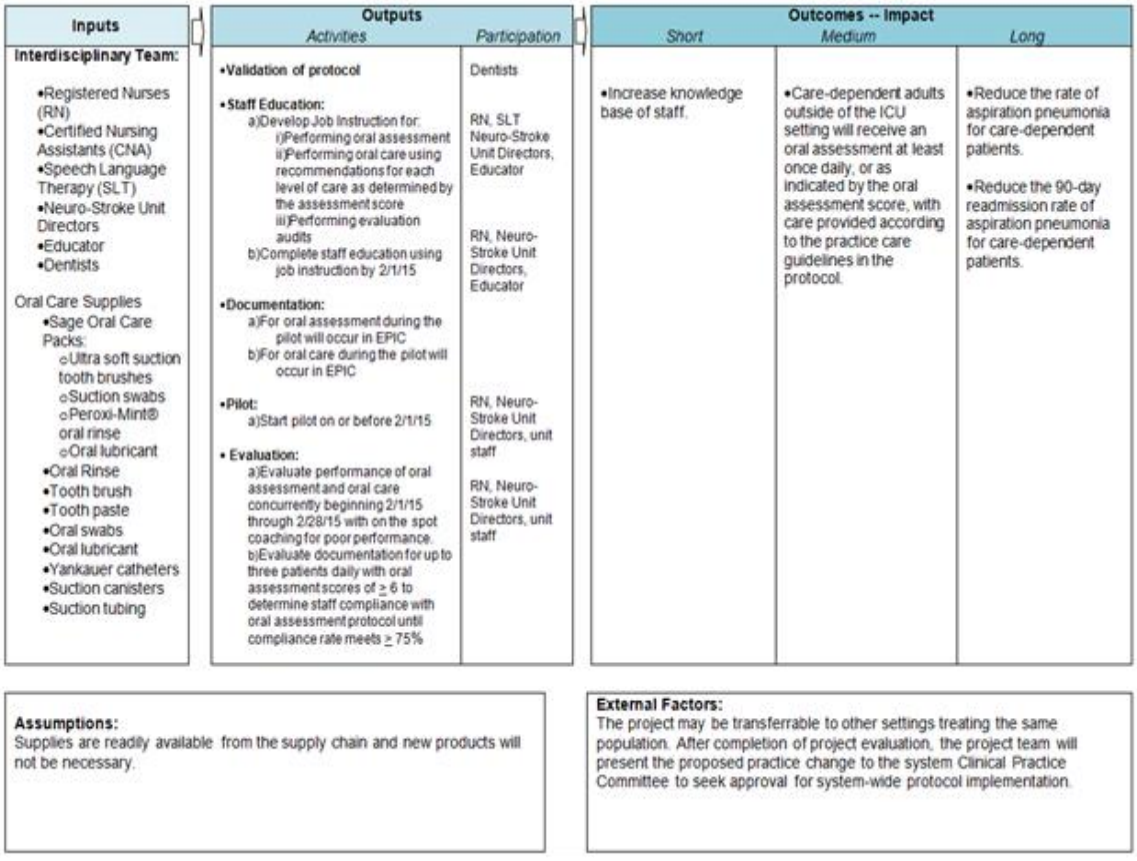

Figure 2. Logic model for oral care project implementation and evaluation plans.

Major Approach/Steps used to Complete Project

After Institutional Review Board approval, the quality improvement project took place at a public health system in the Southeast United States. As a quality improvement project, there was no collection of data. The context of the quality improvement project was that the health system did not have an evidence-based policy and procedure outlining assessment, evidence-based assessment tool, or standardized practice guidelines for providing oral care to the hospitalized care-dependent adult outside of the intensive care unit setting. The lack of standardized evidence-based processes provided an opportunity for gaps in nursing practice. The context, purpose, and goal of the project met well with the mission and vision of the health system. Products of the quality improvement project include a draft policy and evidence-based practice guidelines outlining oral assessment and care using an oral assessment tool, plans for pilot implementation, and plans for evaluation. Implementation and evaluation of the products of the project occurred by the institution after project completion.

The elements of the overall project undertaken during the project were:

1. Assembly of an interdisciplinary team of institutional stakeholders,
2. Review of relevant literature with the project team,
3. Identification of an appropriate oral assessment tool,
4. Development of a policy outlining oral assessment and use of evidence-based oral care guidelines,
5. Validation of the policy and care guidelines via external scholars,
6. Development of plans for implementation and evaluation

The Interdisciplinary Project Team

Assembling the interdisciplinary team of institutional stakeholders required thoughtful and purposeful planning (Kelly, 2011). Recruitment of team members occurred through the shared governance unit councils of the two-neuroscience units identified to pilot the project. Team members were chosen because of their expressed interest in the project and ability to serve as subject matter experts. The project team included: the DNP researcher writer of the project, the directors of the neuroscience-nursing units, the educators of the neuroscience-nursing units, nursing representatives from the two neuroscience-nursing units and a general medical nursing unit, a speech and language pathologist, two external dentists, and a member of the lean transformation team to provide expert assistance for developing standard work practices. The two external dentists were included based upon willingness to participate in the project to provide expert opinion, and validate the practice guidelines.

The project team met several times over a period of one month to complete this project. Project team members received background information and evidence in the form of a literature review during the first few meetings. Project team members were responsible to perform in-depth reviews of the literature between meetings and came to the meetings prepared to share their expertise to provide contextual insight relative to the project.

Major Products of the Project

Oral Assessment Scale

As discussed, the health care system already had a policy and practice guidelines in-place involving an oral assessment scale for patients in the intensive care unit. The

review of Holmes and Mountain (1993) indicated that validity and reliability of oral assessment scales is difficult to assess because the condition of patients' mouths change rapidly limiting the ability to reproduce results. After reviewing the literature, the interdisciplinary team identified the assessment scale used by the intensive care units as the Beck oral assessment scale - modified (Ames et al., 2011). The only difference between the system scale and the scale modified by Ames et al. was the oral care recommendations based upon the mouth score. The oral care recommendations by score provide directions to meet the nursing unit's standard of care. The project team decided to use the Beck oral assessment scale - modified because use of the assessment scale, along with a bundle of care items, had demonstrated a significant reduction of ventilator-associated pneumonias within the health system. The scale already existed in the electronic health record; however, the scale in the electronic health record required editing to change the name to eliminate the specific association to the intensive care units. The project team collaborated with the directors of the ICUs to make this change in the electronic health record.

Policy and Procedure

The project team also collaborated with the directors of the ICUs to develop one system-wide policy and procedure for oral assessment and care (Appendix A). The policy outlines the use of the oral assessment tool, identifies contraindications, and provides an equipment list. The assessment score indicates that a score of five or less is indicative of a normal mouth. The project team recommended oral assessment once daily for all adult patients outside of the intensive care units, and every shift for patients with a score greater than five. The rationale for assessing all patients was that all patients need

assessment to determine the condition of the mouth. Thus, patients that have the ability to perform self-care would also have access to appropriate oral care products.

The procedure outlines how to position the patient, suction, remove dental appliances, brush teeth, rinse the mouth, and document oral care. The policy does not define the frequency of oral care for non-intubated patients. The oral care recommendations by score (Appendix B) define the frequency of assessment and oral care. The oral care recommendations by score appear in a reference area of the electronic health record when the oral assessment screen is active to serve as a quick reference for staff. The project team decided to change the recommendations and assessment intervals for adults outside of the ICU to make them more realistic to the nursing standard of care provided on progressive care and medical-surgical units. The directors of the intensive care units agreed to have both ICU and non-ICU oral care recommendations appear in the reference area of the oral assessment screen in the electronic health record. Robertson and Carter (2013) support these recommendations in non-intensive care units. In fact, Robertson and Carter anticipated that nurses on neuroscience units might find the recommendations to be an increase to the nurses' workload; however, nurses involved in their study reported anecdotally that the protocol did not have a negative impact.

Implementation Plan

The neuroscience units at two of the system's acute care hospitals will pilot the project. The team will use the system-accepted practice of plan, do, check, and act (PDCA) to implement the project pilot (Appendix C). Planning has already occurred. Doing is the project pilot. Checking is the evaluation plan. When satisfied with the pilot,

the team will act to implement the process permanently as a system policy with appropriate changes to the electronic health record.

Evaluation Plan

One must consider the project goals and desired outcomes when developing an evaluation plan. The goal of this project was to reduce the risk of aspiration for care-dependent adults by developing a policy for use of an oral assessment tool and evidence-based guidelines for oral care to guide nursing practice to ensure higher quality oral care for care-dependent adults outside of the intensive care unit setting. The project team participated in developing the evidence-based policy and non-ICU oral care recommendations by score. Two dentists validated the policy and non-ICU oral care recommendations by score as appropriate to reduce the risk of aspiration for care-dependent adults.

The outcome of this project was to create a process so that care-dependent adults outside of the ICU setting received an oral assessment daily, or every shift, as determined by the oral assessment score with care provided according to the practice guidelines to reduce the risk of aspiration. The evaluation plan for project outcomes (Appendix D) is a two-step evaluation, which was ongoing during the pilot implementation.

Summary

Providing oral care for care-dependent hospitalized adults is a nursing responsibility and an essential component of nursing care. The relationship-based care model (Koloroutis, 2004) is supportive of this basic principle and describes the nurses' role as one that watches over the patient to prevent complications, acts as the patient's advocate, collaborates with other professionals, leads the patient to better health by

guiding their care, and teaches how to improve outcomes. It is difficult for any provider, licensed or unlicensed, to provide adequate oral care without standardized practices. Without standardized practices, assessment of the need for care can be subjective. An interdisciplinary project team used the relationship-based care model and the logic model to develop a draft policy and evidence-based practice guidelines outlining oral assessment and care using an oral assessment tool, plans for pilot implementation, and plans for evaluation. Two external dentists validated the practice guidelines. Implementation and evaluation of the products of the project occurred by the institution after project completion.

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Appendix A: Policy and Procedure

POLICY & PROCEDURE

ORAL ASSESSMENT AND CARE FOR ADULTS	LOCATOR NUMBER

TYPE		
	☐ **System-wide -** A formal statement of values, intents (policy), and expectations (procedure) that applies to every employee throughout the System. ☒ **Multidisciplinary** - A formal statement of values, intents (policy), and expectations (procedure) that applies to more than one discipline, and is usually of a clinical nature. **Check below all areas to which this applies.** ☐ **Departmental -** A formal statement of values, intents (policy), and expectations (procedure) exclusive to a particular department or group of people within a department at one or multiple locations that does not impact any other area.	**CHAPTER:** **TAB:** **POLICY #:**

Disciplines / locations to which this multidisciplinary policy applies:

☐ Health Information Management	☐ Pharmacy	☒ Acute Care Hospital Nursing
☐ Housekeeping	☐ Plant Operations	☐ Ambulatory Services
☐ Information Systems	☐ Radiology	☐ Home Health
☐ Laboratory	☐ Rehabilitation Services	☐ HPCC
☐ Legal Services	☐ Respiratory	☐ Physician Offices
☐ Nutrition	☐ Security	☒ Rehab Hospital
☐ Other _____	_____	_____

Date Originated:	Reviewed/No Revision:	Dates Revised:	Next Review Date:

Author(s):

Approved by:

Policy Administrator: **Date:**

As Needed:

Medical Director: **Date:**

Board of Directors: **Date:**

PURPOSE:

To provide appropriate effective oral care; thus promoting patient comfort, reducing the risk of oral infection, aspiration pneumonia, and ventilator associated pneumonia.

POLICY:

A. Evaluate ALL adult patients using the oral assessment score upon admission, prior to intubation (if possible), and as indicated by assessment score.

1. Perform oral care at intervals recommended by the oral care assessment score.
   a. Perform oral care for intubated patients every 2 hours.

2. Whenever physically possible, patients should be encouraged to perform their own oral care. Provide assistance as required.

B. Contraindications:

1. Patients with allergies to any component of the necessary equipment;

2. Conditions which prohibit oral activity such as unstable oral-maxillofacial trauma, clotting disorders, or severe ulceration;

   a. Treatment **may** be initiated for these patients once appropriateness is verified by physician order.

C. Equipment:

1. Daily oral care package or appropriate individual products

2. Non-sterile gloves

3. Water or normal saline solution

4. Dedicated suction set-up for oral care

5. Syringe (optional)

6. Small flashlight (optional)

PROCEDURE:

A. Gather all equipment

B. Explain procedure to patient and / or family present

C. Position the patient in high-fowlers position

   a. Position in semi-fowlers with patient's head to the side if unable to position in high-fowlers

D. Provide suction, as needed, to remove oropharyngeal secretions

E. Remove all dental appliances

F. Brush teeth using a soft toothbrush or ultra-soft suction toothbrush, and pea-sized amount of toothpaste

a. Brush for approximately one to two minutes
b. Exert gentle pressure while moving in short horizontal or circular strokes

G. For edentulous patients, use oral swab, or gauze wrapped finger as indicated by oral assessment

H. Gently brush the surface of the tongue

I. Massage and clean soft oral tissue

J. Rinse mouth with water, normal saline, or approved oral rinse

a. Use Peroxi-mint® for all patients with assessment score of 11 or greater

K. Suction, if necessary, to remove excess fluid

L. Apply mouth moistener to inside of mouth, if needed

M. Apply lip balm, if needed.

N. Documentation**:**

1. Document initial oral assessment on the adult assessment screen in EPIC

2. For subsequent oral assessments, add assessment to treatment screen, and document in real-time at point of care.

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Appendix B: Non-ICU Oral Care Recommendations by Score

Score 0 - 5:

1. Perform an oral assessment once a day.
2. Follow oral care as outlined in the oral care procedure twice per day.

Score 6 - 10:

1. Perform oral assessments twice a day.
2. Follow oral care as outlined in the oral care procedure twice per day.
3. Moisten mouth/lips every 4 hours.

Score 11 - 15:

1. Perform an oral assessment every shift (every 8-12 h).
2. Follow oral care as outlined in the oral care procedure every 8-12 h.
3. Use an ultra-soft toothbrush.
4. Rinse mouth with Peroxi-mint® followed by water or normal saline.
5. Moisten lips and mouth every 2 h.

Score 16 - 20:

1. Perform an oral assessment every shift (every 8-12 h).
2. Follow oral care as outlined in the oral care procedure every 8-12 h.
3. Use an ultra-soft toothbrush.
4. If brushing is not possible, use soft gauze-wrapped finger, or swab.
5. Rinse mouth with Peroxi-mint® followed by water or normal saline.
6. Moisten lips and mouth every 1 - 2 h.

Appendix C: Implementation Plan

1. All registered nurses assessing patients on the selected units will receive orientation to the oral assessment score.
    a. The project team members and unit directors will be responsible to discuss the project and demonstrate the ICU mouth score in the electronic health record during unit huddles. The unit huddles occur several times each shift and staff members are encouraged to attend at least one huddle daily.
2. Interdisciplinary staff providing oral care for patients on the selected units will receive education using standard job instruction forms developed by the project team.
    a. Educators will schedule brief meetings throughout the month of January to review the job instruction with interdisciplinary staff.
    b. The educator or a member of the project team will sign the bottom of the job instruction form for the staff member when the staff member can teach-back the skill.
    c. The staff member will return the job instruction form to the unit director for filing.
3. The project team will laminate and post cards with the non-ICU oral care recommendations by score on the bulletin board in every patient room.
4. The team will implement the pilot policy and practice guidelines.
5. If the project team identifies a problem at any point in the process, the team will meet to address the issue, plan an appropriate correction, do to implement the change, and check to evaluate if the change was effective.

6. Finally, when satisfied with the pilot, the team will act to implement the process permanently as a system policy with appropriate changes to the electronic health record.
    a. Project team will present the pilot, recommended oral care recommendations by score, and proposed policy to appropriate committees to seek approval.

Appendix D: Evaluation Plan

Step One:

1. The interdisciplinary project team and the unit educators will evaluate each nurse's ability to assess the mouth by reassessing one patient immediately after each nurse performs an assessment to determine if the nurse scored the patient's mouth correctly.
    a. If the nurse does score the mouth correctly, the evaluator will deem the nurse competent.
    b. If the nurse does not, the observer will perform on-the-spot education and continue to observe the nurse assess patients until he or she can demonstrate the ability to score a mouth correctly.

Step Two:

1. Each staff member performing oral care on the two pilot units will receive training using the job instruction forms.
2. The interdisciplinary project team and the unit directors will audit the electronic health record of up to three patients daily who have an oral assessment score of six or more to determine if the documented oral care in the electronic health record meets the standard of care established in the practice guidelines.
3. The unit director or designee will provide follow-up to staff members who fail to meet the standard of care.
4. The audit will occur until aggregate results demonstrate a minimum of 75% compliance with the standard of care.

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POLICY & PROCEDURE

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☐ Health Information Management	☐ Pharmacy	☒ Acute Care Hospital Nursing
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☐ Information Systems	☐ Radiology	☐ Home Health
☐ Laboratory	☐ Rehabilitation Services	☐ HPCC
☐ Legal Services	☐ Respiratory	☐ Physician Offices
☐ Nutrition	☐ Security	☒ Rehab Hospital
☐ Other _____	_____	_____

Date Originated:	Reviewed/No Revision:	Dates Revised:	Next Review Date:

Author(s):

Approved by:

Policy Administrator: **Date:**

As Needed:

Medical Director: **Date:**

Board of Directors: **Date:**

PURPOSE:

To provide appropriate effective oral care; thus promoting patient comfort, reducing the risk of oral infection, aspiration pneumonia, and ventilator associated pneumonia.

POLICY:

A. Evaluate ALL adult patients using the oral assessment score upon admission, prior to intubation (if possible), and as indicated by assessment score.

1. Perform oral care at intervals recommended by the oral care assessment score.
    a. Perform oral care for intubated patients every 2 hours.

2. Whenever physically possible, patients should be encouraged to perform their own oral care. Provide assistance as required.

B. Contraindications:

1. Patients with allergies to any component of the necessary equipment;

2. Conditions which prohibit oral activity such as unstable oral-maxillofacial trauma, clotting disorders, or severe ulceration;

    a. Treatment **may** be initiated for these patients once appropriateness is verified by physician order.

C. Equipment:

1. Daily oral care package or appropriate individual products

2. Non-sterile gloves

3. Water or normal saline solution

4. Dedicated suction set-up for oral care

5. Syringe (optional)

6. Small flashlight (optional)

PROCEDURE:

A. Gather all equipment

B. Explain procedure to patient and / or family present

C. Position the patient in high-fowlers position

1. Position in semi-fowlers with patient's head to the side if unable to position in high-fowlers

D. Provide suction, as needed, to remove oropharyngeal secretions

E. Remove all dental appliances

F. Brush teeth using a soft toothbrush or ultra-soft suction toothbrush, and pea-sized amount of toothpaste

1. Brush for approximately one to two minutes

2. Exert gentle pressure while moving in short horizontal or circular strokes

G. For edentulous patients, use oral swab, or gauze wrapped finger as indicated by oral assessment

H. Gently brush the surface of the tongue

I. Massage and clean soft oral tissue

J. Rinse mouth with water, normal saline, or approved oral rinse

1. Use Peroxi-mint® for all patients with assessment score of 11 or greater

K. Suction, if necessary, to remove excess fluid

L. Apply mouth moistener to inside of mouth, if needed

M. Apply lip balm, if needed.

N. Documentation**:**

1. Document initial oral assessment on the adult assessment screen in EPIC

2. For subsequent oral assessments, add assessment to treatment screen, and document in real-time at point of care.

REFERENCES:

AACN. (2010). Oral care for patients at risk for ventilator-associated pneumonia. http://www.aacn.org/WD/Practice/Docs/PracticeAlerts/oral%20care%2004-2010%20final.pdf

Ames, N. J., Sulima, P., Yates, J. M., McCullagh, L., Gollins, S. L., Soeken, K., & Wallen, G. R. (2011). Effects of systematic oral care in critically ill patients: A multicenter study. *American Journal of Critical Care, 20*(5), e103-e113. doi: http://dx.doi.org/10.4037/ajcc2011359

Sedwick, A. B., Lance-Smith, M., Reeder, S. J., & Nardi, J. (2012). Using evidence based practice to prevent ventilator-associated pneumonia. *Critical Care Nurse, 32*(4), 41-50. http://www.aacn.org/wd/Cetests/media/C1242.pdf

Appendix B: Non-ICU Oral Care Recommendations by Score

Score 0 - 5:

1. Perform an oral assessment once a day.
2. Follow oral care as outlined in the oral care procedure twice per day.

Score 6 - 10:

1. Perform oral assessments twice a day.
2. Follow oral care as outlined in the oral care procedure twice per day.
3. Moisten mouth/lips every 4 hours.

Score 11 - 15:

1. Perform an oral assessment every shift (every 8-12 h).
2. Follow oral care as outlined in the oral care procedure every 8-12 h.
3. Use an ultra-soft toothbrush.
4. Rinse mouth with Peroxi-mint® followed by water or normal saline.
5. Moisten lips and mouth every 2 h.

Score 16 - 20:

1. Perform an oral assessment every shift (every 8-12 h).
2. Follow oral care as outlined in the oral care procedure every 8-12 h.
3. Use an ultra-soft toothbrush.
4. If brushing is not possible, use soft gauze-wrapped finger, or swab.
5. Rinse mouth with Peroxi-mint® followed by water or normal saline.
6. Moisten lips and mouth every 1 - 2 h.

Appendix C: Implementation Plan

1. All registered nurses assessing patients on the selected units will receive orientation to the oral assessment score.
    a. The project team members and unit directors will be responsible to discuss the project and demonstrate the ICU mouth score in the electronic health record during unit huddles. The unit huddles occur several times each shift and staff members are encouraged to attend at least one huddle daily.
2. Interdisciplinary staff providing oral care for patients on the selected units will receive education using standard job instruction forms developed by the project team.
    a. Educators will schedule brief meetings throughout the month of January to review the job instruction with interdisciplinary staff.
    b. The educator or a member of the project team will sign the bottom of the job instruction form for the staff member when the staff member can teach-back the skill.
    c. The staff member will return the job instruction form to the unit director for filing.
3. The project team will laminate and post cards with the non-ICU oral care recommendations by score on the bulletin board in every patient room.
4. The team will implement the pilot policy and practice guidelines.
5. If the project team identifies a problem at any point in the process, the team will meet to address the issue, plan an appropriate correction, do to implement the change, and check to evaluate if the change was effective.

6. Finally, when satisfied with the pilot, the team will act to implement the process permanently as a system policy with appropriate changes to the electronic health record.
    a. Project team will present the pilot, recommended oral care recommendations by score, and proposed policy to appropriate committees to seek approval.

Appendix D: Evaluation Plan

Step One:

1. The interdisciplinary project team and the unit educators will evaluate each nurses' ability to assess the mouth by reassessing one patient immediately after each nurse performs an assessment to determine if the nurse scored the patient's mouth correctly.
    a. If the nurse does score the mouth correctly, the evaluator will deem the nurse competent.
    b. If the nurse does not, the observer will perform on-the-spot education and continue to observe the nurse assess patients until he or she can demonstrate the ability to score a mouth correctly.

Step Two:

1. Each staff member performing oral care on the two pilot units will receive training using the job instruction forms.
2. The interdisciplinary project team and the unit directors will audit the electronic health record of up to three patients daily who have an oral assessment score of six or more to determine if the documented oral care in the electronic health record meets the standard of care established in the practice guidelines.
3. The unit director or designee will provide follow-up to staff members who fail to meet the standard of care.
4. The audit will occur until aggregate results demonstrate a minimum of 75% compliance with the standard of care.

Appendix E: Oral Assessment Job Instruction

12/30/2014

JOB INSTRUCTION BREAKDOWN SHEET

Operation: Oral Assessment

Materials: EPIC, Gloves. Oral cleaning recommendation card

Equipment:

Version Date / Revision Date:

What ⇨	How ⇨	Why
Important Steps	**Key Points**	**Reasons**
A logical segment of the operation when something happens to advance the work.	Anything in a step that might: 1. Make or break the job 2. Injure the worker 3. Make the work easier to do, i.e. "knack", "trick", special timing or information	Reasons for the key points
1. Introduction	1. greeting, name role, purpose of visit	Put the person at ease
2. Lips	1. Explain before you perform, look for dryness, blisters, bleeding	so they know what to expect, to be able to measure
3. Gums	1.Ask them to smile, ask them to open mouth inspect roof of mouth and inside of cheeks provide explanation as you perform, look for ulcerations, redness, gums should be pink	to make it easier to see, put the pt at ease
4. Tongue	stick tongue out, lift tongue, look for cracks, redness, white patches, blisters or ulcers.	to make it easier to do, review for the abnormal mouth
5. Saliva	should not be ropy, viscid, mucoid or overly plentiful. Not if patient is drooling, or unable to contain saliva	mouth may be dry, too much saliva may increase risk for aspiration
6. Teeth	missing or cracked teeth, debris in teeth, do denture fit well? Malodorous	debris can increase risk for infection or aspiration, denture fit could increase need to rinse or clean mouth
7. Tally and document	total score per oral cleaning recommendation, document score in health record	score will identify treatment method, record score to see changes over time

Appendix F: Oral Care Job Instruction

No. Date: 12/30/14

Job Instruction Breakdown Sheet

Operation: Oral care

Important Steps	Key Points	Reasons
A logical segment of the operation when something happens to advance the work.	Anything in a step that might- 1. Make or break the job. 2. Injure the person. 3. Make the work easier to do, i.e. "knack", "trick", "special timing"	Reasons for the key points.
1. Assess patient using oral assessment	1. Upon admission 2. Frequency determined by assessment score 3. Assessment score in EPIC 4. Ensure adequate lighting	1. Determine level of care needed 2. Standard tool
2. Gather Supplies based on assessment	1. Patient who is at risk for aspiration suction oral care package needed 2. Moisturizer	1. Prevent Aspiration 2. Supplies available for use
3. Position patient appropriately	1. Semi Fowlers position 2. Head to side 3. Encourage patient to provide self-care when possible	1. Prevent aspiration 2. Promote comfort to patient
4. Suction as needed	1. Use Yankauer device	1. To remove secretions 2. Prevent aspiration
5. Remove dental appliance when applicable	1. Place dentures in cup 2. Dentures trap debris	1. Avoid damage to dentures 2. Provides access to oral mucosa
6. Brush teeth and tongue using appropriate supplies	1. Apply pea size amount of toothpaste 2. Exert gentle pressure while using circular or horizontal strokes 3. Avoid gaging patients	1. Ensure surface is clean with damaging tissue 2. Prevent excess secretions 3. Prevent vomiting
7. Rinse mouth with NS/Water and/or approved oral rinse solution	1. Suction as necessary	1. Prevent aspiration 2. Rinse off toothpaste 3. removes loosened debris and moistens oral mucosa 4. Removes access fluid
8. Apply mouth moisturizer and/or lip balm	1. Frequency according to oral assessment score	1. Comfort of patient 2. Prevents dryness and cracking

Appendix G: Oral Care Auditing Job Instruction

No. Date: 12/30/2014

Job Instruction Breakdown Sheet

Operation: Oral Care Auditing

Important Steps	Key Points	Reasons
A logical segment of the operation when something happens to advance the work	Anything in a step that might- 1. Make or break the job. 2. Injure the person. 3. Make the work easier to do, i.e. "knack", "trick", "special timing"	Reasons for the key points.
1. Identify patients with an oral assessment score of 6 or more	1. Speak with Nurses	Ensure appropriate care completed
Establish plan for observation with nurse	1. Identify need for possible suction 2. Abnormalities in oral mucosa 3. Proper sequence 4. Communicate score	Ensure standardization Determines appropriate care based on assessment score
Establish plan for observation with C.N.A	1. Ensure proper position of patient 2. Ensure appropriate equipment is used (i.e. suction) 3. Document	Ensure appropriate care completed