Infection Prevention and Control Through Hospital-Based Oral Care: Barriers and Facilitators to Providing and Documenting Oral Care in Acute Care Units

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

ABSTRACT

Objective

Oral care, key component of nursing care, has a significant effect on the prevalence of hospital-acquired pneumonias. Despite the connection between oral care and hospital-acquired pneumonias, oral care nursing practices have been found to be inconsistent, not evidence-based, and not accurately reflected in documentation. The aim of this study was to examine the issues of oral care, nursing practice, and documentation from an Infection Prevention and Control approach, while identifying the key barriers and facilitators to providing and documenting oral care in an acute care hospital.

Methods

The study, in an urban hospital in Ontario, had a mixed methods design using qualitative and quantitative methods. A series of semi-structured interviews explored barriers and facilitators to providing and documenting oral care (n=18). With consent, interviews were audio-recorded, transcribed, and thematically analyzed. Oral care audits (n=127) were used to assess the quality and frequency of documentation in the medical records of patients on nine in-patient acute care units.

Results

Interviews revealed that nursing staff experience barriers related specifically to the patient and the current methods for documenting oral care inside the patient medical record. Participants expressed concern for their patient's well-being and the prevention of oral care associated infections. Audit data revealed that oral care provision and documentation is inconsistent within and across units, with a lack of knowledge surrounding what is considered to be adequate and appropriate oral care.

Conclusion

The provision of oral care is highly dependent on patient-related factors. Participants expressed concern for patient well-being and the prevention of oral care associated infections. Documentation standards need to be developed and implemented to better express accurate oral care provision. Hospitals and other care centers should endeavor to provide ongoing education for nursing staff in relation to oral care protocols and proper standards for documentation. Nursing staff should be allowed the opportunity for continuous feedback regarding the challenges of oral care provision and any difficulties or questions surrounding methods of documentation and the associated expectations for the adequate provision of oral care.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

Introduction

A positive movement has emerged within the nursing profession to emphasize what has been referred to as the basics or fundamentals of nursing (1). Patient safety has been the overriding goal within this movement in order to advance care and prevent nurse associated errors or harm, such as healthcare-acquired infections (1,2). Beyond the scope of nursing, patient safety research studies over the past decade have focused predominantly on outcomes (e.g. adverse events) and less on their contributing factors (2).

The 2004 Canadian Adverse Events (AE) Study focused on estimating the incidence of AEs in hospital settings and found an annual rate of 7.5% of all hospital admissions in Canada (2). The Canadian AE Study provides a foundation that is essential in understanding the incidence of AEs and the burden of harm resulting from AEs in Canadian acute care hospitals (2). The increasing incidence of AEs has led to patient safety becoming a prominent health-policy focus (2). An increasing AE within Canadian acute care settings is hospital-acquired pneumonia (HAP). HAP is a common nosocomial infection and has been attributed to increases in morbidity and mortality, increases in length of stay, increased costs, and decreased quality of life (3,4,5). Oral care, a key component of nursing care has a significant effect on the prevalence of HAP, yet oral care nursing practices have been found to be inconsistent, not evidence-based and not accurately reflected in documentation (5).

HAP is typically divided into two groupings: cases in patients who have been subjected to mechanical ventilation, referred to as ventilator associated pneumonia (VAP), and cases in patients who have not, coined non-ventilator associated pneumonia (NV-HAP). Numerous studies have identified NV-HAP as a significant factor in prolonged hospital stays that

negatively impacts both patient morbidity and mortality (3,4,5). A small group of studies has examined the risk factors associated with HAP, particularly in relation to the variability of NV-HAP risk factors and the inability to use bundled care as an adequate approach to the issue (4-8). A larger group of studies has examined the impacts of oral care and the associated microbiology in relation to the removal of dental plaque and increased oral care protocols, including clinical guidelines and standards (3,5,6,7,8). The largest group of studies has focused on oral care and pneumonia in relation to nursing practice and issues with documentation, including inconsistency, insufficiency, inaccuracy, or not being evidence-based (2, 3, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16). Overall, standardized oral care practices, including aseptic solutions and teeth brushing for acutely-ill, care-dependent patients has proven beneficial for preventing NV-HAP (5-8).

NV-HAP has generally been addressed from the viewpoint of nursing practice and documentation and the associated microbiology and has not been approached from the view point of Infection Prevention and Control (IPAC) practices and surveillance. IPAC plays a significant role in monitoring and preventing hospital acquired infections and as such should be actively involved in the research and discussion surrounding NV-HAP, including, documentation, oral care, and nursing practice.

The purpose of this study was to examine the issues of oral care, nursing practice, and documentation from an IPAC approach. My research sought to identify key barriers and facilitators to providing and documenting oral care in an acute care hospital. The following sections provide an overview of existing research in this area, including hospital acquired pneumonias, microbiology, documentation, oral care, and nursing practice. This chapter also

introduces the mixed-methods approach to assessing and understanding the provision and documentation of oral care and associated nursing practices.

1.1 Outline of Chapters

To describe this work, I first review literature related to oral care provision and documentation in the acute care setting in Chapter 2. This chapter also touches upon the microbiology of non-ventilator associated pneumonia and oral care practices. Moreover, the review includes previous research that has examined the interrelated roles of nursing practice and culture change. Chapter 3 discusses in detail the study design and methods used to collect both the qualitative and quantitative data. The method for anonymizing participant interview data is also outlined. The results of the audit phase of this study are presented in Chapter 4. These results indicate that oral care documentation rates fall below an acceptable standard in the majority of cases. Chapter 5 provides a thematic analysis of the 18 participant interviews that were conducted for the qualitative portion of this study. Chapter 6 then highlights the major findings and discusses the implications of the qualitative and quantitative data when examined in tandem. Limitations of this thesis are also reported. Chapter 7 lastly summarized the main findings of this thesis and provides recommendations for future research.

1.2 Contributions

This thesis makes the following contributions:

1. Establishes a numerical understanding of oral care documentation rates, highlighting the inconsistency and lack of reliability that exists in oral care documentation.
2. Demonstrates barriers that may prevent the provision and documentation of oral care in an acute care setting through thematic analysis of qualitative data. These barriers include patient refusal, patient behaviors, patient cognitive status, time considerations, inconsistency in EMR documentation. Inconsistency across nursing staff and concern for patients from nursing staff are also discussed.
3. Validates the advantages of utilizing an IPAC approach to nursing care and documentation in the acute care setting.
4. Creates a foundation for future IPAC research through combined use of the Consolidated Framework for Implementation Research and the Theoretical Domains Framework.

CHAPTER TWO

Literature Review

The 2004 Canadian Adverse Events (AE) Study focused on estimating the incidence of AEs in hospital settings and found an annual rate of 7.5% of all hospital admissions in Canada (2). The Canadian AE Study provides a starting point that is essential in understanding the incidence of AEs and the burden of harm resulting from AEs in Canadian acute care hospitals (2). The increasing incidents of AEs has led to patient safety becoming a prominent health-policy agenda (2).

This chapter will first explore the background of hospital acquired pneumonias. Next, the non-ventilator associated pneumonia and oral care practices will be discussed. Finally, nursing practice and documentation will be investigated in relation to accountability and culture change.

2.1 Background: Hospital Acquired Pneumonias

An increasing AE within Canadian acute care settings is hospital-acquired pneumonia. Hospital-acquired pneumonia (HAP) is a common nosocomial infection and has been attributed to increases in morbidity and mortality, increases in length of stay, increased costs, and decreased quality of life (3,4,5). HAP is defined as an inflammatory condition of the lung tissue caused by infectious agents not present at the time of admission or within 48hrs of admission (5). Studies have linked oral contaminants with an increased risk of developing HAP, with the acute, care-dependent, neurologically impaired patient being particularly susceptible to acquiring HAP (5). HAP is particularly incident in older adults within acute care settings or in nursing homes (4,8). Care dependent and older patients have been identified as being particularly susceptible to HAP as result of being reliant for care activities, particularly in relation to personal hygiene.

HAP is typically divided into two groupings: those patients who have been subjected to mechanical ventilation, referred to as ventilator associated pneumonia (VAP), and those who have not, coined non ventilator associated pneumonia (NV-HAP). Mechanical ventilation has previously been identified as a primary risk factor for HAP in studies conducted in the 1980's (4). Since then, VAP has been specifically addressed as a condition that poses a significant threat for hospitalized patients (4). Further research has led to the development of clinical guidelines, standards, and care bundles, including enhanced oral care protocols to reduce VAP in hospital settings (5). Despite current practices emphasizing the control of VAP, HAP in patients who were not submitted to mechanical ventilation is still of concern (4). While many studies have focused on risk factors and preventative measures for VAP, few recent publications have addressed the epidemiology of NV-HAP (4).

2.2 NV-HAP

NV-HAP is an underreported and understudied disease with the potential for measurable outcomes, fiscal savings, and improvement in quality of life (3). The limited studies available indicate that NV-HAP is an emerging factor in prolonged hospital stays, with significant impacts on both patient morbidity and mortality (3,4,8). Analysis indicates that preventing even 100 cases of NV-HAP may save up to $4 million dollars, 700-900 hospital days, and most significantly the lives of 20-30 patients within the United States (3).

Research conducted by Sopena et al. (17) suggests that the great dispersion of NV-HAP cases within hospitals hinders surveillance and may be a reason for the limited studies addressing this issue. Risk factors for NV-HAP are extremely varied, limiting the use of bundled care options that are frequently utilized with VAP (3). NV-HAP is found in patients with few to no

risk factors, including patients on maternity wards and otherwise healthy young adults (3). Even with the narrowest analysis to capture at-risk patients, the identified risk factors included over 80% of admissions (3). Targeting a subset of the population for bundled care, or a patient-risk specific approach to intervention, would not adequately prevent or reduce the incidence of NV-HAP in acute care hospitals (3).

2.2.1 Risk Factors

It is not reasonable to significantly narrow the risk factors for who may be susceptible to NV-HAP, however, certain larger groups have been identified as being at an increased risk. Age has frequently been identified as a significant risk factor for NV-HAP and has been identified as an independent risk factor when studying the impact of age in multivariable models that included several cofounders including, comorbidities, time at risk, and severity of illness (4). Central nervous system diseases have also been identified as a risk factor for NV-HAP as they may encompass depressed cough reflexes, impaired swallowing mechanisms and affect respiratory patterns (4,5). A strong association has been shown to exist between the use of antacids and the increased risk of NV-HAP, particularly as alkalization of the stomach provides an ideal environment for bacterial growth and subsequently the contamination of the lower airways (4,5,7,8). Factors for increased risk of NV-HAP include sedative and muscle relaxants, patient's state of consciousness, a high concentration of oxygen therapy, an impaired immune system, reduced saliva production and the general inability to carry out personal oral care (5,6).

2.2.2 Oral Care

The Association of Medical Microbiology and Infectious Disease Canada (AMMI) and the Canadian Thoracic Society's joint document – *Clinical Practice Guidelines for Hospital-Acquired Pneumonia and Ventilator-Associated Pneumonia in Adults*, clearly identifies significant morbidity, mortality, and costs associated with HAP (5). The proposed guidelines recommend that prevention-based oral care protocols be established for acute in-patients, including those not ventilated (5). Overall, standardized oral care practices, including aseptic solutions and teeth brushing for acutely-ill, care-dependent patients has proven beneficial for preventing NV-HAP (5,9,12,13). Beyond preventing various types of HAP, there are also benefits to increased oral care protocols, including improvements to patient comfort, as well as both patient and family satisfaction in maintaining this aspect of basic daily hygiene (5).

Studies have reported that oral care, commencing with a comprehensive mouth evaluation, includes the brushing of teeth and the use of an antiseptic mouth wash solution and moisturizers (6,7). Antiseptic solutions used for oral care vary from study to study, with chlorhexidine being identified as an important disinfectant used for the treatment of gingivitis in patients receiving mechanical ventilation and as a dental plaque inhibitor (6). Studies have shown the incidence of VAP and other bacterial infections to decrease with the topical use of chlorhexidine and brushing of the teeth (6). Study results have found that there were no differences between saline, 0-2% chlorhexidine and bicarbonate groups as oral cleansers in terms of oral mucous membrane integrity (6).

Although evidence on oral care exists to inform practice, oral survey studies on nurses suggested a gap between the available evidence and the actual practice (11). Binkley et al. (12) reported a wide variance of the oral care practices in terms of the frequency and cleaning

methods among nurses from 102 intensive care units. Tooth brushing has often been considered in literature as an effective way to remove dental plaque and reduce the microbial load in the oral cavity – however, studies have found nurses seldom use tooth brushing as an appropriate form of oral hygiene (11). Of the daily care activities provided by nurses, mouth care is especially intimate and intrusive given that staff not only directly approach an individual's face, but also manipulate the face and mouth (8).

In 2008, an oral care survey on nurses' knowledge, attitudes, and practices in oral care was conducted on 224 nurses from five intensive care and high dependency units (11). The study conducted by Chan et al. (11) found a lack of standardized practices among nurses when performing oral care as the frequency and method of oral care varied between individuals. Participants indicated that they lacked the knowledge to identify various oral abnormalities and to apply appropriate interventions (11). Of the nurses studied, 80.2% indicated they needed more information on research proven oral care and 65.8% stated that attending further education/training on proper oral care is a priority for them (11, p.178). The pre-post audits in this study found that the project led to improvements in nurse's oral care knowledge and practice (11). The study by Chan et al. (11) demonstrates that the use of a designed oral care protocol can increase compliance and assessment of mouth care as well as facilitating acceptance and compliance and incorporating the changes into the existing work processes (11). Throughout the study, the researchers sought feedback from the participating wards as well as shared findings from the project, the findings were also shared regularly with nurse managers to gain their support for spreading the change (11).

Good oral hygiene is essential for general health and well-being, with poor oral health being associated with systemic disease, morbidity, and mortality (7). Poor oral hygiene has been

associated with difficulties in swallowing, poor nutritional intake, impacting speech clarity, and increasing the susceptibility of infections (7). Oral care is a basic component of nursing care carried out in order to provide cleanliness and moisture, maintain the integrity of oral mucosa, remove debris and plaque, and prevent other oral complications (6). The physical inability to brush teeth during illness, hospitalization or with functional decline can also contribute to the challenge of mechanically removing plaque from the teeth (5,7). Many patients in hospital locations are physically compromised and are reliant upon the awareness and assistance of health professionals for the maintenance or improvement of their oral health (5,7).

2.2.3 Microbiology

There are mechanical and physiological pathways between the oral cavity and lung tissue, with disruption in oral health placing patients at risk for pneumonia (3). Changes in the mouth due to plaque often lead to an increase in bacterial numbers within the build-up of plaque (6,7). Dental plaque is an accumulation of debris that naturally occurs over the teeth and is most commonly associated with poor dental hygiene (6,7). Dental plaque is classified as a type of biofilm that contributes to the natural defense mechanisms in the mouth (7). Plaque composition and micro flora are affected by diet, oral hygiene, and saliva flow (6,7). A change or disturbance in these factors often has a negative effect on the plaque composition and amount (7). Plaque build-up is further associated with systemic infections, cardiovascular disease, adverse pregnancy outcomes, respiratory disease, and aspiration pneumonia (7).

2.3 Oral Care and Pneumonia

Improved oral care has been shown to reduce the risk for aspiration pneumonia in addition to other varieties of pneumonia (3). Oral hygiene is also linked to patient nutrition and recovery, which is a primary focus for hospital discharge (7). The most common method of controlling plaque build-up is by way of mechanical removal with a tooth brush (7).

A study conducted by Danckert et al. (7) found that if the patient was unable to leave their bed or required assistance to go the bathroom they were identified as being dependent on nursing staff for oral hygiene (7). Similarly, they were also recorded as dependent on nursing staff if they had an upper body injury or other physical condition that prevented them from brushing their teeth (7). The patient health records were audited to determine whether it was documented that the participant required nursing assistance to perform oral hygiene or if oral hygiene was independently performed (7). The documentation of the patient as independent or dependent was an important factor in that study as it ensured that those reliant for care were adequately recognized and received the appropriate care.

Studies have shown that implementation of multi-faceted oral care strategies have been more successful at improving evidence-based oral care practices than single-faceted strategies (10). As NV-HAP is often found across all hospital units and risk could not be reasonably narrowed, many previous researchers have elected to focus on an oral care universal intervention for all acute in-patients, rather than bundled care, to combat the incidence of NV-HAP (3,5).

2.4 Nursing Practice

2.4.1. Documentation

Oral care is a key component of nursing care. It has a significant effect on overall health, yet oral care nursing practices have been found to be inconsistent, not evidence-based and not accurately reflected in documentation (5). Nursing documentation serves multiple purposes, including ensuring continuity and quality of care through communication, furnishing legal evidence of the purpose and outcomes of care, supporting the evaluation of the quality, efficiency, and effectiveness of patient care, and improving the development of nursing education and standards of clinical practice (9). Nursing documentation is often devalued as an unimportant task and quality documentation is not produced (9).

Nursing care plans are not consistently written or are not used for interventions (9,14,15). Nursing notes are often written in a repetitive manner or exclude meaningful data, whereby some formats are too long, repetitious, and time consuming (9,14,15). Nursing forms used do not reflect the amount of nursing care provided and do not facilitate communication of family requests (9,14,15). Issues with documentation have led to incompleteness in charting as data is often unnecessary and information about the patients' condition and their nursing care is insufficient (9). In a study conducted by Cheevakasemsook et al. (9), nursing documentation was found to reflect inadequate understanding by the nurse participants of what was legally and professionally required (9). The kind of charting involved in that study demonstrated unsuitable data collection forms that led to charting being repetitious and time consuming – this including several forms of documentation: kardex, med charts, nursing note forms and flow sheets (9).

Limited nurses' competence, motivation, and confidence have been shown to influence the reliability of documentation (9,14,15). In the study conducted by Cheevakasemsook et al. (9),

a number of nurse participants reflected that their charting performance was ambiguous and that they lacked confidence and motivation in their actions (9). Participants described feeling insecure about nursing documentation and identified limited access to training as a probable barrier to effective documentation (9). Inadequate nursing audits, supervision, and insufficient staff development involving the quality of nursing documentation were also addressed as important issues for nurses (9). Audits of nursing documentation have been shown to be beneficial in examining the quality of care that should incorporate defined standards to serve quality improvement initiatives (9).

In a study by Goss et al. (10), nursing critical care flow sheets were examined in the United States for evidence that oral care was provided in accordance with government recommendations, with both ventilated and non-ventilated patient medical records being examined. Nursing documentation indicated that oral care was provided to 89% of patients, with individuals receiving mechanical ventilation having oral care performed significantly more times than individuals that were not receiving mechanical ventilation (10, p.187). Goss et al. (10) found that although nurses may rank oral care practices as a high priority, levels of evidence-based oral care practices were found to be relatively low. More detailed documentation of oral care performed by the nurse (e.g. type of oral care performed, length of time oral care conducted, infection control practices used) is needed to be included in the medical record in order to provide a more comprehensive record of the care provided (10). Inhibiting the improvement of documentation, critical care flow sheets are typically not designed for detailed documentation and often the nurse only has space to place his/her initials (10). As a result of the study by Goss et al. (10), the critical care flow sheet was modified in the studied institution to allow for more

accurate data collection and charting of oral care, emphasizing the importance of appropriate documentation of oral care practices.

2.4.2 Culture

Research has recognized the positive connections between a supportive social environment, a constructive culture, the morale and retention of personnel, and the reduced mortality of patients (18). Culture has emerged as an increasingly important organizational factor in relation to its influence on nursing provision and subsequent patient care (18). Organizational culture can be defined as the "ways of thinking, behaving, and believing that members of a unit have in common", with culture referencing the customs and expectations of an organization or unit (18). These defined customs and expectations impact the work and attitudes of the members of the organization (18).

Oral care remains to be classified as a minor problem when compared to the procedures of preserving vital functions (6). Research suggests that routine oral care is a low priority among nurses and as such is unlikely to be addressed during the days and weeks of the patients' critical illness when changes to the oropharynx environment are likely to occur (10).

Nurses have reported that they do not have the time for patients' oral care because of the high patient-to-nurse ratio and the high degree of care required for some patients (6). Working conditions impede the prevention of oral care problems in acute care patients (6). There is evidence for the relationship between nurse staffing and adverse patient outcomes, with one study in particular finding the most powerful predictor of AE to be nurse workloads (2). Studies indicate that higher levels of stress experienced by nurses increases the likelihood of adverse events (2).

In their study on oral care interventions, Munro et al. (16) reported nurses value the contribution of oral care to patients' well-being, however, frequency and documentation of oral care depended upon time and the availability of resources. The notion of oral care being an optional care practice suggests nurses do not fully comprehend the benefits of evidence-based oral care protocols (5).

Previous studies indicate that to have an effective pneumonia prevention program, nurses require additional education on the importance of oral care practices for all patients, as well as how to safely and effectively provide oral care (3,13). Nurses are highly motivated to provide the right care when they are supported and included in care decisions (3). Kalisch et al. (13) found that lack of knowledge, resources, time, communication issues, and unclear protocols contributed to missed basic nursing care.

Previous studies have expressed the hypothesis that the amount of time required to perform an enhanced oral care protocol would increase the workload of unit nurses (5). At the conclusion of the study by Robertson et al. (5), nurses reported the enhanced oral care protocols did not negatively impact their overall workload, disproving the original hypothesis (5). The enhanced oral care protocols may be more time efficient in the long-term, as Robertson et al. (5) found that the length of stay may be reduced when patients do not develop HAP. The reduction in length of stay has significant implications for cost reduction, specifically as oral care is a relatively inexpensive intervention compared with the healthcare costs related to HAP. Beyond the cost savings, nurses stated they spent less time on performing routine oral care compared with time normally spent on interventions when caring for a patient with HAP, reducing workloads and the intensity of care provided to some patients (5).

At the end of their study, Robertson et al. (5) identified that it would also be of interest to explore nurses' attitudes to performing and prioritizing routine oral care to further understand the attitudes and barriers in performing preventative rather than reactive care practices. Numerous research studies have demonstrated that when nurses fully understand the relationship between oral contaminants with NV-HAP, and their environments are set up with adequate resources and supplies, their compliance with evidence-based care activities is enhanced and searching for supplies is reduced (5,11,13).

2.5 Accountability and Culture Change

Previous studies have shown that education/skill building is not enough to effect substantial change, and that multimodal strategies that evaluate the available nursing resources and systems in order to effect change make it easier for the clinician to achieve an effective and consistent practice (1). Once resources are present and systems are designed to deliver care and evaluate effectiveness, it is reasonable to hold the individual nurse accountable for the practice (1).

One theory suggests that the basics of care may be absent or devalued, with limited structures that assure reinforcement of the importance of the basics, reward/recognition for doing them, or failure to hold nurses accountable (1). Work done by Vollman (1) suggests that behavior that is reinforced continues, while behavior that is not reinforced is likely to stop. In principle, the care practices of oral hygiene and their value may have been 'conditioned' out of the nurse (1). Patikosoom's (19) study indicates that nurse manager's involvement and their role as facilitators positively affects nursing note-taking and practice.

A goal of basic nursing care is to proactively intercede with nursing interventions or practices that focus on using evidence-based hygiene to minimize healthcare associated infections (1). Successful transformation begins with developing a culture that values the importance of these care practices and the evidence that supports them (1). Numerous studies have demonstrated that education and skill building alone are not enough to effect sustainable, long-term change (1). Rather, multifaceted campaigns that evaluate the availability of nursing resources and systems in order to effect change make it possible to achieve an effect and consistence culture change (1).

2.6 Where Current Research Falls Short

The review provided in the previous section offers an overview of current methods and approaches to oral care, documentation, and nursing practice in the acute care setting. The above review explored a background and history of hospital pneumonias, the associated microbiology, the provision of oral care and the influence of nursing practice. The overview of the literature highlights the need for further research into NV-HAP and for the gaps in the existing literature to be addressed.

1. **Consideration for the association between oral care, NV-HAP, and nursing practice:** While many studies have suggested a gap between available evidence and actual practice, little research has been conducted in order to address the prevalence of NV-HAP in acute care settings. Many studies have examined the issue of nursing documentation, however, few studies have examined documentation in relation to oral care specifically or the attitudes of nurses in relation to oral care, documentation, and evidence in acute care

hospitals. The aim of this study is to jointly analyze these three areas to provide a more comprehensive understanding of the issues at hand.

2. **Strength of design:** Previous studies have frequently approached the issues of oral care, documentation and nursing practice from either a qualitative or quantitative approach, but these studies have not utilized a mixed methods approach in order to achieve a more comprehensive understanding of the issue. The design of this study allowed for both qualitative and quantitative explanations to be explored with the intent of achieving more comprehensive understanding of the issue while minimizing the barriers to each approach.
3. **Identifying improvements for patient safety and experience:** The limited studies available indicate that NV-HAP is an emerging factor in prolonged hospital stays, with significant impacts on both patient morbidity and mortality (3,4,8). Research has identified that preventing even 100 cases of NV-HAP may save up to $4 million dollars, 700-900 hospital days, and most significantly the lives of 20-30 patients (3). As such NV-HAP is of significance to physicians, IPAC professionals, nursing professions and patient safety initiatives. The findings produced from this study promise to inform changes in approaches to oral care protocols, nursing practice, and documentation. The study is also of significance to the aforementioned interest groups who desire quality improvement within the acute care setting.
4. **Multimodal strategy aimed at evaluating nursing practice, resources, and systems:** Studies have shown that education/skill building is not enough to effect sustainable change (1). Multimodal strategies that evaluate nursing resources and systems are required in order to effect change (1). Once the resources are present and systems

designed to deliver the care and evaluate the effectiveness, then we can better understand the role of attitudes and accountability associated with nursing practice (framework found in Appendix A) (1). The use of a multimodal strategy through the implementation of oral care audits and interviews with nurses should allow greater change to be enacted. This will allow for accountability of nurses when providing oral care in the acute care setting.

CHAPTER THREE

Study Design and Methods

Mixed methods research involves the collection, analysis, and integration of quantitative and qualitative data (20). A convergent mixed methods design was utilized in which qualitative and quantitative data were collected concurrently, analyzed separately, and compared bilaterally. A mixed-methods approach was chosen for this study for its applicability at three levels: general, practical, and procedural. At a general level, the mixed methods approach was chosen due to its merit of drawing on both quantitative and qualitative research and minimizing the limitations of either approach (20). At a practical level, mixed methods provided a high-level multifaceted approach to research that is applicable to new research procedures (20). At a procedural level, it was a valuable strategy to have a more comprehensive understanding of research problems and corresponding questions (20).

The use of a mixed methods design allows for an explanation of quantitative results with qualitative date collection and analysis and an understanding of quantitative results by incorporating the perspectives of individuals through the use of qualitative results.

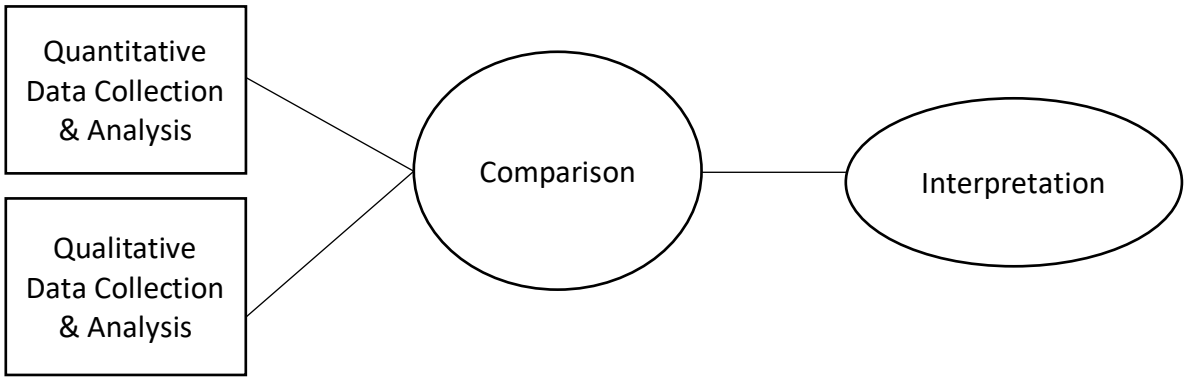

Figure 3.1: Convergent Parallel Mixed Methods Design (20).

In particular, a mixed-methods design was used to inform the following research questions:

1. What is the frequency and quality of oral care documentation reported through oral care audits?
2. What are nurses' perspectives and reported experiences with the provision of oral care, including frequency and documentation?
3. How does the qualitative and quantitative data illuminate the relationship between nursing perspectives, documentation, and the prevalence of NV-HAP?

This chapter described the use of oral care audits and semi-structured interviews as the primary sources of data collection for this thesis. In addition, this chapter informs on the quantitative audit tool and the criteria used to select interview participants. The considerations made during the recruitment and interview stage are also discussed.

3.1 Methods: Audit of Oral Care

3.1.1 Audit Sample

For the audit portion of this study, oral care documentation audits were conducted on nine in-patient acute care units within the Charlton Campus of St. Joseph's Healthcare Hamilton. The oral care audits utilized an existing software program to analyze the health record of each eligible patient on the unit and provide data for analysis. Each unit was audited three times over a period of five months to watch for differences in documentation during natural fluctuations in admission rates and those considered to be at risk for aspiration. The audits occurred sequentially, where units one through nine were audited in their entirety prior to the commencement of the second and third round of audits. In order to be included in the audit, a

patient was required to be admitted to one of the nine units included in the audits. Each of the nine units ranged from eight to thirty-eight patients depending on the time of audit.

Aside from the date, time, and location of the audit, there were four standardized questions examined in each audit (Table 3.1). It is important to note that question number three, '*Is the patient at risk for aspiration'* was used as inclusion criteria for this study as those not considered to be at risk for aspiration were not deemed eligible for inclusion.

Table 3.1: Oral Care Audit Items

Audit Question	Compliance Options
Was a suction toothbrush used if the patient was at risk for aspiration?	Compliant Not in compliance Not applicable
Oral care is documented in the clinical record	Compliant Not in compliance Not applicable
Is the patient at risk for aspiration	Yes No
If the patient is at risk for aspiration is this indicated on the flowsheet?	Compliant Not in compliance Not applicable

The audit items are a basic index and are not weighted. The audit items are added together to provide an audit percentage that then represents the overall audit score for the chart reviewed. Ideally, a unit should have an audit or compliance score of 100% if all items of care are documented appropriately. Table 3.2 represents a compliant audit in which oral care is provided and documented in its entirety. Compliance with all of the audit items represents best practice in relation to oral care provision and documentation. It is important to note that the audit version utilized for the purpose of this research is the second iteration of a longer audit. The audit version utilized for this study was developed to address the items that were considered to be of highest importance and most likely to respond to interventions.

Table 3.2 Ideal Audit with 100% Compliance

Audit Question	Ideal Compliance
Was a suction toothbrush used if the patient was at risk for aspiration?	Compliant
Oral care is documented in the clinical record	Compliant
Is the patient at risk for aspiration	Yes
If the patient is at risk for aspiration is this indicated on the flowsheet?	Compliant

The audit score includes both nursing behaviors and assessments by examining the level of care documented, as well as the indication of whether or not a patient was labeled as being at risk for aspiration. A chart was considered to be compliant in identifying a patient as being at risk for aspiration if there was a direct indication of the aspiration risk labeled at the top of the EMR flowsheet.

3.1.2 Eligibility Criteria

Charts were eligible to be included in the audit portion of this study if the patient was determined to be at risk for aspiration at the time of audit. For the purpose of this study, patients were determined to be at risk for aspiration if they were categorized as NPO or were on a softened, thickened, or full fluid diet or were labeled within the medical chart as being at risk for aspiration by the medical team.

For the purpose of this study, a medical chart was considered to be compliant in providing oral care if it included toothbrushing and/or the use of a suction toothbrush. Mouth care related items (e.g. mouth rinsed, lip moisturizer, mouth swapped) were not considered

appropriate oral care protocols for the purpose of this study and were not included as evidence of compliant documentation. The distinction between evidence-based oral care and mouth care was identified in the preliminary set up of this study and prior to the commencement of the audit phase. Similarly, if patient refusal was indicated appropriately in the clinical record (i.e. where oral care would normally be documented), the chart was considered to be compliant as a form of documentation was adequately provided.

3.1.3 Oral Care Audit Software

The audit tool application utilized for this study was developed by the IPAC manager in conjunction with the Oral Care committee at St. Joseph's Healthcare Hamilton. An electronic audit app developed by Weever Apps was used as the platform for completing the audits. The Weever App product caters to healthcare-based audits and surveillance. Users are able to design an audit themselves (i.e. create their own audit criteria) and tailor the audit tool to their own environment and what exactly is attempted to be captured by the tool. Audits are automatically uploaded into a cloud-based storage provider and provide an overview of the conducted audit(s). This particular audit tool was designed according to evidence-based oral care protocols and results from the above literature review. An example of the oral care audit is provided in Appendix B.

3.1.4 Analysis

Audit data was automatically uploaded to a cloud-based program where it can then be downloaded for review. The audit data was analyzed after each round of audits, using the downloaded information provided by the audit application. When downloaded, the audit data is

provided by individual chart and is broken down by each item audited (e.g. patient labeled at risk for aspiration, documentation of oral care, use of suction toothbrush). The initial data provided a compliance score for the individual chart audited and identified the items there were non-compliant.

The oral care audit data was examined over the three rounds of audits to watch for fluctuations over time in the documentation of oral care on each unit. Validity between oral care audits was maintained by having the same researcher conduct the entirety of the audits for the duration of this study.

The number of charts audited over the three rounds of audits (n=172) was the total number of patients considered to be at risk for aspiration during the study period. Every patient considered to be at risk for aspiration who was admitted to one of the nine audited units was included in this study and subsequently lead to the overall number of charts audited.

The audit application did not capture any personal identifiers related the patient whose chart was audited or the nurse who completed the charting. The audit only captured identifiers such as date, time, and audit location represented by the hospital site and unit.

3.2 Methods: Interviews with Oral Care Providers

3.2.1 Consolidated Framework for Implementation Research (CFIR)

The Consolidated Framework for Implementation Research (CFIR) was used to promote and increase the validity of this research, particularly in relation to the qualitative interviews. The CFIR provided a practical structure for approaching the complex, interacting, and multi-level interventions by consolidating and combining key concepts from published implementation theories (21). Many implementation theories to promote effective implementation have been

described in the literature but have differing terminologies and definitions (21). The CFIR was used to guide foundational evaluations and build on implementation knowledge across multiple studies and settings (21). The CFIR was useful as many interventions found to be effective in health services studies fail to translate into effective patient care outcomes in multiple contexts (21).

The CFIR is comprised of five major domains. These domains include: the intervention, inner and outer settings, the individuals involved, and the process of implementation (21). The five domains interact in complex ways to impact the effectiveness of an intervention (21). Each of the five domains is further broken down to provide a greater understanding (21). Ten constructs have been identified as being related to this study and have been used to inform the interview questions:

1. Intervention Characteristics:
    a. *Trialability:* the ability to test an intervention on a small scale in the organization and reverse if necessary (21). The ability to trial is a key component of the plan-do-study-act quality improvement cycle, with piloting further allowing individuals and groups to build experience and expertise and time to reflect upon and test the intervention (21).
    b. *Complexity:* the perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement (21). Complexity is increased with higher numbers of potential organizational units (units, departments or groups) or categories of people (providers, patients, or managers) targeted by the intervention, and the

degree to which the intervention will impact or change central work processes (21).

2. Outer Setting:
    a. *Patient needs and resources:* the degree to which patient needs, as well as barriers and facilitators to meet those needs, are accurately identified and prioritized by the organization (21).
    b. *External policies and incentives:* broad constructs that encompass external strategies to spread interventions, including policy and regulations, external mandates, recommendations and guidelines, and public or benchmark reporting (21).
3. Inner Setting:
    a. *Culture:* norms, values, and basic conventions of an organization (21). Most change efforts are directed at visible and objective, aspects of an organization that include work-related tasks, structures, and behaviors (21).
    b. *Implementation climate:* the organization's capacity for change, shared receptiveness of involved individuals to an intervention and the extent to which the intervention will be rewarded, supported or expected within the organization (21).
4. Characteristics of Individuals:
    a. *Knowledge and beliefs about the intervention:* individuals' attitudes toward and value related to the intervention, as well as familiarity with facts, truths, and values related to the intervention (21). Skill in using the intervention relies on

adequate knowledge of underlying principles or foundation for adopting the intervention (21).

b. *Self-efficacy:* individual belief in their own competencies and the ability to complete or achieve implementation goals (21). Individuals with high self-efficacy are more likely to decide to embrace the intervention and remain committed even in the face of obstacles (21).

5. Process

    a. *Engaging:* inviting and involving appropriate individuals in the implementation process through a combined strategy of education, role modeling, and training (21).

    b. *Reflecting and evaluating:* quantitative and qualitative feedback about the progress and quality of implementation, while providing updates about progress and experience (21).

3.2.2 Theoretical Domains Framework (TDF)

Behavior change is key to improving healthcare and health outcomes (22). Behaviors may be those of healthcare workers, such as the implementation of evidence-based practice (22). Despite high-level recommendations to improve the implementation of evidence-based practice, and a rapidly developing field of implementation science, the implementation process remains variable with numerous organizational and individual factors influencing healthcare workers' behavior (22). These factors include the availability of evidence, its relevance to practice, the dissemination of evidence and guidelines, individual motivation, the ability to keep up with current changes, clarity of roles and practice, and the culture of specific healthcare practices (22).

The aim of the Theoretical Domains Framework (TDF) is to simplify and integrate a plethora of behavior change theories and make theory more accessible to, and usable by, other disciplines (22). The TDF has been used by research teams across several healthcare systems to explain implementation problems and inform implementation interventions (22). There are three key advantages of this framework, including comprehensive coverage of possible influences on behavior, clarity about each kind of influence, and the linkages between theories of behavior change and techniques of behavior change to address implementation problems (22). The TDF is applicable to the gathering of either qualitative or quantitative data (22).

3.2.3 Combined use of the CFIR and TDF

The CFIR and the TDF are both well-operationalized, multi-level implementation determinant frameworks derived from theory (23). The CFIR and TDF were used to describe the overall context by assessing characteristics of individuals and of the organization in which they are embedded (23). This information was then used to design tailored strategies for implementing an evidence-based practice (23). This reflects the generally held belief that tailoring strategies to the context will lead to more effective implementation (23). The CFIR is intended to promote theory development and facilitate synthesis of research findings across studies and contexts (23). The TDF may be used to promote the development of interventions to enhance implementation (23). The CFIR is an "over-arching typology" for understanding implementation and the TDF is a lens for understanding provider behavior (23). The CFIR was used to organize, analyze and disseminate the findings of this study. The CFIR model allows for meaningful suggestions to be developed from this study in order to inform future research and interventions.

3.2.4 Interview Sample

The nursing interviews were comprised of two acute care nurses from each of the nine audited units, for a total of 18 interviews. To be eligible for the interviews, the participant was required to be a registered nurse whose role included providing oral care on the unit on a regular basis. This sample was selected as nurses are at the forefront of acute care and are typically the providers of hygiene related care activities. This sample of interview participants was selected under the assumption that the registered nurses are providing the daily oral care to the patients on each of the included units.

3.2.5 Participant Recruitment

Nurse participants were selected for interviews according to a purposive sampling strategy. Those who were in line with the eligibility criteria were asked to read a formal information letter and consent form. Once a time and location were arranged with the assistance of the nursing managers from each unit, participants were given the opportunity to read the information letter and give consent to the interview process

3.2.6 Semi-Structured Interviews

Confidential semi-structured interviews were conducted with the purpose of eliciting the KABB of registered nurses as they relate to providing oral care in the acute care setting. The semi-structured interviews sought to understand the existing barriers and facilitators to providing and documenting oral care. The one-on-one semi-structured interviews provided the opportunity for an open discussion and a personalized, subjective approach (24). Each interview was approximately 10-15 minutes in length. Each interview was digitally audio-recorded and

transcribed at a later time. Questions related to attitudes, perceptions, frequency, provision, and documentation of oral care were used to encourage an open-discussion with the nurse participants. The interview questions were developed based on the themes identified through the literature review portion of this proposal and informed by the CFIR interview guide (Appendix C; Appendix D).

In order to ensure the anonymity of each unit audited and the corresponding interview participants, each unit was assigned a confidential letter code. For example, one unit was coded as 'Unit A' and the corresponding interviews for that unit are labeled 'A1' and 'A2'. This allowed the oral care audits from each unit to be compared without bias, while allowing for confidentiality to be maintained with the nurse participants as their identity and the unit they are employed on remains private. The level of confidentiality provided through the unit and interview anonymity allowed participants to speak freely during the semi-structured interview phase without fear of repercussions.

3.2.7 Analysis

Participant data was collected until saturation, where saturation was considered to be met when no new themes or evidence emerged from the interviews. After the interview data was collected, participant responses were transcribed manually from the digital recordings.

The initial transcripts underwent open-ended coding in order to analyze the data. The codes were divided into concepts and sub-concepts based on similarities in meaning or context.

Table 3.3: Themes & Sub-Themes upon Initial Coding

Theme	Sub-Theme
Concern for Patients	Infection Prevention Patient Comfort Nurses Concern Family & Patient Concern

	Doctor & Manager Concern
Barriers	Patient Refusal Patient Behaviors Patient Cognition Time
Electronic Medical Record	Too Many Options Too Generalized Method of Documentation Unable to Find Section
Nursing Staff	Inadequate care provision Care for patients Inadequate documentation

The themes were then modified and refined to account for subtle differences and similarities. As a result, seven subsequent themes were found and identified:

Barrier: Patient Refusal	**Barrier: Patient Cognitive Status**	**Barrier: Patient Behaviors & Oral Care Habits**	**Barrier: Time to Provide Oral Care**	**EMR: Inconsistency in Charting**	**Inconsistency of Oral Care Provision Across Nursing Staff**	**Nursing Staff Concern for Patients**

The codes were assessed for thematic frequency from each interview and to provide a summary of all interviews conducted. Validity between interviews and transcriptions were maintained by having the same researcher conduct and analyze the interviews.

3.3 Ethical Considerations

Ethics clearance was obtained from separately from both the University of Waterloo's Office of Research Ethics (ORE# 22226) and the Hamilton Integrated Research Ethics Board (#3496) prior to the commencement of the collection of audit data or the semi-structured interviews.

3.4 Summary

This chapter began by reviewing the strengths of utilizing both qualitative and quantitative methods and outlined the three research questions for this thesis:

1. What is the frequency and quality of oral care documentation reported through oral care audits?
2. What are nurses' perspectives and reported experiences with the provision of oral care, including frequency and documentation?
3. How does the qualitative and quantitative data illuminate the relationship between nursing perspectives, documentation, and the prevalence of NV-HAP?

A total of nine units were audited at three different time points for a total of 172 audits completed. The audit data revealed a lack of consistency and reliability relating to oral care documentation inside of the electronic medical record (EMR). 18 nurses were recruited to participate in semi-structured interviews. Participants were asked about their perspectives with providing oral care, including the barriers and facilitators to oral care provision and documentation. The interviews revealed five overriding themes: patient refusal, patient behavior, patient cognition, time, inconsistency in EMR documentation, inconsistency in staff provision, and concern for patients by nursing staff. The following two chapters report on the results from the oral care audits and the semi-structured interviews.

CHAPTER FOUR

Results

This chapter addresses the following research objective: What is the frequency and quality of oral care documentation reported through oral care audits? This objective was addressed by analyzing the frequency and quality of the oral care documentation.

In this chapter I present an overview of the audit data collected and the corresponding compliance scores for each unit and audit round. I present results about the level of compliance, the quality of documentation, documentation score and the variability of oral care audit data. I then provide a discussion about the findings.

4.1 Frequency and Quality of Documentation

The main issues that were identified through the audit phase of this study surrounds what is considered to be proper evidence-based oral care. The audit phase of this study identified that there is a difference between what can be categorized as 'oral care' versus what may more appropriately be considered as 'mouth care'. There were a number of routinely charted items that may more appropriately fall under the category of 'mouth care' as these methods are typically used to increase the comfort level of the patient, rather than being used to provide compliant or adequate oral care that is in line with current evidence-based protocols.

Mouth care items such as 'mouth rinsed', 'lip moisturizer applied', or 'mouth swabbed' were not considered appropriate oral care protocols for the purpose of this study. For the purpose of this study, a medical chart was considered to be compliant in documenting oral care if it included toothbrushing and/or the use of a suction toothbrush. Due to the exclusion of the items

categorized as mouth care, audit scores for the units appear to be lower than what was documented routinely within the medical record.

Similarly, documentation of a patient refusal was reflected as compliant when considering the audit criteria of whether or not oral care was documented in the clinical record. For the purpose of this study, documentation of a refusal was used to indicate compliance with oral care protocols. The documentation of a refusal was only considered compliant when documented in place of routine oral care procedures and was disregarded when indicated elsewhere in the clinical record.

Audit data shows that across units, compliance with documenting generic oral care procedures (e.g. use of a regular toothbrush versus the suction toothbrush) took place 65% of the time. The oral care documentation score is important as it shows that more than half of nursing staff are reliably documenting oral across the majority of units. For generic oral care documentation, Table 4.1 highlights that the lowest compliance rate was 50% (Unit H), with one unit (Unit D) consistently documenting evidence-based oral care at a compliance rate of 100%. The variation in compliance rates across units highlights that while some units are recognizing the importance of proper oral care documentation, there is still room for improvement.

Table 4.1: Average Compliance Rate by Unit

Unit Code	Overall Compliance Score	Total Charts Included (n)
A	40%	29
B	40%	42
C	29%	7
D	39%	6
E	26%	15
F	29%	22
G	58%	11
H	24%	24
I	33%	16

Overall Compliance Rate: 35%
Total Number of Charts Included: 172

Table 4.2 provides the compiled scores for all units by each compliance item. When examining the usage of the suction toothbrush, the overall compliance rate across all units is only 17%. There is a high level of variability in this measure as the compliance rate for individual units ranges from 0% (Unit D) to 36% (Unit G). The 0% compliance rate exhibited by Unit D indicates that this particular unit had not documented use of the suction toothbrush at any point during the audit phase of this study despite having patients categorized as being at risk for aspiration.

For patients fitting the criteria for being at risk for aspiration, this was only explicitly expressed in the medical chart 30% of the time, making this element of the medical chart unreliable for determining individuals at risk for aspiration without further examination of the documentation for other indicators of increased aspiration risk.

Table 4.2: Compliance with Audit Criteria

Audit Question	Overall Compliance Score
Was a suction toothbrush used if the patient was at risk for aspiration?	17%
If the patient is at risk for aspiration is it indicated in the clinical record?	30%
Oral care is documented in the clinical record (i.e. flowsheet)	65%

In Table 4.3 the percentages indicate the rate of compliance for the unit in relation to the audit item. As an example, Unit D highlights that while oral care documentation (e.g. use of a toothbrush) was present in 100% of charts audited, the use of the suction toothbrush was not documented at any point during the study period and patients were only indicated as at risk for aspiration in 17% of the audits. For units that exhibit documentation related to the suction

toothbrush, the percentage related to oral care being documented in the clinical record is comprised of both a toothbrush and/or a suction toothbrush.

Table 4.3: Unit Compliance Rate by Audit Item

Unit	Was a suction toothbrush used if the patient was at risk for aspiration?	If the patient is at risk for aspiration is it indicated in the clinical record?	Oral care is documented in the clinical record
A	17%	45%	69%
B	17%	40%	62%
C	14%	57%	29%
D	0%	17%	100%
E	7%	13%	60%
F	5%	5%	77%
G	36%	64%	73%
H	29%	25%	50%
I	19%	6%	75%

4.2 Variability by Unit and Time

Audit data was collected over a period of five months. Audits were completed three times on each of the nine units for a total of 172 medical charts included for the purpose of this study. Tables 4.4, 4.5, and 4.6 detail the audit data by audit round and unit. The average compliance score for each unit is presented for the audit round. Across the three audit rounds, compliance rates ranged from 6% to 67%, highlighting a high level of variability in the documentation of oral care across audited units.

Table 4.4: Round 1 Audit Results

Audit Round	Unit Code	Compliance Score	Charts Included (n)
1	A	37%	8
1	B	39%	6
1	C	22%	3
1	D	33%	2
1	E	25%	4
1	F	26%	9
1	G	33%	2
1	H	25%	8
1	I	28%	6

Round 1 Overall Compliance Rate: 30%
Total Number of Charts Included in Audit Round: 48

Table 4.5: Round 2 Audit Results

Audit Round	Unit Code	Compliance Score	Charts Included (n)
2	A	46%	13
2	B	37%	19
2	C	22%	3
2	D	33%	1
2	E	22%	6
2	F	33%	3
2	G	67%	5
2	H	6%	6
2	I	50%	2

Round 2 Overall Compliance Rate: 35%
Total Number of Charts Included in Audit Round: 58

Table 4.6: Round 3 Audit Results

Audit Round	Unit Code	Compliance Score	Charts Included (n)
3	A	33%	8
3	B	43%	17
3	C	67%	1
3	D	44%	3
3	E	33%	5
3	F	30%	10
3	G	58%	4
3	H	33%	8
3	I	33%	8

Round 3 Overall Compliance Rate: 42%
Total Number of Charts Included in Audit Round: 64

Although the rates of those considered to be at risk for aspiration increased, overall audit scores improved across the three rounds of oral care audits. The improvement in audit scores is despite the fact that there was no intervention between audit rounds and admission rates to the units remained largely stable. The majority of staff would have been unaware of the audits for this study due to access to the patient charts outside of the unit through the use of the EMR. It is important to note that staff are generally aware of IPAC audits on a number of different criteria

throughout their units on a routine basis, further diminishing the likelihood that the audits in this study may have impacted behavior.

There were no consistent differences in the overall audit scores across the nine included units, even when considering differentials between the numbers of medical records on each unit that were included in the audit rounds. For example, Unit B had 6, 19, and 17 charts included over the three audit rounds. Although there were considerable differences in the number of patients identified as at risk for aspiration, Unit B compliance scores were 39%, 37%, and 43% respectively. The difference between audit round one (6 patients at risk) and audit round two (19 patients at risk) did not have a significant impact on the compliance scores with only 2% difference in overall score between the two audit rounds.

In contrast, there is a lack of consistency across individual units when comparing the scores across the three rounds of audits, with most units experiencing fluctuation in compliance rates. Compliance rates appear to be unrelated to the number of patients at risk for aspiration at the time of the audit. For example, Unit H scores were documented as 25% compliant in audit one, 6% compliant in audit two, and 33% compliant in audit three. The range in compliance scores for Unit H is in contrast to the fact that the number of patients deemed to be at risk for aspiration on the unit remained fairly consistent at 6 or 8 patients categorized as being at risk.

4.3 Discussion

Based on the results reported in this chapter, the consistency of oral care documentation is not influenced by the rate of those considered to be at risk for aspiration. A total of 172 audits were conducted to evaluate the consistency and completeness of oral care documentation. To better understanding these concerns, I performed a thematic analysis presented in Chapter 5.

CHAPTER FIVE

Thematic Analysis

This chapter examines participants' perceptions of the barriers and facilitators to providing oral care in the acute care setting. This chapter specifically addresses the following research objective: What are nurses' perspectives and reported experiences with the provision of oral care, including frequency and documentation? This objective was addressed by asking participants to reflect on their perspectives of providing and documenting oral care on their unit. Direct quotes are used from participants to highlight the themes identified throughout the semi-structured interviews.

For the purpose of this study, a barrier is identified as any circumstance or obstacle that disallows people or things from completing the desired action or outcome. Participant interviews suggest that there were a number of barriers and facilitators with providing oral care within the acute care setting. A thematic analysis revealed the following topics and issues:

Barrier: Patient Refusal	Barrier: Patient Cognitive Status	Barrier: Patient Behaviors & Oral Care Habits	Barrier: Time to Provide Oral Care	EMR: Inconsistency in Charting	Inconsistency of Oral Care Provision Across Nursing Staff	Nursing Staff Concern for Patients

This chapter will explore the various barriers and related issues to providing oral care in the acute care setting.

5.1 Barrier: Patient Refusal of Oral Care

More than half of the participants (n=13) mentioned that patient refusal was a significant barrier to providing oral care.

People do refuse, I don't want to say very often but people are used to in the morning, "lets brush your teeth, let's get cleaned, washed, freshened up", but someone will say they would do it later. And sometimes you feel bad pushing them but if it's someone that is always postponing it you have to push because we have to do it. It depends, some just do it later and I know they will, but some people won't. (Unit D Interview 2)

One participant shared that there is only so much that the individual nurse is able to do if the patient is refusing to participate in oral care:

...whether the patient will allow you to do that or not, or if they want to. If they're competent and they don't want to, you can't do anything about that, they'll just refuse. I mean you could state the rationale, whether they choose to decide to listen to that is something else. (Unit G Interview 1)

I find our population aren't interested, we'll say, "okay let's brush your teeth" and they'll say "no, no, I'm fine. I did it yesterday" or "my wife will do it when they come in" or just plain "no". Okay… that's your mouth. There's nothing I can do. I am a big proponent on oral care, I just am. I take good care of my own teeth, for cost reasons, for my health, for my appearance, and I really try to include that in health teaching with the patients. But, especially when they're sick, you can only do so much. (Unit C Interview 2)

5.2 Patient Cognitive Status

The cognitive status or level of confusion that the patient is experiencing can represent a significant barrier to oral care provision, with just under half of participants (n=8/18) mentioning the cognitive status of the patient as a frequent concern.

I find what's difficult is if you get someone who especially is confused, they won't open their mouth, they bite down. It's really hard to get the brush in there and clean really good. Most of the time, some of the people you get in here who are confused, they haven't brushed their teeth in a month and it's really nasty and needs a good clean. But sometimes you can't even get it done because they're biting and won't open their mouth or jaw (Unit D Interview 1)

Trying to get patients who are confused or in an altered cognitive state to accept oral care is a challenge for nursing staff.

Sometimes what I think is difficult is with a patient who is probably a little confused or delirious, just trying to get them to accept oral care. Especially with working on this unit you get to see people through all different facets. We tend to get a lot of patients who are generally elderly, and they may have some sort of cognitive impairment. We do have patients from time to time where we pass them a toothbrush, they kind of look at it and you can tell that the pieces just aren't fitting together. (Unit E Interview 1)

5.3 Patient Behaviors and Oral Care Habits

Patient behavior such as combativeness or personal oral care habits outside of the hospital setting were also identified by a number of participants (n=5) as being a barrier to oral care provision.

When asked what represented a significant barrier to providing oral care, participant I1 expressed that combative patients pose a challenge to oral care provision.

...especially patients that are combative, that's usually hard to provide oral care. (Unit I interview 1)

Patient behaviors such as violence or aggression are a barrier when patients won't cooperate or open their mouths, leaving the nurse with little options for providing care.

> *If the patient is difficult, they're violent or aggressive or won't open their mouths. A lot of times they'll just bite down and won't open their mouths and we can't force them. (Unit G Interview 2).*

Participants also expressed that the patient's background or personal oral hygiene habits can be a barrier to providing routine oral care if the patient is not particularly interested or accustomed to proper oral care practices.

> *You get the odd person that says "no, I don't want to brush my teeth" because they may only brush their teeth occasionally at home, depending on the socioeconomic background. Often, some people brush their teeth twice a day, some don't, and you'll get like "no I don't brush my teeth at bed time". (Unit B Interview 1)*

Participant D2 expressed that if a patient doesn't complete proper oral care at home on a routine basis, it is not reasonable to expect the patient to change their habits while in the hospital.

> *Sometimes they don't do oral care at home, so you can't expect them to change here for a couple of days. (Unit D Interview 2)*

5.4 Time to Provide Oral Care

Previous research shows that working conditions impede the prevention of oral care problems in acute care patients (6). Similarly, in this study, time and workload were identified as a barrier to providing oral care by over a third of participants (n=7). For this study, time is

conceptualized as not only the time it takes to provide oral care itself, but also the time available throughout a shift in relation to workload.

> *Time is the biggest barrier. But I do prioritize oral care, it is something that is necessary every shift. But time would be the biggest factor. (Unit B Interview 2).*

Participants identified that while oral care is important, it is not a priority in comparison to other daily tasks. Other tasks that may be associated with immediate results or higher risks are typically valued over the provision of oral care.

> *I think most of the time it's a time factor. We try to do it, I try to do it as much as I can. But there are days where you don't get to it and it's because of workload issues. So, then you feel like it's not a priority. Sometimes you have patients that just don't want it done. Sometimes they'll have dentures and you'll ask them to do it and you're not sure if it's been done. But mostly I think from my perspective it's usually a time constraint. I think from my perspective, we know it's important and we know it's one of those things that we really need to do. But once in a while you'll find that you just didn't have time to do it but as much as it's important it's not a priority and you kind of weigh the risk. You think if "I don't provide oral care today it's not a big deal compared to something that could be worse". (Unit C Interview 1)*

5.5 EMR: Inconsistency in Charting

Participants were asked how they felt about documenting oral care inside of the Electronic Medical Record (EMR), including if the options were present and if the set-up was appropriate. While the majority of participants stated that they were fine with the EMR set up, a few participants mentioned aspects of the EMR that could lead to inconsistency in charting in relation to oral care. On more than on occasion, the participants directly acknowledged

incomplete charting. Two participants mentioned that the current set up of the EMR may have too many options and may be too generalized for the care that is being provided.

> *I feel like it's just too broad, too generalized. It basically just says provided, if it's assisted, or done by us. (Unit H Interview 1)*

> *I guess there's too many choices. The suction toothbrush is what we would routinely use, toothbrush, denture care. There are few extras in there. The fact that we have to document lip moisturizer applied seems a bit excessive. (Unit A Interview 2)*

Participants indicated that they were aware of instances where either they themselves or other nursing staff were not fully documenting the oral care provided and not capturing all aspects of care inside of the EMR.

> *To tell you the truth, I think there's a lot of good parts to it because instead of just oral care provided like in the flowsheet, it's a lot more in depth because you can say I swabbed, I brushed, with suction toothbrush, used toothpaste, you can check off all those boxes. But I think especially with EMR and you're going flowsheet, flowsheet, flowsheet, it can kind of get missed and some people just aren't checking off all the boxes and just indicating mouth care provided. Teeth brushed even though they have dentures and it should be mouth washed, dentures cleaned. I just think the options aren't being used and that's what I really like about EMR, you're able to give more information on that one key part but a lot of people are just like "oh this was done, this was done", not so much how it was done or with what. I think it's like tunnel vision. (Unit E Interview 1)*

> *By the time I hit that section I'm already kind of tired, I've had enough charting. It's just set up like that. (Unit D Interview 2)*

I probably don't document it as I should…it's more difficult to document in the EMR. (Unit F Interview 1)

Participants also identified that there may be instances where they document outside of the intended area, either for ease or efficiency, or due to specialized care for the specific unit.

There is different documentation on our unit since it is considered part of treatment. Here it is under safety and concern rather than under hygiene in the flowsheet. (Unit F Interview 2)

I find the EMR is hit and miss. Sometimes I find things and sometimes I can't. I know there's a spot to put it, but I may not find it and I'll go look for it later and I'll forget because I'm too busy to go looking for it. I couldn't tell you where to find it right now. A lot of things I know I can go to this screen and I can go there but not oral care, I'd have to search for it. So that's kind of how I feel about the EMR right now. But, on the other hand if somebody is a problematic patient, someone is very sick, I might just make a nursing note that I provided oral care just for coverage for my own self. (Unit C Interview 2)

Only one participant expressed no knowledge of the EMR in relation to documenting oral care. When asked how they found documenting oral care inside the EMR, participant H2 responded that they "*hadn't crossed that yet".* This is despite the fact the participant responded that EMR was *"more easier"* when asked how electronic charting was in relation to paper charting.

5.6 Inconsistency of Oral Care Provision across Nursing Staff

Oral care is classified as a minor problem when compared to the procedures of preserving vital functions (6). Research suggests that routine oral care is a low priority among nurses and as

such is unlikely to be addressed during the days and weeks of the patients' critical illness when changes to the oropharynx environment are likely to occur (10).

A number of participants (n=9) indicated that they were unsure that other nursing staff valued providing oral care or were routinely providing care to their patients, regardless of having the appropriate resources in place to do so:

> *I think the hospital does stress the importance of oral care. I'm just not certain that every staff member is doing it. But we've put everything in place in stressing the importance of it, it's just if people do it or don't do it unfortunately, but I think everything is there. (Unit B Interview 1)*

Participants felt that some nurses don't value oral care as an important task, despite knowing the value of routinely providing adequate oral care to patients.

> *I think most nurses try to provide oral care but at the same time I think there's some who think that it's not something important to do. Which is a shame, but I think most people do know the importance of it. (Unit C Interview 1)*

Participant G2 doesn't think that oral care is provided as frequently as it should be, not only patients but by staff members as well:

> *I mean I think some people don't do it as often as they should…patients and nurses. (Unit G Interview 2)*

One participant identified that they didn't want to speak negatively about their fellow nurses, despite knowing that other nurses are not providing adequate oral care. When asked if the participant thought other nurses valued providing oral care, participant I1 stated the following:

...not really…I don't know…I can't speak for them… I don't want to throw anyone under the bus. (Unit I Interview 1)

Participants identified that oral care has been introduced and explained during orientation training sessions but expressed that oral care education could be reintroduced and refreshed for nursing staff as it appears not all staff are routinely providing oral care.

I remember, I was hired two years ago, in the orientation they went through the importance of oral care, when it should be provided, how to differentiate with using a toothbrush and toothpaste versus the chlorohexidine and suction toothbrushes so I think that was really good. I think kind of re-instilling it because there are times where I'll come in from like two days or three days off and I'll be like "okay pop out your teeth for me" and the patient says, "You're the only one that does it". (Unit E Interview 1)

5.7 Nursing Staff Concern for Patients

The majority of participants expressed concern for their patients' well-being when discussing oral care. When asked what was good or important about providing oral care from their perspectives, 88% of participants (n=16) identified infection related attributes as being important for the provision of oral care. Half of the participants (n=9) identified patient comfort as a benefit of oral care provision, typically in addition to the benefit of preventing infections.

Oral care for the purpose of preventing infection was the most highly consistent answer amongst participants throughout the semi-structured interviews, indicating that nursing staff are aware of the underlying importance of providing oral care.

Our mouths are pretty dirty, tons of bacteria in there, that is a gateway to our bodies and you have to clean that, take care of it. For good hygiene, it can cause problems in other areas in the body. If your mouth is clean, I feel like you feel clean. (Unit E Interview 2)

It's important just so people don't get infections from not doing oral care, and then also to maintain the mucosa in the mouth because sometimes you get people and their mouth is just coated. (Unit F Interview 1)

Well number one is hygiene. Number two is to decrease the rate of infection. We all know that poor hygiene can go to infections to the heart, thrush. (Unit H Interview 1)

Similarly, many participants expressed that oral care increases the level of patient comfort, quality of hospital stay, and overall care.

It's comfort for the patient, prevents aspiration pneumonia risks, just makes a person feel good. I like having my teeth brushed, so I can't imagine not having my teeth brushed. (Unit A Interview 2)

What's good is that patients are more comfortable, they are more likely to have a better appetitive, eating. They're at less of a risk for aspiration pneumonia. Just a general feeling of feeling better, more comfortable. (Unit B Interview 2)

Participants were also asked who cares whether or not the individual nurse provides oral care to their patients. Amongst responses that managers, doctors, other nurses, the patient's family and the patient themselves may care about oral care, over a third of participants expressed that they themselves significantly cared if they provided oral care to their patients.

I care. It would bother me not to. The patients may or may not care, most of them have really bad teeth and probably don't look after their teeth on a regular basis even at

home. They often times neglect themselves, but I would say the medical team as a whole care. The risk for aspiration pneumonia is high, prolonged hospital stays are a result of that. (Unit B Interview 2)

I personally feel that it's important. I as a nurse care. I don't know if anyone else cares and that shouldn't be what I look to, that is my responsibility. (Unit C Interview 1)

I care! And I don't know about patient's family's or doctors, if they care. But I know it's important. (Unit D Interview 2)

Well it matters to me, I know that I'm making sure my parents got 100% care. Of course, management cares if we're doing all of our care accordingly. The patient's family's and the patient themselves, I'm sure they care. (Unit E Interview 2)

5.8 Summary

The semi-structured interviews revealed barriers that influence the nurses' ability to provide and document oral care procedures. These factors included barriers related to patient refusal, patient behaviors, and patient cognition, as well as time constraints. Additional issues included a lack of consistency documenting inside the EMR and a lack of consistency providing oral care amongst nursing staff. The final theme was framed in a positive manner, highlighting the concern and value that many nurses have for their patient's care, including patient comfort and the prevention of infections.

Patient related barriers such as refusal, behavior, and cognition were the most highly reported issues. Many participants identified that there were limited options when dealing with patient refusal of oral care or with patients who do not routinely engage in oral care outside of the hospital setting. Patients who may be cognitively impaired or combative also pose a

challenge for nursing staff. Time was also of concern for many participants and oral care was often determined to be of lesser priority than other nursing related tasks.

Questions surrounding the documentation of oral care inside of the EMR highlighted issues such as not being able to find the correct location, charting outside of the dedicated oral care section and a lack of sufficient or proper charting in some cases.

Participants identified that there is a lack of consistency across nursing staff when it comes to providing and valuing oral care, despite all of the resources being in place. A positive theme emerged highlighting the concern that many nurses have for their patient's comfort and the importance of addressing the prevention of infections through oral care provision. Many nurses expressed that they personally cared whether or not they were able to provide oral care to their patients.

The implications of key findings will be discussed in the next chapter. Chapter 6 will also discuss the limitations of this research.

CHAPTER SIX

Discussion

The aim of this research was to explore the barriers and facilitators to providing and documenting oral are in the acute care setting. In particular, participants were asked about the positives and negatives surrounding oral care provision and documentation, as well as their own personal perspectives surrounding the topic. Through thematic analysis, the 18 participant interviews revealed factors that influenced oral care provision. Seven major themes emerged from the participant interviews. These themes included barriers related to patient refusal, patient behaviors, and patient cognition, as well as time constraints. Additional themes included a lack of consistency documenting inside the EMR and a lack of consistency providing oral care amongst nursing staff. The final theme expressed the concern that many nurses have for their patients care, including patient comfort and the prevention of infections through proper oral care provision.

The information provided through the participant interviews is contrasted with the data collected through the oral care audit phase of this study. Audit data revealed that oral care practices are carried out by nursing staff at lower than desired levels overall. The results also showed that oral care is inconsistently and at times unreliably documented inside of the patient medical record. Both oral care behaviors of nursing staff and their documentation merit improvement. This discussion will highlight the implications of these key findings on future design for examination of nursing attitudes and interventions to improve oral care provision and patient safety. The limitations of this study will also be discussed.

6.1 Key Findings

The results of this research coincide with previous investigations in nursing documentation and oral care provision; oral care nursing practices have been found to be inconsistent, not evidence-based and not accurately reflected in documentation. The findings from this study also corroborate with previous research that found that although nurses may rank oral care practices as a high priority, levels of evidence-based oral care practices were found to be relatively low (10). However, with respect to the barriers to providing oral care, there are some notable differences and expansions on existing research worth mentioning. In the following sections, I will describe the significant themes in greater detail.

6.2 Adherence to Oral Care Protocols is Low but Varies by Time and Unit

The audit scores illustrate the varying rates of oral care documentation across the units and audit rounds. Despite the variation, adherence to oral care protocols remains low. Similarities are identified when examining the audit data in relation to the themes from the semi-structured interviews: some nurses provide and document oral care and some don't.

It is important to identify that there are limited explanations provided through the combination of the audit and interview data to clarify the variations in oral care documentation through the three rounds of audits. Although it is possible that changes in nursing shifts (i.e. more nursing staff who value oral care and/or documentation were scheduled during the time period the different audit rounds took place) more research is required to understand what factors could be impacting the variability in documentation rates. The variation in the audit data could potentially be explained by the indication from interview participants that not all nursing staff are providing oral care routinely, but more research is required to examine this relationship further.

When examining the low compliance of oral care documentation shown through the oral care audits, it is important to emphasize that care documented does not necessarily equate to care provided. Research shows that audit tools are routinely developed to evaluate the quality of the record, rather than the quality of nursing care provided (25). It is routinely assumed that there is a relationship between documentation and care provided, and while complete documentation implies proper care, the opposite is not always found to be true (25). The phrase "if it is not recorded it did not happen" implies a legal meaning but does not always relate to the care that was truly provided (25). It is possible that oral care is being provided more frequently than what is documented in the clinical record. The plausible variation in the care provided versus the care documented is highlighted by participant responses indicating that they were aware of instances where documentation was missed, overlooked or documented outside of designated areas.

Without directly observing the care provided by nursing staff in relation to the corresponding documentation, there are limitations to the data provided through the audits and semi-structured interviews. The relationship between oral care documentation and provision needs to be explored further to understand the extent of actual care provision in relation to what is documented inside of the clinical record. Nursing staff need to understand the legal ramifications of documentation and understand that care that is not documented is generally assumed to have not taken place. Education for nursing staff on the relationship between the provision and documentation would be beneficial for supporting nurses in furnishing quality and reliable documentation for the purpose of supporting their care activities.

6.3 Barriers to Oral Care Provision

Previous studies indicate that to have an effective pneumonia prevention program, nurses require additional education on the importance of oral care practices for all patients, as well as how to safely and effectively provide oral care (3,13). While the topic of continuous education on oral care practices was identified by numerous participants throughout this study, patient related barriers to oral care were significantly more prevalent and disruptive to care provision.

6.3.1 Patient Refusal

Patient refusal was a frequent barrier identified by nursing staff. Participants expressed that many patients are either uninterested in oral care or would refuse the service altogether. Participants expressed that limited options exist when dealing with patients who refuse oral care. Participants indicated that they would attempt to provide health teaching or explanations on the importance of oral care but expressed that they are unable to force a patient to participate in this care practice.

The indication from nurse participants that there is only so much they can do when a patient refuses oral care may indicate that while oral care is important, it is not as important as other care activities. Nursing staff do not routinely accept no as an answer when providing other care activities such as vital procedures or the administering of medication. Nursing staff need to understand the importance of standing firm on oral care practices and should treat oral care refusal in a similar way they would treat and document refusal of vital procedure.

When patients refuse oral care, it would be beneficial for IPAC or other departments to either participate in or support nursing staff in providing health education to cognitively aware patients who refuse oral care. Proper and appropriate education would be beneficial in allowing

patients to understand the importance of their oral hygiene while in the hospital, as well as the negative ramifications of neglecting oral care outside of just their basic oral hygiene.

The frequent discussion of patient refusal is in contrast to what was found to be documented in the EMR during the audit phase of this study. During the audit phase of this study patient refusal was not found to be routinely documented and in cases where refusal was documented, it was included as a nursing note rather than an option of care. To increase the consistency of documentation, patient refusal should be routinely documented as an alternative to care in order to acknowledge that care was attempted but refused. The documentation of the patient refusal of oral care is essential in providing clear communication, as well as legal evidence on the outcomes of care. Nursing staff need to be provided education on the importance of documenting a refusal inside of the EMR.

6.3.2 Patient Cognitive Status

Patient cognitive status was identified as a barrier to providing proper oral care procedures. Cognitive status as a barrier to oral care provision is significant as sedatives, muscle relaxants, and the patient's state of consciousness are considered to be increased risk factors for NV-HAP (5,6). The increased risk factors for this patient population and the difficulty associated providing appropriate oral care to this group subsequently places this population at an increased risk for NV-HAP.

Participants expressed that patients who are cognitively impaired, including elderly patients with varying forms of dementia, are often difficult in terms of providing proper oral care. Patients will frequently bite down when oral care is being provided as they are unable to process the care that is attempting to be provided. Similar to patient refusal, these issues are

required to be clearly documented in the EMR. When oral care is unable to be provided due to cognition related issues, the EMR should detail that cognitive impairment disallowed the provision of oral care. Increased educational opportunities would help nurses to feel more comfortable in providing oral care to cognitively impaired patients and inform on techniques that improve oral care provision for the population. To improve the experience and culture of nursing staff, nurses should be included in ongoing discussions and related support for best methods for providing care to this type of patient population.

6.3.3 Patient Behaviors and Oral Care Habits

Patient aggression or combativeness as well as patient habits associated with oral hygiene were identified as barriers to oral care provision. Many participants indicated that patients may or may not participate in proper oral care procedures in their daily lives. Participants indicated that the oral hygiene habits of patients was a significant factor in patient refusal and was encountered more often than a combative or aggressive patient. The ideology that hospitalized patients cannot be expected to engage in oral hygiene that is outside of their normal routine indicates that nurse participants do not regard oral care as a critical care activity. Instead, oral care is viewed as a personal habit rather than an important clinical intervention.

As with patient refusal, IPAC and other resources should be utilized to assist in health teaching with patients when appropriate. The hospital is an ideal setting for modeling and educating patients about pro-health related behaviors. Nursing staff need to be supported by being provided ongoing training for implementing health teaching with their patients. Issues with patient behaviors such as aggression or substandard oral care habits should be documented in the EMR when care cannot be adequately provided.

6.3.4 Time to Provide Oral Care

With respect to time, participants indicated that they did not have time to provide oral care throughout their shift due to workload issues. In existing research, nurses have reported that they did not have the time for patients' oral care because of the high patient-to-nurse ratio and the high degree of care required for some patients (6). Working conditions impede the prevention of oral care problems in acute care patients (6).

Many participants indicated that oral care while important, was considered to be a lower priority when forced to choose between other nursing related tasks. Previous research indicates that oral care remains to be classified as a minor problem when compared to the procedures of preserving vital functions (6). Participants expressed that they are required to weigh the risks associated with not providing oral care with other required tasks. Similar to what was expressed by participants in this study, research suggests that routine oral care is a low priority among nurses (10).

Participants indicated that the time required to provide oral care with the suction toothbrush was more cumbersome than regular tooth brushing. The time associated with using a suction toothbrush could help explain why compliance rates with the suction toothbrush are considerably lower than the compliance rates for generic oral care documentation (e.g. regular toothbrush). Participants indicated that that they frequently used the suction toothbrush on cognitively impaired patients due to their higher propensity for aspiration, thus intertwining the barriers of both time and cognitive impairment in oral care provision.

Enhanced oral care protocols with clear education and support for implementation may be beneficial in the long-term by proactively providing care and easing the necessity of care practices that may be more time consuming. For example, caring for a patient for aspiration

pneumonia would be more time consuming than adhering to an oral care protocol. Research by Robertson et al. (5) demonstrates that enhanced oral care protocols do not negatively impact overall workload. Robertson et al. (5) found that the length of stay may be reduced when patients do not develop HAP. The reduction in length of stay has significant implications for nursing workloads, as nurses stated they spent less time on performing routine oral care compared with time normally spent on interventions when caring for a patient with HAP, reducing workloads and the intensity of care provided to some patients (5).

6.4 EMR: Inconsistency in Charting

With respect to nursing documentation and oral care, participants expressed that EMR documentation can be time consuming and difficult to find, often leading to insufficient charting or less documentation that does not encompass the entirety of the care provided. This is in line with previous research that found that nursing documentation is often convoluted or devalued as an unimportant task and quality documentation is not produced (9).

This thesis concurs with research that indicates that nursing care plans are not consistently written or are not used for interventions (9,14,15). Many participants indicated that they may chart differently and make notes in sections other than those indented for documenting oral care. Documenting outside of the appropriate section can lead to miscommunication amongst nursing staff and managers about the care that was provided.

From the viewpoint of IPAC, oral care audit scores may appear lower than the care truly provided when the oral care is documented outside of the designated area. For the purpose of this study, the oral care IPAC audits only examined oral care data indicated in the care and safety

portion of the EMR flowsheet and could subsequently have lowered compliance rates if oral care was documented elsewhere in the EMR.

To increase the quality and consistency of oral care documentation, IPAC oral care audit data should routinely be shared with managers and unit level nursing staff. The audit data should be shared in tandem with information supporting more detailed documentation and appropriate locations and methods of documentation. Providing nursing staff with detailed expectations of how and where oral care should be documented will help increase both the standard of documentation as well as corresponding oral care audit rates due to increased reporting of the care provided.

6.5 Inconsistency of Oral Care Provision across Nursing Staff

While many participants indicated that oral care was of personal importance, nurses specified that other nursing staff may not be consistently providing the appropriate level of oral care to their patients. The inconsistency across nursing staff is in line with existing research that indicates that although evidence on oral care exists to inform practice, there is a gap between the available evidence and the actual practice (11).

Research has found a lack of standardized practices among nurses when performing oral care as the frequency and method of oral care varied between individuals (11). This remains true for this study despite the fact that almost all participants indicated that they had the required resources and knowledge to provide proper oral care.

Healthcare centers need to encourage and reinforce the basics of care. Work done by Vollman (1) suggests that behavior that is reinforced continues, while behavior that is not reinforced is likely to stop. Incentives, ongoing discussions, increased education and ongoing

monitoring may be beneficial for increasing the consistency of the care provided. Managers should allow for continuous feedback from nursing staff regarding the barriers to providing oral care to their patients. Open discussions are essential for ensuring that nursing staff feel supported and included in care decisions.

6.6 Nursing Staff Concern for Patients

A positive signal from this study was the concern that participants exhibited for their patients. Nursing staff acknowledged the benefits of oral care outside of the prevention of infections, including patient comfort and both family and patient satisfaction with care.

Previous research has reported that nurses value the contribution of oral care to patients' well-being, however, frequency and documentation of oral care depended upon time and the availability of resources. Although it was routinely reported that participants felt they had access to all the necessary resources, it is possible that time and incomplete documentation are manifesting in lower rates of compliance or provision during oral care audits and a higher level of care may be provided but not documented. Nursing staff may be concerned for their patients and providing the appropriate amount of care, however, if the care is not documented in the EMR the oral care audit score will not be reflective of the level of care taking place.

6.7 Education and Reinforcement

Oral care as a basic but important tenant of nursing care needs to be reinforced. Ongoing education on the background and significance of oral care provision are required in order to reinforce their daily task. During this study, participants indicated that while they understand the underlying importance of providing oral care is the prevention of infections, there is a desire to

see the bigger picture and expressed that understanding the greater significance of oral care and the associated infections would be of benefit.

Participants showed limited knowledge of the oral care protocols in place, aside from the understanding that oral care should be provided at minimum twice a day. Results from the oral care audits indicate that there is a level of confusion surrounding what is considered proper evidence-based oral care. Frequent documentation inside of the EMR included items should more appropriately be considered as mouth care or support for the purpose of patient comfort, rather than proper oral care procedures. For example, mouth care related items such as 'mouth rinsed', 'lip moisturizer applied', or 'mouth swabbed' are not considered to be in line with evidence-based protocols for the prevention of infections. For the purpose of this study, a medical chart was considered to be compliant in providing oral care if it included tooth brushing and/or the use of a suction toothbrush. The exclusion of items categorized as mouth care subsequently leads to oral care audit scores to appear to be lower than what was documented routinely within the medical record.

The improper documentation indicates that it is the quality of documentation that is of issue, rather than the frequency. Education initiatives with nursing staff should be focused on highlighting the importance of high value documentation in contrast to documentation that may add little value.

The low rate of compliance with the suction toothbrush highlights that while many staff may be motivated to provide oral care, there may be a level of confusion or lack of understanding surrounding the appropriate oral care protocols for patients deemed to be at risk for aspiration. Education should be provided to nursing staff to reinforce oral care protocols and

create confidence and an understanding of the value and importance of the suction toothbrush, particularly for patients at risk for aspiration.

Previous studies indicate that to have an effective pneumonia prevention program, nurses require additional education on the importance of oral care practices for all patients, as well as how to safely and effectively provide oral care (3,13). Reliable and reinforced protocols would create a standard for care and documentation in which to hold nursing staff accountable. The increased protocols should clearly delineate what constitutes proper evidence-based oral care. Research by Kalisch et al. (13) found that lack of knowledge and unclear protocols contributed to missed basic nursing care. By increasing the knowledge of nursing staff, as well as having the proper protocols in place, healthcare teams are better able to support nursing staff in the provision and documentation of care.

6.8 Theoretical Reflections of Using an IPAC Approach with CFIR and TDF

Approaching this research through an IPAC lens allowed for greater insight into the interrelated issues of oral care provision and documentation. IPAC is routinely involved in the auditing and surveillance of nursing units and is key in assessing the frequency of hospital-acquired infections. Utilizing approaches already routinely implemented by IPAC and making use of the resource already in place (e.g. oral care audits) within acute care centers created the opportunity for increased understanding of the research topic. Utilizing an IPAC approach also allowed for an external examination of the issues as IPAC departments are not directly responsible for nursing staff or the management of in-patient units.

Utilizing the CFIR approach allowed for greater understanding of the intricacies of oral care provision and documentation in acute care. By acknowledging the CFIR intervention

characteristic of trialability, the audit tool was tested during the preliminary stages of this research and subsequently was changed and adjusted prior to the commencement of the oral care audits. The CFIR was highly applicable and beneficial for this research as the framework touches on key aspects that are required to be present when reviewing the issues from an IPAC approach. The CFIR was also useful for understanding the knowledge, and beliefs of those who may be the target for future interventions.

For IPAC to be successful in future interventions, the following CFIR characteristics needs to be in place:

Table 6.1 CFIR Benefits to IPAC Research

CFIR Characteristic	Benefit to IPAC Research and Implementation
Patient Needs & Resources	Understanding the barriers and facilitators to meeting the needs. *This has already been identified through the results of this study.*
External Policies & Incentives	Evidence-based oral care practices utilized by other organizations or exemplified in research. IPAC may need to consider external policies such as mandatory public health reporting.
Culture	The norms, values and basic conventions of nursing staff in the hospital. Change efforts are aimed at work-related tasks, structures, and behaviors. *The culture and conventions of nursing staff were explored and identified through the results of this study.*
Implementation Climate	The organization's capacity for change. IPAC needs to understand the receptiveness of nursing managers and unit responsiveness. Will interventions be supported?
Knowledge & Beliefs about the Intervention	What are the attitudes and the familiarity with facts, truths and values related to the intervention? *The attitudes and knowledge of nursing staff were explored and identified through the results of this study.*
Engaging	IPAC should involve and appropriate other individuals and departments throughout the hospital setting. E.g. Speech Language Pathology as a resource for education and support.
Reflecting & Evaluating	IPAC should continue to audit and gather qualitative and quantitative feedback on the progress and quality of implementation. Continuous feedback should be provided to nursing staff on the progress of the implementation.

The TDF provided a framework and support for ongoing implementation. The TDF recognizes that the implementation process is variable and consists of interacting organizational and individual factors influencing the behavior of healthcare workers (22). The TDF was valuable to this research in helping to understand the individual motivations of nursing staff, the clarity of roles and practice, and the culture of oral care provision as a specific healthcare practice. The TDF helped create an understanding of the possible influences on behavior, the background of these influences, and techniques to change behavior in the future, such as education and ongoing support for nursing staff.

Combined together, the CFIR and TDF provided further insight into this research by allowing for greater assessment of the characteristics of the nursing staff providing routine oral care, the patient related barriers, and the organizational culture of the units. The CFIR and TDF would be useful for future research by supporting the creation of tailored strategies for implementing evidence-based practice.

6.9 Limitations

The themes that have emerged from this research contribute new concepts to understanding the barriers and interrelated aspects of oral care provision and documentation. There are some limitations worth discussing.

The perceptions and viewpoints of the participants were captured at one point in time and may not remain static. The semi-structured interviews were limited in time due the workload demands of the participants and did not allow for greater expansion of the topics discussed. Participants were recruited through a purposive sampling strategy but there is the possibility of response bias whereby those who chose to be included in this study may be more likely to

provide oral care and/or more aware of the risks or benefits. Social desirability bias, in which participants tend to provide responses they imagine are expected, may also affect the interview data.

The audit data was completed over three rounds, with limited time lapse in between due to the time constraints of this study. Additional rounds of audits spread out over a more expansive amount of time would have been of added benefit, although it is hypothesized that the overall rates of oral care provision and documentation would remain relatively stable over time.

6.10 Summary

This chapter discussed the findings from Chapter 4 and Chapter 5. The key findings suggest that nursing staff require additional education and support, as well as the reinforcement of oral care protocols and the need for appropriate, thorough documentation. Participants expressed barriers related specifically to patient-associated factors and focused less on institutional constraints. Increased and evolved oral care protocols and support from IPAC are essential for the success of nursing staff in providing oral care. Lastly, the limitations of this study were discussed.

CHAPTER SEVEN

Conclusion

Oral care is a key component of nursing care and has a significant effect on the prevalence of hospital-acquired pneumonias. Research has examined the barriers and facilitators to providing oral care in the acute care hospital setting. In this thesis, I completed oral care audits on 172 medical charts on 9 in-patient units to examine the compliance rates of oral care documentation and provision. I also conducted 18 semi-structured interview with nursing staff on the 9 audited units to explore the barriers and facilitators to providing oral care from their perspectives. The oral care audit data revealed that oral care practices are at lower than optimal levels, and that documentation is unreliable and inconsistent, with a level of confusion in terms of what constitutes adequate evidence-based oral care. The thematic analysis highlighted several barriers and topics associated with oral care provision. These barriers and topics include:

1. Patient Refusal
2. Patient Behavior
3. Patient Cognition
4. Time Constraints
5. Lack of consistency in EMR documentation
6. Lack of consistency amongst nursing staff
7. Nursing staff concern for patients

I also emphasize that education and reinforcement need to be provided by managers and healthcare centers in order for oral care protocols to be successful. To help support, implement, and create continuing support of oral care protocols, I suggest the increased influence, monitoring, and involvement of IPAC resources. Implications of this study will improve the present and future design and implementation of oral care protocols.

7.1 Contributions

As discussed in Chapter 1, this thesis makes the following contributions:

1. Establishes a numerical understanding of oral care documentation rates, highlighting the inconsistency and lack of reliability that exists in oral care documentation.
2. Demonstrates barriers that may prevent the provision and documentation of oral care in an acute care setting through thematic analysis. These barriers include patient refusal, patient behaviors, patient cognitive status, time considerations, and inconsistency in EMR documentation. Inconsistency across nursing staff and concern for patients from nursing staff are also discussed.
3. Validates the advantages of utilizing an IPAC approach to nursing care and documentation in the acute care setting.
4. Creates a foundation for future IPAC research through combined use of the Consolidated Framework for Implementation Research and the Theoretical Domains Framework.

7.2 Directions for Knowledge Translation

This research was useful for identifying items for future research and actionable activities for implementation. Table 7.1 provides actionable activities for knowledge translation (KT) based on this research.

Table 7.1 Knowledge Translation Activities

KT Activity	Action Activities
Oral Care Protocols	Create evidence-based protocols for oral care provision and documentation
Education	Provide nursing staff with education to reinforce protocols and health teaching techniques to engage patients in the importance of oral care

Support	IPAC should support the acute care units and nursing staff with health teaching opportunities and continuous improvement strategies. Management should support nursing staff by creating opportunities for open discussion on the barriers and facilitators to care provision.
Engagement of Stakeholders	IPAC should engage interconnected specializations such as speech language pathology and other related groups
Continuous Feedback	IPAC should provide continuous feedback in the form of oral care audit results and allow for open discussion of any related issues

The results of this research are helpful for identifying a potential path forward by recognizing the main issues facing front-line nursing staff. Understanding the issues facing nursing staff in relation to the culture of nursing care activities creates an opportunity for positive change and advancement.

7.3 Directions for Future Research

This research suggests several opportunities for future exploration based on the insights gained from this study. Future research should focus on investigating the rates of oral care provision over time (longitudinal) to determine the challenges of providing oral care at varying time points (e.g. during high flu volume). Longitudinal data would allow for the investigation of patterns over time.

This study examined oral care provision from the viewpoint of front line nursing staff. Future research should explore the topic of oral care from the viewpoint of specialized groups such as speech language pathology. Viewpoints from other specialized groups would allow for a greater understanding of the larger picture of oral care provision in acute care and create the potential for increased support opportunities for nursing staff.

A long-term research goal is to understand the ideal scenario for the provision and documentation of oral care. However, the intertwining barriers to oral care provision create a

convoluted and often contradictory basis for future change. Therefore, researchers should focus on creating and testing different models of both provision and documentation to test which models allow for the highest level of compliance and assurance of patient safety through implementation of appropriate oral care in acute care hospital settings.

7.4 Summary of Recommendations

There are a number of recommendations that result from this research, both for implementation and for future research. Recommendations for implementation based on the findings of this research include:

1. Increased evidence-based protocols for both oral care provision and documentation
2. Education for nursing staff on implemented protocols
3. Education for nursing staff on health teaching techniques to utilize when facing patient refusal of oral care
4. Support from IPAC on health teaching and continuous feedback by providing routine audit scores
5. Inclusion of interrelated groups such as speech language pathology

The findings of this study also provide recommendations for future research and development. Future research initiatives should aim to endeavor the following:

1. Longitudinal implications on oral care documentation, such as peak flu season
2. Perspectives on oral care provision by specialized stakeholders such as speech language pathology
3. Ideal scenarios for the provision and documentation of oral care in the acute care setting

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APPENDIX A

Sustaining Nursing Care Practice from Vollman (2013)

Obtained from Vollman (2013)
Vollman KM. Interventional patient hygiene: discussion of the issues and a proposed model for implementation of the nursing care basics. *Intensive and Critical Care Nursing*. 2013; 29: 250-255.

APPENDIX B
Oral Care Audit

General Information

Oral Care Audit Tool for Patients at Risk for Aspiration – Information for auditor

Site*

- Charlton Campus
- King Campus
- West 5th Campus
- Six Nations Dialysis

Unit*

Date and Time:

Was a suction toothbrush used if the patient was at risk for aspiration? *

- Compliant
- Not in compliance
- Not Applicable

Oral care is documented in the clinical record*

- Compliant
- Not in compliance
- Not applicable

Is the patient at risk for aspiration?*

- Yes
- No

If the patient is at risk for aspiration is this indicated on the flowsheet? *

- Compliant
- Not in compliance
- Not Applicable

APPENDIX C

Semi-Structured Interview Questions

I'm first going to ask you some questions about providing oral care. Then I'll ask some questions about documenting it.

1. What is good or important about providing oral care, from your perspective?
2. What is bad about doing it, from your perspective?
3. What is easy about it?
    a. What makes it easier – any other facilitators?
4. What is difficult about it?
    a. Any other barriers?
5. Who cares whether you do it? That is, who does it matter to?
    a. Does it matter to you if other staff are doing it?
6. Tell me what you think about oral care protocols. Is there one that you use or rely on?
    a. Is it useful
    b. Is it clear
    c. Do you have any ideas about how it could be more useful?
7. How often do you perform oral care (on a patient)? For instance, yesterday or the last day you were at work: how many times, if any? (in a typical week)
8. How do you determine if a patient requires assistance with oral care?
    a. Do you feel confident providing oral care?? How often do you document oral care? What are some of the barriers and facilitators to documenting oral care?
9. Do you have any recommendations, or ideas that would be useful?

APPENDIX D

CFIR Interview Guide

CFIR Guide

Intervention Characteristics

Trialability

1. Will the intervention be piloted prior to full-scale implementation?
    - [If Yes] Can you describe what your plans are for piloting the intervention?
    - [If Yes] What will the pilot look like?
2. Do you think it would be possible to pilot the intervention before making it available to everyone?
    - Why or why not?
    - Would this be helpful?

Complexity

1. How complicated is the intervention?
    - Please consider the following aspects of the intervention: duration, scope, intricacy and number of steps involved and whether the intervention reflects a clear departure from previous practices.

Outer Setting

Patient Needs & Resources

Coding between Tension for Change, Relative Advantage, and Needs and Resources of Those Served by the Organization will be nuanced but here are some general guidelines:

- *Tension for Change:*
  Statements that demonstrate a strong need for the intervention and/or that the current situation is untenable.

- *Relative Advantage:*
  Statements that demonstrate the intervention is better (or worse) than existing programs.

- *Needs and Resources:*
  Statements regarding specific needs of individuals that demonstrate a need for the intervention, but do not necessarily represent a strong need or an untenable status quo.

- *In a healthcare setting, individuals served by the organization may include patients and caregivers, where as in an education setting, this may include students and parents.*

1. To what extent is staff aware of the needs and preferences of the individuals being served by your organization?
    - How "in touch" are staff and leadership with the individuals served by your organization?

2. To what extent were the needs and preferences of the individuals served by your organization considered when deciding to implement the intervention?
    - Can you describe specific examples?
    - Will the intervention be altered to meet their needs and preferences?
3. How well do you think the intervention will meet the needs of the individuals served by your organization?
    - In what ways will the intervention meet their needs? E.g. improved access to services? Reduced wait times? Help with self-management? Reduced travel time and expense?
4. How do you think the individuals served by your organization will respond to the intervention?
5. What barriers will the individuals served by your organization face to participating in the intervention?
6. Have you elicited information from participants regarding their experiences with the intervention?
    - What are their perceptions of the intervention?
    - Can you describe what kind of specific information you have heard?
7. Have you heard stories about the experiences of participants with the intervention?
    - Can you describe a specific story?

External Policies & Incentives

- *In a healthcare setting, external policies and incentives may include clinical performance measures and pay for performance, where as in an education setting, this may include standardized testing performance measures and funding allocation.*

1. What kind of local, state, or national performance measures, policies, regulations, or guidelines influenced the decision to implement the intervention?
    - How will the intervention affect your organization's ability to meet these measures, policies, regulations, or guidelines?
2. What kind of financial or other incentives influenced the decision to implement the intervention?
    - How will the intervention affect your organization's ability to receive these incentives?
    - How will the new intervention affect payment or revenue for your organization?

Inner Setting

Culture

1. How would you describe the culture of your organization? Of your own setting or unit?
    - Do you feel like the culture of your own unit is different from the overall organization? In what ways?
2. How do you think your organization's culture (general beliefs, values, assumptions that people embrace) will affect the implementation of the intervention?
    - Can you describe an example that highlights this?
3. To what extent are new ideas embraced and used to make improvements in your organization?
    - Can you describe a recent example?
4. *This question can be open-ended or elicit percentages so that they add up to 100%. e.g., my culture is 50% Team, 40% entrepreneurial, 10% hierarchical.*

Some people characterize culture in terms of four general types. To what extent would you characterize your culture as:

- Team (Clan) Culture (Flexible, Internal Focus): A friendly workplace where leaders act like mentors, facilitators, and team-builders. There is value placed on long-term development and doing things together.
- Hierarchical (Hierarchy) Culture (Control, Internal Focus): A structured and formalized workplace where leaders act like coordinators, monitors, and organizers. There is value placed on incremental change and doing things right.
- Entrepreneurial (Adhocracy) Culture (Flexible, External Focus): A dynamic workplace with leaders that stimulate intervention. There is value placed on breakthroughs and doing things first.
- Rational (Market) Culture (Control, External Focus): A competitive workplace with leaders like hard drivers, producers, or competitors. There is value placed on short-term performance and doing things fast.

Implementation Climate

1. *This question is likely to uncover topics to explore more within other sub-constructs, but be attentive to other themes that may not be included in your assessment.*

   What is the general level of receptivity in your organization to implementing the intervention?

   - Why?

Characteristics of Individuals

Knowledge & Beliefs about the Intervention

- *Many responses to these questions may be (double) coded to other constructs, for example, to Relative Advantage if the participant believes that the intervention has advantages over an existing program, or to Evidence Strength & Quality if the participant believes that the program will be effective based on the existing evidence.*

1. What do you know about the intervention or its implementation?
2. Do you think the intervention will be effective in your setting?
   - Why or why not?
3. How do you feel about the intervention being used in your setting?
   - How do you feel about the plan to implement the intervention in your setting?
   - Do you have any feelings of anticipation? Stress? Enthusiasm? Why?
4. At what stage of implementation is the intervention at in your organization?
   - How do you think the program is going?
   - Why do you say that?

Self-efficacy

1. How confident are you that you will be able to successfully implement the intervention?
   - What gives you that level of confidence (or lack of confidence)?
2. How confident are you that you will be able to use the intervention?
   - What gives you that level of confidence (or lack of confidence)?
3. How confident do you think your colleagues feel about implementing the intervention?

- What gives them that level of confidence (or lack of confidence)?

4. How confident do you think your colleagues feel about using the intervention?
    - What gives them that level of confidence (or lack of confidence)?

Process

Engaging

Engaging constructs mostly focus on the strategies used to engage individuals as well as the outcome of those strategies. However, you may also want to code the ultimate presence of absence of these individuals as well as their "quality" - their capabilities, motivation, and skills, i.e. how good they are at their job. Coding between Access to Knowledge and Information, Engaging, and Networks and Communication will be nuanced but here are some general guidelines:

- *Access to Knowledge and Information:*
  Statements related to implementation leaders' and users' access to knowledge and information regarding using the program, i.e. the mechanics of the program.

- *Engaging:*
  Statements related to getting stakeholders "sold" on the program, i.e. getting them involved, regardless of if they know how to use the program.

- *Networks and Communication:*
  Statements related to team formation, quality, and functioning; statements about general **Key**

Reflecting & Evaluating

- *Reflecting and evaluating refers to the process used in the implementation process, for example, any evaluation efforts they have made regarding the intervention, and if they plan to roll it out to a wider audience. This construct is not intended to capture the reflecting and evaluating that participants may do during the interview, for example, related to the success of the implementation. Those types of comments should be coded to Knowledge and Beliefs about the intervention.*

1. What kind of information do you plan to collect as you implement the intervention?
    - Which measures will you track? How will you track them?
    - How will this information be used?
2. Will you receive feedback reports about the implementation or the intervention itself?
    - What will they look like? Content, mode, form?
    - How helpful do you think they will be?
    - How could they be improved?
    - How often will you get them? Where will they come from?
    - Who is designing them?
3. How will you assess progress towards implementation or intervention goals?
    - How will results of the evaluation be distributed to stakeholders?
4. Will feedback be elicited from staff? From the individuals served by your organization?
    - [If yes] What kind of feedback?
5. To what extent has your organization/unit set goals for implementing the intervention?
    - How will goals be communicated in the organization? To whom will they be communicated?
    - What are the goals? How and to whom will they be communicated?

APPENDIX E

School of Public Health & Health Systems
University of Waterloo

PARTICIPANTS NEEDED FOR RESEARCH INTO NURSING PRACTICE, DOCUMENTATION AND ORAL CARE.

We are looking for volunteers to take part in a study titled *Infection Prevention and Control (IPAC) Approaches to Documentation and Oral Care in the Acute Care Setting: A Mixed Methods Study*.

You must be a registered nurse routinely providing oral care on your unit.

As a participant in this study, you would be asked to participate in an interview related to your experiences with the provision and documentation of oral care. The interview would focus on your perceptions of the barriers and facilitators to providing and documentation oral care in the acute care setting.

The interview should take no more than twenty to thirty minutes.

For more information about this study, or to volunteer for this study, please contact:

Katrina Budgell
School of Public Health and Health Systems
at
kjbudgell@uwaterloo.ca

This study has been reviewed by and received ethics clearance through both a University of Waterloo Research Ethics Committee and the Hamilton Integrated Research Ethics Board.

APPENDIX F

Infection Prevention and Control (IPAC) Approaches to Oral Care and Documentation in the Acute Care Setting: A Mixed Methods Study

Information Form & Informed Consent

This study is conducted by researchers at the University of Waterloo, and St. Joseph's Healthcare Hamilton. The principal investigators are Anne Bialachowski from St. Joseph's Healthcare Hamilton, Kitty Corbett and Samantha Meyer, both from the School of Public Health and Health Systems at the University of Waterloo, and assisted by the Student Investigator, Katrina Budgell (Fimiani) as a Masters Thesis.

The purpose of this study is to understand the barriers and facilitators that impact the provision and documentation of oral care. In this study, we will collect your input on how you document and provide oral care on a daily basis. It is expected that overall, this study will provide us with very useful information on the provision and documentation of oral care within the acute care settings. This work is an important step towards improving oral care for both patients and nursing staff.

In order to participate in this study, you must be a registered nurse currently working on one of the nine units included in this study. If you choose to participate in this research study, you will be asked to sign an informed consent. You will be interviewed about your experiences, attitudes, and, barriers and facilitators to providing and documenting oral care in the unit or hospital where you are currently employed. With your permission, we will audio record the interview to allow the interviewer to accurately transcribe your responses. We expect that the interview will take about 10-15 minutes to complete. Audit data is being collected from patient medical records for a portion of this study to analyse the documentation aspect of oral care and may be discussed during the interview process.

Participation in this study is voluntary. Interviews will take place at St. Joseph's Healthcare Hamilton – Charlton Campus. You may decline to answer any of the questions posed by the interviewer if you wish. Further, you may decide to withdraw from this study at any time without any negative consequences; just let the student researcher know at any point. All information you provide is considered completely confidential. Your name, position, job title, unit or department name will not appear in any thesis or report resulting from this study, however, we would like your permission to use short quotations from the interview to illustrate themes from our analysis of the data for publication and presentation. The quotes would be de-identified, meaning they would be written down in a way that would have no information that could identify you, any person you work with, or the unit where you work. Data collected during this study will be retained for 7 years

in a locked office/electronic location. Only researchers associated with this project will have access. There are no known or anticipated risks to you as a participant in this study.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE#22226) and Hamilton Integrated Research Ethics Board (#3496). If you have questions for the Committees contact the Chief Ethics Officer, Office of Research Ethics, University of Waterloo at 1-519-888-4567 ext. 36005 or ore-ceo@uwaterloo.ca or the Hamilton Integrated Research Ethics Board at 1-905-521-2100 ext. 42013.

I hope that the results of this study will be of benefit to those organizations directly involved in the study, other groups or associations not directly involved in the study, as well as to the broader research community.

I very much look forward to speaking with you and thank you in advance for your assistance in this project.

If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact me at 416-807-1143 or by email at kjbudgell@uwaterloo.ca. You may also contact my supervisor, Professor Kitty Corbett at 519-888-4567 ext. 37268 or email kit.corbett@uwaterloo.ca or Anne Bialachowski, Manager of Infection Prevention and Control for St. Joseph's Healthcare Hamilton at abialach@stjosham.on.ca

Yours Sincerely,

Katrina Budgell (Fimiani)

Consent of Participant

By signing this consent form, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

I have read the Information Letter regarding the study being conducted by Katrina Budgell (Fimiani) of the School of Public Health and Health Systems at the University of Waterloo, under the supervision of Anne Bialachowski, Kitty Corbett, and Samantha Meyer. I have had the opportunity to ask questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted.

I am aware that I have the option of allowing my interview to be audio recorded to ensure an accurate recording of my responses. I am also aware that excerpts from the interview may be included in the thesis and/or publications to come from this research, with the understanding that the quotations will be anonymous.

I was informed that I may withdraw my consent at any time without penalty by advising the researcher.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE#22226) and the Hamilton Integrated Research Ethics Board (#3496). If you have questions for the Committees contact the Chief Ethics Officer, Office of Research Ethics, University of Waterloo at 1-519-888-4567 ext. 36005 or ore-ceo@uwaterloo.ca or the Hamilton Integrated Research Ethics Board at 1-905-521-2100 ext. 42013.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.
☐YES ☐NO

I agree to have my interview audio recorded.
☐YES ☐NO

I agree to the use of anonymous quotations in any thesis or publication that comes of this research.
☐YES ☐NO

Participant Name: _____ (Please print)

Participant Signature: _____Date: _____

Witness Name: _____ (Please print)

Witness Signature: _____Date: _____