

**The barriers and facilitators to deliver oral care for older adults  
in hospital settings**

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## **Abstract**

Hospitalised older adults often experience deconditioning and frequently develop aspiration pneumonia. These form a potential vicious cycle that is connected by swallowing dysfunction (dysphagia) and sarcopenia during hospitalisation. Many studies indicate that oral hygiene care can prevent aspiration pneumonia and improve hospitalised older adult health outcomes. However, despite being an essential nursing care that restores oral function and promotes patient wellness, it is one of the most neglected nursing interventions. This study aimed to identify the factors that impede nursing delivery of oral health care and determine what is required to overcome these barriers. Mixed methods is employed for the study, and the data from 176 questionnaires and 13 interviews were collected from nurses and HCAs in medical and surgical wards in North Shore and Waitakere hospitals. The results of quantitative data analysis and qualitative data analysis indicated three main barriers to oral care delivery: 1. oral care practice gaps and barriers; 2. insufficient oral care delivery training; and 3. lack of oral care protocols and policies. The most prominent barriers identified by nursing staff from the questionnaires were patients' challenging behaviours, and a lack of time, priority, and tools. The results also indicated that current oral health education and training were not effective to support delivery of oral care, and that these problems are resulted from a lack of oral care protocols. Therefore, there is an urgent organisational level of support to establish oral care protocols in hospitals. These improvements on organisational level of support, education, and establishment of protocols in oral health care will, in turn, benefit hospitalised older adults by preventing aspiration pneumonia and deconditioning. In the long term, the positive health outcomes in patients will empower nurses and HCAs to deliver consistent oral care through evidence-based practice and protocols.

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## **Attestation of Authorship**

I hereby declare that this submission is my own work and to the best of my knowledge and belief, it contains no material that previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university, or other institution of higher learning.

Keiko Oda

[Signature]

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# **Chapter One. Introduction**

## **1.1 My research interest**

I am an academic with research interests in gerontology and interprofessional collaboration to improve frail older people's medical/health conditions and quality of life. My first work assignment was at AT&R in North Shore Hospital, where the patient populations was mainly post-stroke older adults who received medical care and rehabilitation until their discharge to the community. During my nursing practice in AT&R, I developed my rehabilitation and geriatric nursing practice. I witnessed that some older adults experienced negative health outcomes, such as falls, delirium, malnutrition, pneumonia, exacerbation of their co-morbidities, and even death during their hospitalisation. Many post-stroke and older patients also suffered from swallowing problems, dysphagia, impaired speech, aphasia, and advancing dementia. These disabilities not only prevented them from taking medicine and even sufficient food/fluid orally, but also endangered their dignity and spiritual health. I attended the patient assessments performed by speech language therapists (SLT), physiotherapists (PT), occupational therapists (OT) and dieticians (DT), and supported patients through tests and rehabilitation programmes. From these experiences I learnt the complexity of geriatric conditions, and the importance of rehabilitation from early stages with a multidisciplinary team (MDT) approach.

My rehabilitation nursing experiences also allowed me to identify the significance of nursing assessments and practice development to identify the risks for older adults, and to prevent complications in a timely manner. I transferred to the general medicine ward for older adults in Waitakere Hospital to gain more nursing practice and knowledge for delivering acute medical care. In the general medicine ward, I worked actively as a fall champion to develop fall prevention nursing interventions for older adults by understanding how acute-chronic conditions increase the risk of deconditioning and frailty for older adults. Through this role, I attended study days, conferences, and training focused on the prevention of falls, and I deepened my understanding of the pathology of falls, prevention methods. I also learned about geriatric syndrome, where older adults have a cascade of factors related to their deconditioning and frailty, such as dysphagia

and cognitive decline, and that these can contribute to falls. The complexities of co-morbidities and frailty of older adults mean it is important for nurses to identify specific interventions for high fall risk older adults, and to work closely with the MDT to deliver comprehensive and individualised care for these older adults. To support hospitalised and care-dependent older adults' recovery, timely and sufficient MDT rehabilitation programs are indispensable. Nurses are in the optimal position to integrate and coordinate these MDT approaches to deliver comprehensive and individualised care for older adults. However, MDT interventions usually remain restricted to individual disciplines, with true MDT collaboration limited to OT/PT initial patient assessment on mobility and ADLs, and discharge plan meetings. I found that in the higher patient turn-over general medicine ward, MDT intervention and collaboration appeared sub-optimal, and nurses tend to be too busy focusing on acute medical interventions to deliver specific and individualised care for older adults with complex medical conditions and frailty.

I continued my postgraduate study in AUT while practicing in clinical settings to further develop my nursing knowledge and practice. When I completed my diploma, I identified that nursing oral care is one of the most missed care, and this negatively affects older adults' general condition and can lead to respiratory tract infections, hospital-acquired pneumonia, aspiration pneumonia, malnutrition, and declined mobility and ADLs. I have presented my oral care research to the Allied Health Forum, a charge nurse manager meeting and a quality, health and safety representative study day, and talked about it with the WDHBC CEO. I received positive feedback on my research and practice commitment from them.

This oral care research came about from my own experience as a nurse who works in frontline care delivery. I realised that the nursing profession is still considered a lower rank profession not only among the health profession, but also among nurses themselves. I found that nurses appear to think that high-tech medical interventions are more important than holistic nursing care. I have heard it said that AT&R nurses have lower technical nursing skills, and this image negatively influences their nursing job identity. Furthermore, many hospitalised older adults with physical and cognitive disabilities in AT&R are highly marginalised, requiring significant help or aged-care facilities. Generally, the aged-care sector is considered low technical nursing, and many nurses from overseas

start nursing in rest homes in NZ (Ravenswood & Douglas, 2016). The nursing workforce in the aged care sector in NZ is 93% female, and 25% are migrant nurses who can face racial discrimination and frequent changes in migrant policy. Aged care sector workers are typically lower paid, have lower job satisfaction, higher workloads, and higher job turnover (Walker & Clendon, 2012; Negin et al., 2013; Ravenswood & Douglas, 2016). These aged care sector conditions negatively influence both nursing staff and the older adults they care for.

In these circumstances, oral care for care-dependent older adults is not likely to be considered a priority for nurses, particularly in acute areas. Historically, routine oral care has been a part of daily patient care, but its significance in preventing non-ventilator hospital-acquired pneumonia has only recently emerged (Jenson, Maddux, & Waldo, 2018). The ultimate purposes of this study are to minimise deconditioning in vulnerable hospitalised care-dependent older adults, in particular by reducing hospital acquired pneumonia, to improve general conditions for these patients by identifying the gaps in oral care practice, and to support nursing staff to deliver oral care in hospital settings. This research also aims to empower nursing staff by shifting the focus to prevention of harm and promotion of wellness in hospitalised care-dependent older adults through fundamental, holistic oral care practice. This research will be a stepping stone that supports nurses to increase their autonomy by establishing evidenced-based oral care practice and translating research findings into practice in hospital.

To promote my research, I have built inter-professional and international connections by attending training sessions and conferences at the institutional level to the international level. Being Japanese has enabled me to engage with advanced interprofessional oral care research, researchers, and health professionals by attending conferences and visiting aged care facilities in Japan. One conference I attended was the 2017 Japanese Society of Dysphagia Rehabilitation Conference, the premier conference for inter-professional researchers looking at dysphagia rehabilitation. The Japanese Government has promoted inter-professional collaboration (in particular, medical and dentistry collaborations) as a national policy since 2002 to prevent aspiration pneumonia in older adults as a way of reducing the medical care burden. Therefore, this conference featured researchers from many disciplinary backgrounds, ranging from primary to tertiary settings, and from many

different countries, including from Asia, Europe and America. The focus on inter-professional and international approaches made this conference ideal for this research project, which aims to establish inter-professional collaborations for oral care practice in hospital settings. It allowed me to benefit from exposure to the most advanced inter-professional research and practice for dysphagia rehabilitation in various settings, from community to acute. I have deepened my understanding on geriatric syndrome and its prevention strategies and have been able to utilise the knowledge I gained to improve nursing interventions for dysphagic patients in NZ settings. It has also allowed me to make inter-professional international connections that have expanded my dysphagia rehabilitation research collaborations. Therefore, as a result of my nursing experiences and my exposure to international research in this area, I decided that my research would focus on oral care for hospitalised older adults to prevent deconditioning and aspiration pneumonia. My aim is to develop a specialty nursing role in dysphagia rehabilitation to enhance awareness of oral care, to improve nursing oral care with MDT collaboration, and to integrate inter-professional oral care for older adults that improves their general health and quality of life through seamless care from the acute stage in hospital to the community. This study will identify the gaps in practice in a local setting and will seek feasible solutions for implementing oral care delivery in acute settings in the WDHB.

## **1.2. Background**

Oral care is an essential nursing care that restores oral cavity hygiene and oral function, and promotes patient comfort and wellness (Drapal, 2015; Sato et al, 2015), in particular for care-dependent older adults in hospitals (Drapal, 2015). However, it is one of the most neglected nursing interventions due to time and resource constraints, a lack of education, training and appropriate protocols, and prioritising medical nursing care (Gibney et al., 2015; Petit et al., 2012; Ramswamy, 2015). In one NZ study, oral care is one of the most frequently missed nursing interventions in hospitals (Winter & Neville, 2012). To date, only one nursing study about oral care in NZ hospital settings has been published (Ross, 2018). This study explored the current nursing oral care in hospital settings and concluded there were gaps in knowledge and practice in oral care to improve. There is no inter-professional studies on this topic are available in NZ.

Hospitalised older adults often experience deconditioning due to hospital acquired respiratory infections, urinary tract infections, falls, or delirium, and this results in increased burdens on the health care system (Drapal, 2015; Ramswamy, 2015). Deconditioning in older adults can lead to swallowing dysfunction (dysphagia) as a result of limited oral intake and immobilisation during in the acute period in hospital (Poisson et al., 2016; Suzuki et al., 2015). In addition, aspiration pneumonia among age over 80 is a common and serious disease in hospital (Teramoto et al., 2008). Hospitalised older adults with pneumonia are often kept in nil by mouth (NBM) for assessment, nasogastric tube insertion, and swallowing tests. This prolonged NBM period often happens in hospital due to lack of capacity and knowledge in nurses to assess patients' swallowing ability as well as the significance of oral care for these NBM patients, and shortage of speech language therapists, and this can result in further declines in general health, including sarcopenia (loss of muscle mass and tone). These underlying factors that contribute to deconditioning are all intimately connected to poor oral health, and there is a strong correlation between reduced oral health, dysphagia and undernutrition in hospitalised older adults (Poisson et al., 2016). I infer that this correlation is the result of a vicious cycle, whereby deconditioning, reduced oral health, dysphagia, sarcopenia, and undernutrition all positively reinforce each other. Together, these contribute to worsen the outcomes, such as exacerbation of their comorbidities and functional decline, that results in increased mortality and length of hospital stay for these frail patients (Poisson et al., 2016; Teramoto et al., 2008).

There are two examples that illustrate the potential links between oral health and poor health outcomes are important in a New Zealand context. The first examples that patients with Alzheimer's disease have a high risk of developing a cascade of adverse outcomes in hospital, including ulcers, respiratory infections, malnutrition, and delirium. It has been suggested that low salivary flow that is exacerbated by an inability to self-care and by issues in receiving proper oral care predisposes patients to develop xerostomia, ulcer, dental caries, and periodontal disease (Pettit et al., 2016). In addition, lower socioeconomic older adults that often include older Maori have higher tooth loss and periodontal disease (Lilac, 2014; Smith, 2010). Periodontal disease is chronic inflammation of the gum that can cause tooth-loss, and the majority of older adults suffer

from this condition (Poisson et al., 2016; Teramoto et al., 2008). Periodontal disease is associated with an increased risk of stroke and coronary artery disease, and it exacerbates hypertension, diabetes, and Alzheimer's disease (Smith, 2010). The estimated cost of Alzheimer's disease in NZ is over \$1 million annually (Waitemata District Health Board (WDHB), 2016). Therefore, poor oral health is a serious issue in NZ that needs to be addressed.

Many studies indicate that oral hygiene care can prevent aspiration pneumonia and improve older adult health outcomes by improving their oral function and general health status (Sato et al, 2015; Drapal, 2015; Maeda & Akagi, 2014; Pettit, 2012; Quinn et al., 2014). In the US and Japan, many hospitals and aged-care facilities are focusing on oral care for care-dependent and frail older adults (Maeda & Akagi, 2014; Quinn et al., 2014). They have started to establish standardised oral care protocols with the goals of preventing aspiration pneumonia and enhancing dysphagia rehabilitation (Maeda & Akagi, 2014; Sato et al., 2015). These standardised comprehensive oral care protocols typically involve close multi-disciplinary collaborations that include dental hygienists. The multidisciplinary comprehensive oral care indicated 40% cost savings through reducing pneumonia, temperature spikes, and blood and radiography requirements, as well as by shortening length of stay in hospital can be achieved (Maeda & Akagi, 2014; Quinn et al., 2014).

There is potential for New Zealand to achieve significant improvements in patient health outcomes and cost savings by improving oral care to hospitalised older adults. The aim of this study is to understand current oral care practice among the frontline workers (nurses and Health Care Assistances (HCAs)) who deliver oral care to care-dependent older adults in hospital. There is a need to identify factors that negatively affect nursing delivery of oral health care, and determination of what is required to overcome these barriers. Therefore, the findings of the study will be the starting point to facilitate a change in oral care practice that has potential to improve quality of care delivery and positive patients' health outcomes. This positive change in practice and improved patients' health outcomes through nursing oral care may enhance nursing staff's understanding on the significance of oral care practice as an essential care to assist care-dependent patients' activity of daily living (ADL), and its relationship to their professional responsibility and

identity. This improvement in oral health care will, in turn, benefit hospitalised older adults by minimising aspiration pneumonia, respiratory tract infections, and deconditioning. In the long term, the positive health outcomes for patients will empower nurses and HCAs to deliver consistent oral care through evidence-based oral care practice and protocols. Ultimately, this study will lead to nurses expanding their role to lead inter-professional collaborations in oral care for hospitalised older adults.

### **1.3 Demographic Trends**

The NZ population is steadily ageing, like other developed countries (Ministry of Health (MOH), 2001; Smith & Thomson, 2017). The population aged over 65 was 12% in 2001, and will be 26% by 2051 (MOH, 2017). As the older adult population grows, more medical interventions are required as a result of age-related degeneration, increased chronic conditions, frailty, and physical and cognitive decline. For example, overseas studies found that 8% of people aged over 65 require at least one ADL support, and more than 30% of people aged over 80 years are care dependent (MOH, 2016). The increase in the older population in NZ has led to predictions that the number of people with dementia and requiring assistance to live at home or in residential care facilities will double in the next 20 years (MOH, 2001), therefore older people with dementia is a significant and growing burden in health care.

Care-dependent older adults tend to maintain their natural teeth, and they often have difficulties cleaning their teeth and oral cavity appropriately (Smith, 2010; Smith & Thomson, 2017). Poor oral condition is a risk factor for malnutrition, sarcopenia, immobility, decreased quality of life, lower immunity, exacerbation of chronic conditions, and aspiration pneumonia (Poisson et al., 2016). Therefore, the demand for and cost of both health and disability support services is likely to continue to increase as the NZ population ages. In particular, in WDHB population aged over 65year-old is exponentially increased, and this trend is likely to continue (MOH, 2001; WDHB, 2017). This creates an urgent need to increase awareness of oral care in older adults, in particular in acute settings where deconditioned older adults are admitted for medical care.

A number of initiatives, such as *the Health of Older People Strategy* and *Health Sector Action to 2010 to Support Positive Ageing* (MOH, 2001), that aim to improve the health of older people in NZ are under way. Oral health for older adults is one of the ways that can

improve older people's general health and quality of life, and it has been suggested that this be included in initiatives to change policy (Smith & Thomson, 2017). Poor oral health of hospitalised frail care-dependent older adults needs to be addressed through policy development that is aimed not only at preventative and therapeutic purposes, but also for improvements in the quality of life of vulnerable populations (Smith & Thomson, 2017). To achieve this, nurse-led inter-professional collaborations are indispensable.

#### **1.4 New Zealand setting**

New Zealand lacks a comprehensive oral health policy for older adults irrespective of dependency level, despite the World Health Organisation recommendations to develop public policy and set oral health targets for older adults (MOH, 2016; Smith, 2010). The lack of oral health policy for older adults is due to insufficient evidence, and lack of research, and this significantly limits the ability to improve and deliver oral health care for older adults, particularly in Maori and ethnic minority populations (MOH, 2016; Smith, 2010; Griffin et al., 2012).

New Zealand Ministry of Health took the first step towards addressing the issues of care-dependent older adults' oral health in the older people's oral health survey (MOH, 2012; Smith & Thomson, 2017). Results from surveys on older adults' oral health (Smith 2010, Smith & Thomson, 2017; MOH 2016) identified three main barriers to oral care in residential care facilities: older people's disabilities, the attitudes and knowledge of the carers, and availability of dentistry support. There has been a historical lack of focus on dependent older adults in oral health care amongst health professionals and society (Smith & Thomson, 2017), and this is likely to increasingly be a major concern and challenge, as more older adults tend to retain their natural teeth while their capacity to perform oral care is diminishing (Smith, 2010; Smith & Thomson, 2017). There are also service accessibility and availability issues. Many older people who have limited finances are reluctant to engage dental services (LiLACS, 2014), and more than half of surveyed dentists reported difficulties in getting older people with disabilities to come to clinics and difficulties for them to visit older people (Smith, 2010). Furthermore, care-dependent older adults' oral health care is time-consuming and largely unprofitable in nature (Smith & Thomson, 2017). Even if health professionals are capable of meeting older people's oral health needs by having the necessary technical skills and technology, they may not be



prepared for the special medical, physical and mental needs and challenges of older adults (Smith & Thomson, 2017).

### **1.5 Research objective**

This study aimed to address an overlooked of nursing care practice that has considerable promise to improve health outcomes, particularly for hospitalised care dependent older adults' oral care. The targets of this study were to enhance awareness of oral-systemic health among nursing staff, health professionals, and the public, and to bring changes to improve oral hygiene care delivery. To achieve this, this study will be the first step to identify the barriers and facilitators for nursing staff to deliver oral care for care-dependent older adults in acute settings through questionnaire and interview for nursing staff in hospitals.

#### **Questions**

1. What are the barriers and facilitators for nursing staff to deliver oral care in hospital?
2. What are the nursing staff's suggestions to improve oral care delivery in hospital?

### **1.6 Significance of research**

There is potential for New Zealand to achieve significant improvements in older patient health outcomes by reducing complications such as aspiration pneumonia, respiratory tract infections, and deconditioning. This study will identify current oral care practice among the frontline workers (nurses and HCAs) who deliver oral care for care-dependent older adults in hospital. Therefore, the study will be the starting point for facilitating change in oral care practice that improves the quality of care delivery, and empowering nursing staff to understand the significance of oral care practice and its relationship to their professional responsibility and identity. This improvement in oral health care will, in turn, benefit hospitalised older adults by minimising aspiration pneumonia, respiratory tract infections, and deconditioning. Implementing oral care to hospitalised older adults is also likely to result in a significant cost savings. In the long term, the positive health outcomes in patients will empower nurses and HCAs to deliver consistent oral care

through evidence-based oral care practice and protocols. Ultimately, this study will lead to nurses expanding their role to lead inter-professional collaborations in oral care for hospitalised older adults.

Increased aging of the population has brought increased awareness of oral health and its significance on systemic health. Through this research, I will gain a broader and deeper understanding of current oral care practice, and of nurse and HCA knowledge of oral health in hospital settings. Bringing greater focus on oral health for care-dependent older adults in hospital.

### **1.7 Summary**

Deconditioning in care-dependent older adults is a major concern in hospitals. On top of their chronic conditions such as frailty and comorbidities, acute conditions play an important role in this deconditioning. In particular, aspiration pneumonia, dysphagia, sarcopenia, and lower respiratory function are all factors in deconditioning of hospitalised older adults. Each of these factors enhances the other factors, forming a vicious circle that leads to further deconditioning. International research shows that oral care is a key intervention that can help break this vicious circle. However, oral care is one of the most missed nursing interventions in hospital. The goal of this research is to identify the barriers and facilitators for oral care practice, and to seek practical solutions to improve nursing oral care practice and make oral care more visible in hospitals.

## **Chapter Two Literature Review**

The aim of this chapter is to present the outcomes from a critical literature review on the study topic to identify the barriers and facilitators of nursing oral care practice, and how to improve oral care practice in acute settings. The chapter starts by presenting the search strategy and the search outcome. The results of literature review are presented in three main topics; why oral care is important for care-dependent older adults in relation with oral health and systemic health, gaps and barriers for nursing oral care delivery, and facilitators and recommendation for oral care delivery.

### **2.1 Introduction**

Hospitalised care-dependent older adults are at risk of deconditioning and prolonged hospital stay due to their co-morbidities, and physical/cognitive disabilities. In particular, older adults with swallowing problems (dysphagia) have higher incident of aspiration pneumonia and sarcopenia due to prolonging malnutrition, immobility, and lower immunity. Studies have indicated that optimised oral care is an essential nursing intervention that helps to prevent older adult deconditioning and promotes oral/systemic health to improve older adult outcomes, such as improved oral function that support oral intake and nutrition status, and quality of life (QOL) in hospital settings. However, care-dependent older patients with co-morbidities often receive sub-optimal oral care in acute settings (Gibney et al., 2015; Cocker, 2013; Cocker, 2014; Oda, 2017, Ross, 2018). This overlooked oral care delivery, particularly in acute settings, is the result of health professionals working under time and resource constraints, limited understanding of the importance of oral care amongst nursing staff, and the lack of oral care definition, protocols and standardisation (Gibney et al., 2015; Cocker, 2013; Cocker, 2014).

The aims of this literature review are to explore three themes: 1. why oral care is important for care-dependent older adults in hospital (Sub Chapter 2.4-2.9); 2. the gaps and barriers for nursing oral care in acute settings (2.10-2.15); and 3. the facilitators for improving oral care delivery for hospitalised care-dependent older adults to prevent aspiration pneumonia in the context of generalised functional decline (declining ADLs function) (2.16-2.18).

## **2.2 Search strategies**

The literature review of this research started in 2017, as the research question was being identified. A focused literature search was conducted to look for articles that would help develop an understanding of current nursing oral hygiene care practice for older adults in hospital from 2017. AUT library search engines, such as Scopus, EBSCO, PubMed, and Google scholar were used. There were articles about oral care related to critical care patients at risk for ventilator-acquired pneumonia, mucositis related to cancer treatments, stroke patients, and oral hygiene care by dental hygienists. However, there were limited articles nursing oral care practice for older adults specifically in hospital settings, thus the key words I used for the literature search were: oral care, nursing, older adults, aspiration pneumonia, and hospital.

Inclusion criteria for literature review was from 2000-2018, qualitative and quantitative studies, and review articles that focused on the nursing oral care for care-dependent older adults, peer reviewed articles, in English language, and no other exclusion criteria were used due to scarcity of articles about nursing oral care in hospital settings. However, I prioritised articles that studied nursing oral care practice for care-dependent older adults in hospital settings and rest home facilities, as my focus is on the correlation between nursing oral care delivery and health outcomes in older adults. I included some articles from medicine, Gerodontology (an older adult oral health journal), and dentistry that focus on nursing oral care for older adults and ways for nurses to improve their practice in acute settings.

## **2.3 Search outcomes**

As the result of search outcomes, 62 articles (27 systematic literature reviews, 12 qualitative studies, 23 quantitative studies) were reviewed. Common themes identified from the literature review encompassed the purpose of oral care, physiology and pathophysiology of aspiration pneumonia in older adults, and lack of oral care research and evidence-based practice. Policies, procedures and protocols from national and international hospitals were also examined to assist in the development of theory. Nursing oral care research is scarce, particularly in hospital settings, and most of hospital oral care studies have been done in North America, England, Ireland, Denmark, Sweden, and Japan. Many studies reported gaps in nurses' knowledge and practice, and indicate

an urgent need for evidence-based practice, protocols, and standardisation of oral care. To achieve these outcomes, inter-professional research and inter-professional education are required. Implementation of these actions will increase the knowledge and skills of nurses to assess the oral condition of hospitalised care-dependent older adults and deliver individualised care for them following evidenced-based practice.

## **2.4 Deconditioning older adults in hospital**

Hospitalisation of older adults can cause cascades of functional decline and lead to loss of independence, diminished QOL, increased falls, and increased dependency (Lyons, 2014). Approximately 30% of hospitalised older adults experience functional decline at discharge due to their vulnerabilities and iatrogenic stimuli (Lyons, 2014; Neelemaat et al., 2012; Ramaswamy 2015; Timmer, Unsworth, & Taylor, 2014). The cause of functional decline is some combination of acute illness, malnutrition, increased bed rest, medication, pain, use of tethered devices, sudden environmental change, sleep deprivation, and the attitudes of the patients, their families, and staff (Lyons, 2014; Ramaswamy, 2015; Timmer et al., 2014). Functional decline can also be a precursor of acute conditions in older adults that result in nosocomial conditions such as pneumonia, falls, cognitive decline, and delirium (Pettit et al., 2012; Ramaswamy, 2015). Therefore, functional decline during hospitalisation is a serious health problem that can result in cascading deconditioning, loss of independence, diminished QOLs, falls, social withdrawal, institutionalisation, and even mortality (Lyons, 2014; Ramswamy, 2015). To help prevent functional decline, it is important that nurses can identify subtle changes in hospitalised care dependent older adults, in particular their ADL performances, so they can deliver specific and individualised interventions.

Unwarranted, prolonged NBM status can contribute to deconditioning, exacerbating frailty and malnutrition for older adults in hospital (Momosaki et al., 2015; Sauer et al., 2019). A recent American study indicated that one third of hospitalised patients are at risk of malnutrition, and there is correlation between malnutrition and increased frailty and mortality in older adults (Sauer et al., 2019). Furthermore, in hospital, care-dependent older adults are at the risk of disease-related sarcopenia due to advanced organ failure, inflammatory disease, malignancy, or endocrine disease, of nutrition-related sarcopenia due to inadequate oral nutritional intake, gastrointestinal disorders,

or use of medications that cause anorexia, and general sarcopenia due to increased bed rest (Shiozu, Higashijima, & Koga, 2015). Thus, sarcopenia and dysphagia due to loss of swallowing muscle function in hospitalised older adults can form a vicious circle where one factor causes the other, resulting in a cascade of deconditioning (Shiozu et al., 2015).

## **2.5 ADL as the 6<sup>th</sup> vital sign**

Activities of Daily Living (ADL) are an important prognostic indicator in older adults for mortality and health care costs, and a better predictor than classical diagnoses such as disease severity and laboratory results (Furuta et al., 2012; Ramswamy, 2015; Timmer et al., 2014). Therefore, ADLs should be considered as a 6<sup>th</sup> vital sign for older adults at hospital admission, and nursing interventions should be focused on prevention of further declines (Lyons, 2014; Ramswamy, 2015; Timmer et al., 2014). ADLs cover basic self-care tasks, including bathing, toileting, dressing, grooming, transferring, ambulating, and feeding. The percent of people requiring assistance with at least one ADL increases from 8% for people over 65 years of age to 35-56% in those aged over 85 years (MOH, 2001; WDHB, 2016).

## **2.6 Contribution of oral health to deconditioning in older adults**

A key player influencing ADL is oral health. Oral health can affect the ability to ingest food/fluid, mobility, cognition, speech, and breathing, which are the foundations of ADLs (Bonwell et al., 2013; Furuta et al., 2012; Sato et al., 2014; Suzuki et al., 2015). Poor oral health has also been found to strongly correlate with respiratory diseases and dysphagia, and dysphagia is related to cognitive impairment, ADL functional dependency, and particularly self-feeding dependency (Poisson et al., 2016; Anderson & Nordenram, 2004; Anderson et al., 2004). Furthermore, there is a strong link between oral infections and systemic health conditions such as cardiovascular disease, diabetes, pneumonia, and Alzheimer disease (Bonwell et al., 2013; Drapal, 2015; Forsell et al., 2011; Smith, 2010; Griffin et al., 2012; Pettit et al., 2012; Barnes, 2014; Eisenstadt, 2010). For example, oral plaque accumulation on natural teeth and dentures has been associated with aspiration pneumonia, poor metabolic control among persons with type 2 diabetes, and increased incidence of ischaemic stroke and myocardial infarctions (Chalmers, 2004; Griffin et al., 2012). Therefore, oral health status may function as an early detection system for other serious health problems (Doucette, 2009).

The oral cavity provides entrance to the body for every nutrient necessary for life. Suboptimised oral health can limit food choices and decrease the enjoyment of eating. Significant tooth loss affects chewing ability (Chalmers, 2004). Having 20 teeth is indispensable for chewing, while dentures result in at least 30% to 40% reduction of chewing efficiency compared to natural teeth (Griffin et al., 2012). Therefore, people with dentures are more likely to choose easy-to-chew foods such as those rich in saturated fats and cholesterol, and lacking fibre. As a result, tooth loss in older adults associates with both weight loss and obesity (Griffin et al., 2012). Tooth loss may also negatively affect social contact and inhibit intimacy as tooth loss affect speech, detracts from physical appearance, and lowers self-esteem (Griffin et al., 2012).

Untreated oral disease can restrict normal activities of daily life and disturb sleep (Griffin et al., 2012). Dental caries advanced to the pulp of the tooth and destroy tooth structure that can result in ulcerations and abscesses. Abscess can cause swelling, bleeding and pain, and ultimately lead to tooth loss (Chalmers, 2004), and increase the cardio-vascular incidents as well as respiratory diseases (Griffin et al., 2012).

Poor oral cavity condition can lead to prolonged malnutrition, which affects directly or indirectly ADLs in older adults (Bonwell et al., 2013; Furuta et al., 2013; Sato et al., 2014; Suzuki et al., 2015). Older adults with lower ADL levels usually have impaired oral function, eating and swallowing problems, and/or experience malnutrition caused by poor oral health (Koyama et al., 2016; Momosaki et al., 2015; Poisson et al., 2016; Suzuki et al., 2015). Suboptimised oral health can also limit food choices and affect oral intake in hospitalised older adults (Gibney et al., 2015). Malnutrition induces lower immunity, immobility, and sarcopenia, which can result in susceptibility to infections such as aspiration pneumonia, upper respiratory tract infection, and urinary tract infection (Koyama et al., 2016; Momosaki et al., 2015; Poisson et al., 2016; Suzuki et al., 2015). One third of hospitalised patients are at the risk of malnutrition (Sauer et al., 2019), and once older adults develop such infections, their mobility, ADLs performance, and respiratory function further deteriorate, as they tend to stay in bed.

## **2.7 Factors contributing to poor oral health in hospitalized older adults**

Institutionalised or hospitalised care-dependent older adults' oral cavity condition can deteriorate with insufficient oral care, and acute and chronic diseases (Barnes, 2014;

Drapal, 2015). Poor oral health in older adults in hospital increases the risk of developing localised infections, such as aspiration pneumonia, endocarditis, and leads to further exacerbation of their co-morbidities, such as stroke, diabetes, cardiac and respiratory diseases (Gibney et al., 2015; Gibney et al., 2019; Kanzigg & Hunt, 2016; Warren et al., 2019). Indeed, the correlation between oral health and general health is pronounced in older adults in hospital (El-Solh, 2011; Hanne et al., 2012). There are a number of factors contributing to poor oral health in older adults that are specific to the hospital setting (Gibney et al., 2015).

Medication and co-morbidities can directly and indirectly impact the oral health of older adults (Barnes, 2014; Best Practice, 2004). Polypharmacy is the main cause of xerostomia (dry mouth), with 60% of individuals taking more than three medications per day having xerostomia (Barnes, 2014; Best Practice; Pearson & Chalmers, 2004; Poisson et al., 2016). Furthermore, the intensity of xerostomia directly reflects the blood levels of the medications (Barnes, 2014; Poisson et al., 2016). Antidepressants, antipsychotics, and anticholinergic medicines all decrease saliva production and lead to xerostomia, tardive dyskinesia, and extrapyramidal symptoms such as teeth grinding, which is highly associated with oral mucosal lesions (Barnes, 2014; Best Practice, 2004; Pearson & Chalmers, 2004). Xerostomia can also result from radiation therapy to the head and neck, and from oxygen therapy (Harris et al., 2008). Additionally, 70% of patients who receive chemotherapy or blood stem cell replacement therapy develop ulcers and xerostomia (Harris et al., 2008; Japanese Society of Dysphagia Rehabilitation (JSDR), 2017). Sjogren's syndrome, Alzheimer's disease, and other autoimmune diseases can also directly cause xerostomia and salivary gland hypofunction (Chalmers, 2004). Moreover, proton pump inhibitors have been identified to increase the number of bacteria in the stomach that normally reside in the mouth or pharynx. The elevated gastric pH and resulting bacterial overgrowth have been shown to increase the risk of pneumonia (Barnes, 2014; Best Practice, 2004; Chalmers, 2004; Eisenstadt, 2010;). Finally, additional changes occur in the oral cavity during hospitalisation, in particular deterioration of the mucous membranes as a result of acute medical and surgical issues, and these also can lead to inadequate oral care and deteriorating oral health (Hanne, et al., 2012).



## **2.8 Poor oral health in care dependent older adults is a factor in aspiration pneumonia risk**

Portman (2000) said “Pneumonia is the friend of old age”, as people repeatedly experience pneumonia until their last stage of life. Pneumonia is a common and serious disease in older adults. Aspiration pneumonia in particular has high prevalence and mortality in the geriatric population, with more than 80% of pneumonia patients aged over 80 years having aspiration pneumonia (Koyama et al., 2016; Momosaki et al., 2015; Teramoto et al., 2008). An increased rate of aspiration pneumonia was noticed by health professionals in the 1990’s when the “baby-boomer” generation entered old age and started to have dysphagia (Barnes, 2014; Maeda & Akagi, 2014). Aspiration pneumonia can cause a cascade of functional decline (Koyama et al., 2016; Teramoto et al., 2008), as indicated by its correlations with immobility, older age, dehydration, malnutrition, multiple co-morbidities, and socioeconomic issues such as living alone, social isolation, and poverty (Barnes, 2014; Eisenstadt, 2010; Koyama et al., 2016; Momosaki et al., 2015). The mortality rate of aspiration pneumonia is up to 40%, and there is a high hospital readmission rate over an 18 month follow-up period (Eisenstadt, 2010; Koyama et al., 2016; MOH, 2016;).

Aspiration occurs when oropharyngeal or gastric contents pass beyond the vocal folds and enter the lower respiratory tract, because of dysphagia or ineffective cough. Aspiration pneumonia occurs when these inhaled secretions are colonized by pathogens (Eisenstadt, 2010; Barnes, 2014; Pettit et al., 2012). Aspiration pneumonia is divided into community-acquired pneumonia (CAP) and nosocomial acquired pneumonia (NAP). Both CAP and NAP are largely polymicrobial, but the etiology of each pneumonia type is distinctly different. CAP is mostly low-severity, while NAPs are more severe, require longer hospital stays, and have higher mortality rates than CAPs (Barnes, 2014; Eisenstadt, 2010; Pettit et al., 2012). Chest radiography of aspiration pneumonia shows lower posterior and predominantly right-side consolidation (Barnes, 2014; Eisenstadt, 2010; Teramoto, 2008). The anatomy of the right main bronchus is straighter and more vertical than the left, and this anatomical configuration makes for easy transport of the aspirate and serves as a natural portal for entry of respiratory pathogens (Barnes, 2014; Eisenstadt, 2010). This reflects the decreased mobility and ADLs of older adults, as they

tend to stay in bed most of the time. Disease progress is slow and usually asymptomatic, thus patients and their families often fail to notice the infection even while inflammation markers are increasing and hypoxia is progressing insidiously. Early symptoms include loss of appetite, lower ADL performance, increased confusion, delirium, fatigue, and sudden onset of incontinence (Eisenstadt, 2010; Teramoto et al., 2008). Once older adults are admitted with aspiration pneumonia, they tend to be prohibited from oral intake, and are instructed to get maximum bed rest during treatment (Koyama et al., 2016; Momosaki et al., 2015). This results in further muscle atrophy, declining ADLs, and exacerbation of swallowing function (Koyama et al., 2016; Momosaki et al., 2015).

NAP includes infections that occur within 24-72 hours of admission to hospital, up to three days after discharge from hospital or 30 days after surgery, and in nursing homes, outpatient care services, and other health care associated infections (Barnes, 2014; Pettit et al., 2012). The mortality rate for CAP patients admitted to hospital is 10%, while that of NAP is 30% (Barnes, 2014; Pettit, 2012). Aspiration pneumonia in nursing home residents is more common than in older adults living in their own home (Eisenstadt, 2010; MOH, 2016; Pearson & Chalmers, 2004). Additionally, aspiration pneumonia is the most common reason of hospital admission for nursing home residents (Barnes, 2014; Hanne et al., 2012). A study on nursing home residents identified 18 significant predictors for aspiration pneumonia that differed from those found in community or hospital acquired infections, including COPD, heart failure, tube feeding, bedfast, multiple comorbidities, delirium, weight loss, urinary tract infections, dependence of ADLs, declined ADLs, polypharmacy, decreased salivary flow, gastroesophagus reflux disease, Alzheimer's disease, obesity, stroke, and advanced age (Best Practice, 2004; Eisenstadt, 2010; Smith, 2010).

The most severe NAP generally involves aerobic, gram negative microorganisms in medically compromised older adults (Antonia et al., 2006; Sjogren et al., 2016). The organisms isolated from the respiratory tracts of patients with NAP are usually also found in dental plaque biofilms, and include *Escherichia coli*, *Klebsiella pneumonia*, *Serratia sps.*, *Enterobacter sps.*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus* (which can be methicillin-resistant) (Barnes, 2014; Sjogren et al., 2016). These strains of resistant

periodontal pathogens, in combination with risk factors such as aging and heightened stress levels, can increase the risk of contracting NAP in older adults.

A key risk factor for aspiration pneumonia is dysphagia (swallowing difficulty). Older adults over age 65 account for up to 30% of all individuals with dysphagia (Eisenstadt, 2010; Teramoto, 2008; Koyama et al., 2016; Sampson et al., 2018). In nursing homes, 72% of residents with aspiration pneumonia suffered from a neurological disease-related dysphagia (Eisenstadt, 2010). Swallowing is a complicated process that involves coordination of multiple cranial nerves and over 40 muscles, in addition to parts of the cerebral cortex, brain stem, and cerebellum (Eisenstadt, 2010). Any dysfunction from mastication to making a bolus and passing it into the oesophagus can result in dysphagia (Eisenstadt, 2010; Koyama et al., 2016). Among those older adults with pneumonia, half of them are eventually diagnosed with dysphagia (Koyama et al., 2016). In addition, aspiration pneumonia can cause disease-related sarcopenia, thus resulting in reduction of muscle strength and mass that further compromises swallowing function (Koyama et al., 2016; Momosaki et al., 2015). Therefore, aspiration pneumonia, dysphagia, and sarcopenia can also form a vicious circle of cause and effect for hospitalised care-dependent older adults.

Xerostomia is another cause of aspiration pneumonia because the lack of saliva, which normally works to neutralise the pH level in the oral cavity, results in increased acidity (Barnes, 2014; Scannapieco & Shay, 2014). In that acidic oral cavity environment, acid-tolerant bacteria proliferate and cause damage to the root of the teeth, leading to periodontitis (Barnes, 2014; Chalmers, 2004; Poisson et al., 2016; Scannapieco & Shay, 2014;), and older people with periodontitis are more likely to develop aspiration pneumonia than those without (Hill et al., 2014). Decreased immunity, particularly in immune-compromised individuals, poor pulmonary clearance, and malnutrition can also predispose the patient to aspiration pneumonia when oral secretions are aspirated (Barnes, 2014; Eisenstadt, 2010; Pettit et al., 2012).

Older adults with acute conditions such as stroke and cardiac events are often kept NBM for a few days. This prolonged NBM status can increase the risk of aspiration pneumonia due to dehydration and altered oral bacterial flora (Koyama et al., 2016). ICU studies also show difficulties in delivering oral care because of restricted access to the oral cavity in

the presence of the endotracheal tube (Barnes, 2014). Thus, oral care may not be provided in the first 48 hours, with the resulting alterations in oral flora making the oral cavity susceptible to colonisation by respiratory pathogens in the hospital environment (Barnes, 2014). On top of these conditions, when patients suffer from shortness of breath due to cardiac or respiratory conditions, the short interval of breathing while they are eating means they are more likely to aspirate food and saliva with oral pathogens (Teramoto, 2008).

There is a trend in developed countries, including NZ, for more older adults to retain their natural teeth, and this increases the risk of aspiration pneumonia due to accumulation of plaque on the teeth (Charlmers, 2004; Oda, 2017; Ross, 2018; Smith, 2010; Smith & Thomson, 2017). More dentulous older adults tend to have more plaque, and plaque contains gram negative bacteria that can cause severe aspiration pneumonia (Barnes, 2014; Eisenstadt, 2010; Pettit et al., 2012; Smith & Thomson, 2017). Therefore, daily dental care for care-dependent older adults has shifted from primarily providing denture care to providing more brushing, flossing, and utilising other dental therapy to maintain the health of natural dentition (Bonwell et al., 2014; Smith, 2010).

Studies also indicated that oral care can reduce adverse event, furthermore improve care-dependent older adults' general condition (Lyons, 2014; Ramswamy, 2015; Timmer et al., 2014). Historically, nursing practice and training is focused on hygiene care as a basic nursing intervention, and mostly continence care, and rehabilitation nursing that includes transferring and mobilising. However, oral care is merely mentioned and studied for care-dependent older adults in hospital settings (Gibney et al., 2019).

## **2.9 Prevention of aspiration pneumonia and maintenance of systemic health through oral care**

Poor oral health is mostly preventable (Griffin et al., 2012; Gibney et al., 2019). Routine oral assessments and oral care give nurses opportunities for the early detection of disease, enabling the prevention of disease progression and deconditioning, and promoting general health in older adults (Stout et al., 2009; Griffin et al., 2012). For example, frequent toothbrushing is associated with lower level of cardiovascular disease (Griffin et al., 2012). Even minimal interventions such as oral care can create positive

outcomes for QOL, psychological well-being, and life satisfaction in geriatric populations (El-Solh, 2011).

Prevention of aspiration pneumonia through oral hygiene care and dysphagia rehabilitation is strongly supported by international research findings (Barnes, 2014; Best Practice, 2004; Chen et al. 2013; Furuta et al., 2012; Gibney et al., 2019; Horne et al., 2014; Kanzigg & Hunt, 2016; Maeda & Akigi, 2014; McCullough & McCullough, 2014; Quinn et al., 2014; Tanaka et al., 2013; Teramoto et al., 2008 Sato, 2015; Warren et al., 2019). Mechanical plaque and biofilm removal can reduce hospital acquired pneumonia mortality by 10% (Barnes et al., 2014; Kanzigg & Hunt, 2016; Sharma, 2016; Sjorgren, et al., 2016). Moreover, oral hygiene improves quality of life and reduces oral disease, frequency of aspiration pneumonia, and death due to aspiration pneumonia by improving cough reflex and removal of dental plaque (Griffin et al., 2012; Poisson et al., 2014). For example, a Japanese rest home achieved zero aspiration pneumonia related hospital admissions after implementing intensive oral care practice in collaboration with local dental hygienists for three consecutive years (Oda, 2017). In addition, the effectiveness of intensive oral hygiene for post-stroke older adult recovery was demonstrated by a Japanese neurosurgery hospital that standardised intensive oral care (Sato et al., 2015). Quinn et al. (2014) found that basic nursing oral hygiene care for 12 months reduced hospital acquired pneumonia by 37% and resulted in \$1.6 million cost reduction in a US hospital. Furthermore, a geriatric hospital established an oral care protocol in 2012, and they compared the outcome of 63 patients (average age of 84 years old and bedridden) with (group 1) and without (group 2) the oral protocol intervention. Group 1 showed a significant reduction in the incidence of aspiration pneumonia, incidence of fever, antibiotic use, blood tests, and radiography tests. This resulted in a cost saving of 41% per patient (Maeda & Akagi, 2014). These factors suggest that nurses with knowledge about specific geriatric needs and the ability to deliver oral care will facilitate positive health outcomes, particularly because longer hospitalisation periods are associated with deterioration in oral and general health (Hannes et al., 2012; Sjogren, 2011).

The interconnections between poor oral health, aspiration pneumonia, sarcopenia and dysphagia form a vicious circle that leads to functional decline and deconditioning (Koyama et al., 2016; Momosaki et al., 2015; Quinn et al., 2014; Warren et al., 2019).

Comprehensive oral care that encompasses not only hygiene care but also dysphagia rehabilitation is, therefore, an intervention that offers the opportunity to break this vicious cycle in older adults. This can shorten the length of hospital stay, and maximise quality of life in older adults, leading to improved psychological well-being and life satisfaction (Bonwell et al., 2013; Coker et al., 2013; Koyama et al., 2016; Momosaki et al., 2015; Quinn et al., 2014; Warren et al., 2019).

### **2.10 Barriers for oral care**

Oral hygiene care is an essential part of nursing care (Stout et al., 2009; Pettit, 2012; Barnes, 2014). However, international research found that 44-65% of care-dependent older adults do not receive oral care in hospital settings (Drapal, 2015; Barnes, 2014; Pettit, 2012). Few studies have investigated why oral care for older adults is missed in acute care settings (Barnes, 2014; Pettit et al., 2012; Winters & Neville, 2012), despite the urgent need for improvement in oral hygiene and function to prevent deconditioning. Oral care is not a priority in acute settings because oral care is perceived to be a task provided for patient comfort, rather than a treatment for critically ill and long-term care patients (Barnes, 2014; Wardh et al., 2000). Oral care can be considered to be menial, and nurses, health care assistants and carers often overlook delivering this form of care (Barnes, 2014; Kalisch, Landstrom, & Hinshaw, 2009). Studies have found that oral care is sub-optimal due to time constraints, and a lack of oral care resources, knowledge, education, training, protocols, and standards (Barnes, 214; Coker et al., 2016; Pettit et al., 2012, Smith & Thomson, 2017).

### **2.11 System barriers under medical dominance: marginalised oral health care for marginalised population**

Medical personal predominantly make the decisions to provide therapeutic care in hospitals and long-term care facilities (Barnes, 2014; Smith & Thomson, 2017). There is lack of collaboration between medical and dental care providers, and this practice gap negatively affects the oral health and general health of older adults (Barnes, 2014; Smith & Thomson, 2017). Under the current medical dominance culture, nurses are naturally medically orientated. Therefore, they prioritise medicalised care, and oral care is unlikely to be a priority in their practice (Barnes, 2014; Smith & Thomson, 2017). Nurses say they

do not have enough time for oral care on top of all the other tasks they perform to save lives, thus oral care remains a very low priority (Pettit et al., 2012; Wardh et al., 2000).

New Zealand was the first country to establish the dental hygienist profession (Smith, 2010). In 1908, the first dental nursing school was built in Wellington (Smith, 2010). NZ has the resources and capacity to improve oral care for hospitalised and care-dependent older adults. Dental decay and oral cavity condition of care-dependent older adults living in aged-care with co-morbidities are worse than those of older adults in the community (Hanne et al., 2012; Smith & Thomson, 2017). However, NZ dental hygienists work in the community but not in acute settings or even residential care facilities (Smith, 2010; Smith & Thomson, 2017). Furthermore, dentists and dental hygienists focus on the younger generation, with older adult dental and oral health not currently priorities (Smith, 2010). Despite more older adults retaining natural teeth that require dental care, they do not receive appropriate dental services due to financial constraints, problems accessing the service, and the complexity of their dental treatment due to co-morbidities (Smith, 2010; Smith & Thomson, 2017). Indeed, many even do not receive daily basic oral care from their carers, thus this population has a high risk of aspiration pneumonia (MOH, 2016).

Socio-behavioural factors have a significant effect on dental condition (Hanne et al., 2012; Broadbent et al., 2016). Older Maori, Pacific Islanders, other lower socioeconomic groups, and adults in residential homes have 20-30% higher edentulous rates than other groups (Smith, 2010; MOH, 2016). In a Bay of Plenty older Maori and non-Maori population oral health study, the majority of people wore dentures in advanced age. However, only 68% of Maori living in the most deprived areas wore dentures compared to 83% of non-Maori, while 89% of Maori living in less deprived areas wore them (LiLACS (Life and Living in Advanced Age, a Cohort Study) NZ, 2014). Less than 28% of older adults had a dentist visit in the last 12 months, and among them, only 18% of Maori reported a dentist visit compared to 34% of non-Maori (LiLACS NZ, 2014). This is a significant socioeconomic issue that negatively affects older adults' oral health, in particular, older Maori in the most deprived areas. Although dental problems can cause serious health problems such as pain, embarrassment, and anxiety, most dental services are private rather than public funded (Broadbent et al., 2016). Therefore, ongoing exposure to socioeconomic

disadvantages increases the risk of exacerbating the oral and systemic health of older adults from lower socioeconomic classes as they age (Broadbent et al., 2016).

Older adults in lower socioeconomic classes have a higher incidence of periodontitis that can exacerbate chronic conditions such as systemic inflammation, infections, glycaemic control, ischemic heart disease, stroke, hypertension, and Alzheimer's disease (Smith, 2010; MOH, 2016; Smith & Thompson, 2017). Hanne et al (2012) found there is a correlation between worsening dental conditions and chronic medical conditions. This is a socioeconomic issue that nurses need to address. Therefore, nurses need to be aware of the oral-systemic health interactions in these populations, so they can make action to improve their oral care education, knowledge, and practice (Bonwell et al., 2013; Forsell et al., 2011).

### **2.12 Attitude of nurses and patients to oral care and oral care practice**

Most articles on strategies and guidelines for good oral hygiene practices have been published in nursing and critical care journals, but little is known about the influence of this literature on the behaviour of caregivers (Cocker, 2013; Colodny, 2001; Gibney, 2015; Gil-Montoya et al., 2006). Oral care for older adults can be challenging due to time and resource constraints, the challenging behaviours of patients, and the attitudes of health care professionals who deliver oral hygiene care (Barnes, 2014; Best Practice, 2004; Gibney et al., 2015; Unfer et al., 2012). Pettit et al. (2012) indicated that stress from saving critically unwell patients contributes to lowering their priority for oral care. Studies also indicate that nurses find delivery of oral care for older adults disgusting, frightening, harmful, unpleasant, unrewarding, burdensome, difficult, and trivial (Barnes, 2014; Coleman, 2005; Pettit et al., 2012). Nurses reported feelings of frustration, expressed as 'a hassle', to assist dysphagic patient feeding and oral care that takes extra time. They also expressed a desire for oral care training for care-dependent older adults with dysphagia (McCullough et al., 2007). Nurses can experience a disconnect between feeling responsible yet somewhat incapable or ill-prepared to provide appropriate oral care for their patients (Pettit et al., 2012).

Interestingly, several studies indicated that nurses are less compliant than health care assistants for patient oral care (Colodny, 2001; McCullough et al., 2007; Forsell et al., 2011; Wardh et al., 2000), possibly as a result of oral care being perceived as a low priority



that is focused on patient comfort and preventative care (Pettit et al., 2012). Contradicting these studies, Gibney et al. (2015) found that nurses in an Australian hospital were generally satisfied with their oral health care practice through techniques such as tooth brushing, denture cleaning, and mouth washing with sodium bicarbonate. However, these self-reports were based on their own oral health care routine and discretion, rather than a formal hospital protocol or daily nursing activity requirement. This may indicate that there is a disparity in nurse and health care assistant oral care practice due to differences regarding the job duties, time constraints, and training.

Nurses and HCAs' perception of their own oral health is also reflected in their oral hygiene practice to patients (Smith & Thomson, 2017). If they perceive that oral health is not a personal priority, they do not recognise their own oral health problems, nor those of their patients. In such cases, nurses will often convey to their patients that oral hygiene care is optional, and they are inclined to preserve patient autonomy in oral hygiene care (Coker et al., 2016).

Gibney et al. (2015) identified two key patient-associated barriers to delivering oral care. The first one is patient care-resistant behaviour. Patients with communication difficulties, sensory deficits, or delirium can be uncooperative or combative during oral care, particularly if they are in an unfamiliar environment (Barnes, 2014; Chalmers, 2004; Gibney et al., 2015). Patients with dental fears or oral pain may also be uncooperative or resistive for oral care delivery (Best Practice, 2004; Gibney et al., 2015; Gibney et al., 2019). Patients with diminished physical functions, disease, and disabilities that break down their personality place high demands on nurses, who are challenged to be present to the person in a therapeutic way to deliver care (Nordenfelt, 2009). In particular, older adults with advanced dementia commonly experience persistent pain and significant agitation (Gibney et al., 2015; Gibney et al., 2019; Sampson et al., 2018). Therefore, regular oral hygiene care for dependent and cognitively impaired older adults is a challenging, complicated, time consuming, and energy intensive task.

The second patient-associated barrier to delivering oral care is patient physical difficulties (Gibney et al., 2015; Gibney et al., 2019; Smith & Thomson, 2017). Older adults often suffer from reduced physical dexterity and impaired sensory functions due to comorbidities such as cardiac disease, stroke, neurodegenerative, osteoarthritis, and

respiratory disease (Best Practice, 2004; Gibney et al., 2015). These physical disabilities impact on the patients' ability to cooperate, maintain position, and mobilise appropriately, thereby making oral care delivery difficult.

Self-ageism of older adults can negatively influence their perception of oral health by accepting and being resigned to their problems (Smith & Thomson, 2017). Older people with chronic health issues get used to poor oral and general health, and they adapt their behaviour accordingly, sometimes leading them to develop apathic attitudes. This self-ageism makes it difficult for them to attend to their self-care, and in the long term they may develop an unwillingness to accept oral care. Hanne et al. (2012) suggested that patients' physical problems causing hospitalisation, as well as the emotional uncertainty of their diagnosis, treatment, and prognosis might contribute to both patients and health care professionals having an attitude that oral care is a low priority.

Organisational support for inter-professional oral care collaboration and education has been suggested to be a key step that can enhance health professionals' understanding of complexity in oral health. Furthermore, organisational support can also help ensure enough time and resources are available for oral care, thus improving nurses' attitudes and modifying patient care-resistant behaviours and physical/psychological difficulties (Momosaki et al., 2015; Yoon & Steele, 2012). Oral care training may also change perceptions amongst nurses and HCAs that patients are unwilling to receive oral care (Forsell et al., 2011). Therefore, organisational support of oral care training and education will enhance nurses' perception of oral care, facilitate nurses to place a higher priority on oral care, and lead to oral care becoming an essential nursing practice. Additionally, older patients' willingness to receive oral care will change positively through this improved quality of oral care.

### **2.13 Current nursing oral care knowledge, education, and practice gaps**

The nursing education curriculum is generally deficient in oral care with respect to oral assessment, oral pathology, and preventive and therapeutic measures appropriate for hospitalised patients and patients in long-term care facilities or nursing homes (Barnes, 2014; Pettit et al., 2012; Gibney et al., 2015; Gibney et al., 2019). Studies indicate that nurses lack knowledge of the side effects of medications on the oral cavity, and oral and systemic health connections (Barnes, 2014; Pettit et al., 2012; Gibney et al., 2015). There

is a limited information and knowledge for nurses on older people's oral care needs, risk factors for altered oral hygiene and adverse outcomes of poor oral health (Gibney et al., 2019). Furthermore, there is an increased need for education and training how to manage care-resistive behaviour of patients with acute delirium or advanced dementia (Gibney et al., 2019; Chalmers, 2004). This gap between evidence and practice is one of the most significant barriers to preventing hospital acquired aspiration pneumonia and deconditioning (Booker et al., 2013).

In the nursing literature and at actual practice sites, the most described and used oral care product is sponge toothettes, which are ineffective for dental plaque biofilm removal (Barnes, 2014; Gibney et al., 2015). Even nursing textbooks published in the last 10 years contain erroneous information, including that nurses should not floss the teeth of care-dependent patients, and the promotion of sponge toothettes instead of soft bristled toothbrushes for safe dental plaque and biofilm removal (Barnes, 2014). Additionally, sponge toothettes are commonly used for patients with ulcers due to nurses' fear of patients experiencing pain by using a toothbrush, even though this actually has the opposite effect as sponge toothettes cause abrasions of the oral cavity membrane and can exacerbate oral pain and ulcers (JSDR, 2017).

Oral hygiene care is often spontaneous and variable, and may not be informed by evidence (Coker et al., 2016). Nursing research studies on how certified nursing assistants and registered nurses deliver oral care to hospitalised patients and nursing home residents found a number of examples of inappropriate oral care. These examples include inappropriate statements about oral hygiene, oral care provided with unclean gloves and sponge toothettes, and an average of only 16.2 seconds of oral care treatment (Barnes, 2014; Coker et al., 2016; Coleman, 2005; Gibney et al., 2015; Pettit et al., 2012). This lack of education and knowledge about oral care means many nurses do not feel confident that they have enough knowledge to prepare for oral care management (Gibney et al., 2015; Pettit, et al., 2012). It is logical that most nurses would not practice a task or responsibility for which they had received little or no information or training. Therefore, there is an urgent need to reconstruct the nursing curriculum and nursing textbooks to instruct nurses on how to deliver this most fundamental preventive care for aspiration

pneumonia. It is also important that nurses should have the opportunity to attend oral care continuing education courses.

#### **2.14 Lack of nursing evidenced-base oral care policy, protocols, standards and assessment tools**

Hill et al (2014) suggested that the identification of a high-risk patient in relation to mouth care requirements and or malnutrition is an area that can be overlooked or performed poorly, especially for renal patients who are generally prone to under-nutrition, loss of appetite and chronically dry oral mucosa and decreased saliva production as a result of dietary and fluid restrictions. Referrals to dieticians and speech language therapists (SLT) for inpatients requiring nutritional support and or assessment of oral cavity and swallowing ability are made predominantly by nursing staff, however there is no formal system for identifying patients at risk.

Currently, there is no extensively tested evidence-based oral care protocols for care-dependent older adults, and even within the dental profession itself, comprehensive practice guideline has not been fully developed or implemented (Coleman, 2005; Prendergast et al., 2013; Smith & Thomson, 2017). Therefore, there is no nursing oral care protocol or standard, and no formal training for oral care in the general and surgical wards in the WDHB. Studies indicate that oral care practices are insufficient and inconsistent in hospitals. Only 21-27% of nurses reported always performing oral evaluations on patients, only 28-56% of nurses reported looking at the oral cavity on admission, and only 10% had documented oral care assessment (Pettit et al., 2012). In the WDHB, the evital (electric recording for vital sign) system was launched in 2016. Nurses record patients' vital signs and assessment data through electronic devices. There is no section for oral assessment in the admission documents in evital. Furthermore, there are also no evidenced-base oral care protocols or oral health assessment tools for critical ill older adults in WDHB hospitals, and few in NZ long-term care facilities (Barnes, 2014; Gibney et al., 2015; Coker et al., 2016). As a result, oral care responsibilities are frequently ignored or not regularly performed by nurses, and are likely to be delegated to nursing aides or assistants with less education experience and knowledge about oral care than registered nurses (Gibney et al., 2015). Establishing an oral care protocol and health policy for frail and care-dependent older patients should be of special concern to health care providers, in

particular hospitals (Gil-Montoya et al., 2006). Oral hygiene care protocols need to be clear and standardised through testing, evaluation, and modification, so that oral care can be translated into nursing practice (Cocker et al., 2013).

### **2.15 Lack of institutional support for the MDT approach for oral care and research**

There has been an increased interest to include geriatric oral health care education in dental school curriculum and geriatrics has been included within the curriculum of many US dental schools, but the format in which it appears varies greatly (Hill et al, 2014; Smith, 2010). Research findings revealed that dental students' knowledge of aging was low, comfort with geriatric issues improved after the first year of intervention and strategies for patient care changed with experience.

MDT collaboration is recommended from acute stage rehabilitation to discharge planning in hospital settings (Bonwell et al., 2014; Forsell et al., 2011; Momosaki et al., 2015; Smith, 2010; Yoon & Steele, 2013). However, currently in the WDHB, collaborations are largely limited to those between physiotherapists and occupational therapists for initial patient mobility and ADLs assessment. Each profession works for patients, but remains in their own professional intervention rather than engaging in interprofessional collaboration. For oral care, it is important to integrate MDT interventions with nursing oral care to assist with optimum positioning, appropriate tools, and food/fluid texture for safe oral care and feeding. Nurses also need to be supported to deliver optimised oral care and feeding for patients, everything from the tools to the procedures employed. Studies indicate that there is little teaching of the significance of oral care to undergraduate medical, nursing, and allied health students (Bonwell et al., 2013; Forsell et al., 2011; Smith, 2010; Yoon & Steele, 2013), and highlight the need for nursing and interprofessional research into the effects of oral hygiene to prevent pneumonia and improve the quality of life (Doucette, 2009). However, interpretation of such research results is also difficult because of a lack of consistency in the definition of oral care, including oral care by different health professionals (Doucette, 2009; Cocker, 2013).

There is an opportunity and an urgent need to enhance inter-professional oral care, education. Inter-professional research can be a key to generate consistent definitions of oral care, and to improve specific, individualised, patient-centred, evidence-based, and comprehensive oral care delivery (Bonwell et al., 2013; Forsell et al., 2011; Smith, 2010;

Yoon & Steele, 2013; Cocker, 2013). It is possible for every health professional can contribute to the recovery of older adults and improve their ADLs and QOL through seamless hospital oral care delivery.

### **2.16 Inter-professional collaboration to achieve oral health**

To improve oral care practice, collaboration between oral hygienists and the medical and allied health professionals should be promoted (Barnes, 2014; Bonwell et al., 2014; Forsell et al., 2011; Petitt, 2012; Sato et al., 2015; Smith, 2010; Yoon & Steele, 2013). In Japan, the Government established a policy to accelerate the collaboration between medical and dental care, with the aim of reducing the burden of older adult aspiration pneumonia, sarcopenia, and exacerbation of pre-existing medical conditions (JSDR, 2017). Aged-care facilities, rehabilitation facilities, and hospitals have reported positive outcomes in reducing aspiration pneumonia through medical and dental collaboration (Yoneyama, 2002). Nurses and HCAs collaborate with local dental hygienists to achieve better oral hygiene and functional care for residents (JSDR, 2017; Yoneyama, 2002). A neurosurgical hospital in Japan, where they standardised oral care practice by making an oral care protocol flow chart that depends on the oral cavity condition, such as hydration and hygienic status, of stroke patients (Sato et al, 2015). After standardisation of oral care, positive outcomes for patients were observed, including reduced incidence of aspiration pneumonia, reduced PEG feeding and tracheotomies, and increased numbers of patients with improved ADLs function and discharge to home rather than care-facilities (Sato et al., 2015). Many hospitals, rehabilitation facilities, and aged-care facilities implement meal rounds for patients with dysphagia or at a high risk of aspiration pneumonia or choking as a part of their medical care (JSDR, 2017). This allows physicians, nurses, physio therapists (PT), occupational therapists (OT), dieticians (DT), dentists, and dental hygienists to observe patient eating and swallowing behaviours. The MDT also holds weekly meetings to evaluate patients' responses to treatment, and plan comprehensive discharge strategies (JSDR, 2017).

Inter-professional education (IPE) and collaboration can enhance institutional and public awareness of oral care benefits (Bonwell et al., 2013; Forsell et al., 2011; Smith, 2010; Yoon & Steele, 2013), and provide oral care solutions for older adults at high risk of aspiration pneumonia (Barnes, 2014). Dental hygienists have expertise in removing oral

biofilms, and the equipment and techniques required to access difficult-to-reach areas. Nurses have experience with techniques and medical equipment that can enhance oral care, such as suction catheters. Speech language therapists have expertise in screening swallowing problems, and have developed interventions and diagnostic tools to prevent aspiration pneumonia.

Inter-professional collaboration can help solve oral care problems and address the goal of delivering patient-centred oral care by emphasising evidence-based practice, promoting quality improvement approaches, and sharing information. Increasingly, medical professionals and institutes of medicine report inter-professional collaboration and care as a future vision for patient-centred, evidence-based oral care that has nursing at the centre of care coordination (Pettit et al., 2012; Yoon & Steele, 2013).

### **2.17 Multidisciplinary comprehensive care (MDCC) for oral hygiene and functional rehabilitation**

Inter-professional intervention is indispensable for frail older adults with dysphagia and aspiration pneumonia due to the variety of treatment types required, which in turn depend on the causes (Koyama et al., 2016; Momosaki et al., 2015; Sampson et al., 2018, Yoon & Steele, 2013, NHS, 2015). Multidisciplinary comprehensive care (MDCC) consists of dysphagia rehabilitation specialist nurses, dental hygienists, OT, PT, SLT, DT, and physician. MDCC therapeutic policy is based on comprehensive geriatric assessment, which is defined as a comprehensive diagnostic process that develops a coordinated and integrated treatment plan as well as implements long-term monitoring for older adults with severe pneumonia (Koyama et al., 2016). MDCC regular care involves maintenance of oral hygiene, assistance with optimised sitting posture, adjustment of neck position, and encouragement for patients to leave their bed and ambulate. Ward nurses encourage patients to leave the bed during the day to strengthen respiratory muscles and maximise lung function (Koyama et al., 2016; Momosaki et al., 2015). Specialty nurses assess patients' overall conditions, neurological findings, cognitive functions, and oral/pharynx function tests, and perform bedside dysphagia screening tests to evaluate swallowing function and oral intake levels (Koyama et al., 2016; McCullough & McCullough, 2007). Specialty nurses share patient information and achieve a common understanding with

ward nurses and physicians, and therefore play a leading role in the MDCC (Koyama et al., 2016; McCullough et al., 2007; Momosaki et al., 2015).

MDCC teams hold weekly meetings to share patients' medical conditions so patient responses to care can be assessed and early intervention facilitated. In severe cases, such as poor alertness or severe cognitive dysfunction, the MDCC team collaborates to improve the environment during meal time using a wide variety of treatments and interventions (Koyama et al., 2016). The precise treatments chosen depend upon the causes of the pneumonia or dysphagia, with the assessment examining aspects such as overall condition, cognitive function, and swallowing function. Therefore, a MDCC team is required for specific, individualised, and patient-centred care (Barnes, 2014; Koyama et al., 2016; Sampson et al., 2018; Yoon & Steele, 2014). MDCC intervention has enabled many older adults with severe pneumonia to commence early oral intake and hospital discharge regardless of the severity of their pneumonia, physical dysfunction, or level of consciousness on admission (Koyama et al., 2016; Momosaki et al., 2015).

### **2.18 Oral care as a dignity of care to improve QOL of older adults**

The fundamental purpose of oral care is to maintain and enhance swallowing, and to prevent aspiration pneumonia and upper respiratory tract infection through oral hygiene. The effects of oral care are not only the maintenance of oral hygiene, but also enhancing the level of consciousness, salivation, speech, and breathing (Sato et al., 2015; Horne et al., 2014) by stimulation of the oral cavity and prevention of disuse syndrome in oral muscles. Thus, oral care intervention promotes positive changes not only in the health status of patients, but also in the attitudes of patients, their families, and health professionals towards swallowing function rehabilitation (Sato et al., 2015).

Oral care is an essential care for older adults with functional decline that involves maintenance of their dignity (Nordenfelt, 2009; Sampson et al., 2018). Regular oral hygiene care is a challenging and complicated task for care-dependent and cognitively impaired older adults because of their reduced physical dexterity and impaired sensory functions (Best Practice, 2004). These conditions are negatively affected by cognitive impairment, and communication and behavioural problems. Nursing care, including oral care, for people who no longer possess the dignity of identity requires special communication skills to understand individuality and personhood so an ethical standard



in the relationship between patient and nurse can be maintained (Nordenfelt, 2009; Best Practice, 2004; Sampson et al., 2018; Sato et al., 2015). Nurses are challenged to be present to the person in a therapeutic way to deliver care. Therefore, oral care to protect dignity for older adults with functional decline and disabilities places high demands on nurses to coordinate care that reconstructs and maintains their abilities with an emphasis on normality (the possibility of living life as normal as possible) (Nordenfelt, 2009). Through oral care, nurses are able to support and maintain older adults' fundamental capacity to perform their ADLs by facilitate eating, swallowing food and drink, speech, breathing, and mobilising as much as, as long as possible in their life.

## **2.19 Conclusion**

Hospitalised care-dependent older adults are at a high risk of further deconditioning due to immobilisation, prolonged bedfast, and iatrogenesis (hospital care caused harm) such as increased medication, prolonged NBM and environmental stress on top of their co-morbidities. In particular, aspiration pneumonia is increasing in prevalence in these hospitalised care-dependent older adults, and it results in high mortality and readmissions to hospital. Recent research has found evidence that oral care and inter-professional dysphagia rehabilitation can improve older adult recovery and quality of life, and can shorten their stay in hospital. However, there is a significant gap between practice and knowledge due to time and resource constraints, and a lack of institutional support for inter-professional collaboration and research, particularly between medicine and dentistry. This overall situation negatively influences current nursing oral care practice in acute settings. Therefore, it is important to enhance awareness of the significance of oral care for hospitalised care dependent older adults among health professionals and the public, so that a culture of oral health can be built to prevent older adult deconditioning in hospital. Nurses hold a key role to bring changes to improve oral care and inter-professional education, collaboration, and research through their leadership and advocacy for older adults.

Nurses and HCAs are at the frontline of oral care delivery. It is important for them to feel confident, comfortable, supported, and empowered to deliver oral care. This includes institutional support, such as in-service education, training, and acknowledgement of their achievements in daily oral care. In these ways, nurses can create a culture of oral

care to improve patient health outcomes and hospital experiences. There is also an urgent need to promote interprofessional research and collaboration to make evidence based oral care protocols and assessment tools. Therefore, this research is a foundation to identify the current nursing oral care gaps, barriers, and facilitators, and to seek for change that improves fundamental nursing oral care and promotes better outcomes for older adults in hospital.

## **Chapter Three Methodology**

### **3.1 Introduction**

Methodology is the theoretical foundation to design and implement research that is congruent with researchers' research question based on their own experiences, values, and cultural backgrounds (Crotty, 1998). Furthermore, methods of data collection, analysis, and communication to the public need to be consistent with the choice of methodology (Nicolle, 2014a; Nicolle, 2014b). I chose mixed methods with sequential explanatory design to answer my questions around current oral care delivery. The benefits and challenges of mixed methods for performing this study will also be explored.

### **3.2 Mixed methods methodology**

Mixed methods is a relatively new methodology that was developed from the strengths of both quantitative and qualitative research (Creswell, 2015; Creswell & Plano Clark, 2011; Mirriam & Tisdell, 2016). Quantitative research involves the collection and analysis of numerical data, while qualitative research considers narrative or phenomenological data (Hayes et al., 2013). Mixed methods research enables the integration of both quantitative and qualitative data in a single study (Creswell, 2003; Creswell, 2015). The researcher undertaking a mixed methods study is not just trying to make quantitative and qualitative research compatible, but is also benefiting from the strengths of each method while minimising their inherent limitations (Richardson et al., 2014).

In mixed methods research, quantitative and qualitative approaches can be combined in a single study if they are performed for complementary purposes (Creswell, 2015; Creswell & Plano Clark, 2011). Creswell (2015) views mixed methodology as a method, and he defines it as an approach to research in the social, behavioural, and health sciences in which researchers gather both quantitative (close-ended) and qualitative (open-ended) data, and then develop interpretations based on the combined strength of both sets of data to understand their research problems. Each method examines different phenomena, and the distinction between phenomena in mixed-methods research is crucial and can be clarified by labelling the phenomena examined by each method (Creswell et al., 2008; Creswell & Plano Clark, 2011). The mixed methods are not merely using the strength of each method to overcome the weakness of the others or capturing

various aspects of the same phenomena, but produce complementary results (Creswell et al., 2008; Creswell & Plano Clark, 2011).

Mixed methods methodology involves a pragmatic approach that seeks workable solutions that are feasible within the actual work environment (Halcomb & Hicklan, 2015; Plano Clark & Creswell, 2008; Richardson et al., 2014). The philosophy of pragmatism advances the notion that the results are more important than the process, and therefore the end justifies the methods (Richardson-Tench, et al., 2014). This pragmatism enables researchers to answer important questions, such as what is happening (quantitative data) and why it is happening (qualitative data), within a single study so that any conclusions reached are based on these two types of data rather than just one. Thus, it is a way to add strength to any study and to increase the rigour in the research process (Green & Thorogood, 2005; Halcome & Hicklan, 2015;). Health care systems are becoming more complex with people living longer and having chronic multiple comorbidities (Green & Thorogood, 2005; Halcomb & Hicklan, 2015). Social, political, environmental, cultural, and economic factors also add complexity to healthcare problems (Halcomb & Hicklan, 2015). This complexity of public health problems, social interventions, health education, and health promotion programs require the use of a broad spectrum of qualitative and quantitative methods (Halcomb & Hicklan, 2015) that encompass multidimensional aspects of health issues (Creswell & Plano Clark, 2011). Therefore, the complexity of issues around nursing oral care practice means that integrating research methods in this research is appropriate for developing an understanding of the oral care gaps and barrier. This integration of methods allows collection of data from multiple perspectives from individuals in various positions and work environments.

### **Sequential explanatory design**

Sequential explanatory design was employed for this research inquiry. In this design, quantitative data are collected first, and collection of qualitative data follows with the purpose of explaining and exploring the results or particular phenomena in more depth (Mirriam & Tisdell, 2016; Richardson-Tench et al., 2014). This design enables researchers to obtain representatives of phenomena from statistical quantitative data in phase one. Greater attention and weight are given to the quantitative data as they are collected first (Creswell et al., 2008; Richardson-Tench et al., 2014). Analysis of these quantitative data

then inform the questions for the interviews, allowing analysis of these qualitative data to generate a depth of explanation for the phenomena.

It is useful to conduct an initial exploration of a research question when little is known about the topic (Richardson-Tench et al., 2014). In this study, I used the questionnaire to understand the oral care practice of current nursing staff, as well as the barriers to oral care delivery in hospital. In the quantitative data analysis phase, simple descriptive design was used to translate quantitative data into narratives that describe phenomena for how oral care is delivered by nursing staff for care-dependent older adults in hospital. This then informed the questions for the semi-structured interviews to allow me to obtain a depth of explanation of current nursing oral care practice. To understand the depth of explanation of the phenomena identified in the quantitative phase, I undertook a thematic analysis on the qualitative data. The findings in two methods were then integrated during the interpretation phase of the study (Creswell, 2003).

### **3.3 Mixed methods study and nursing research**

Historically, the nursing profession has been under medical dominance and paternalism, and thus has been involved in democratic and emancipatory activities, such as advocating for vulnerable populations (Fitch & Third, 2010). The nursing academy has a lower status than the medical academy, with research audits ranking nursing journals and research lower (Fitch & Third, 2010). This may be because nursing research is descriptive, and the findings are often not translated into practice (Tustin-Payne 2008). Thus, I chose mixed methods research for this study to strengthen the research results by analysing both qualitative and quantitative data. Furthermore, through this research I aim to stimulate changes in practice, such as addressing the need for nursing education (Tustin-Payne, 2008).

Richardson-Tench et al. (2014) stated that over the last 20 years nurses have been expected to carry out evidence based practice. While randomised controlled trials are considered the best form of evidence, the context and experience of providing nursing care do not lend themselves to be easily evaluated by randomised trial approaches. Moreover, it has been claimed that the knowledge generated by these trials only serves to restrict or devalue other forms of knowledge and ultimately negatively affects nursing scholarship and research (Richardson-Tench et al, 2014). Mixed methods have been

becoming more favoured by nurse researchers as an approach that offers them a methodology to address complex health issues that is more comprehensive than could be achieved by either qualitative or qualitative research methods alone (Halcomb & Hickman, 2015). This advantage of mixed methods research allows nurse researchers to overcome different paradigms and multiple world views (Halcomb & Hickman, 2015; Richardson-Tench et al., 2014). Mixed methodology is also suitable for nursing research because nurses deal with both the power of numbers and the power of words in their practice, such as when analysing vital signs and patients' stories of lived experiences of their diseases.

A mixed methods study enables the researcher to evaluate nursing care using quantitative and qualitative methods, therefore creating a greater breadth and depth of understanding than a quantitative or qualitative study alone could (Halcomb & Hickman, 2015; Mirriam & Tisdell, 2016; Richardson-Tench et al, 2014). Therefore, mixed methods methodology is suitable for this study because it aims to understand a broad spectrum of oral care practice problems. Collecting both quantitative data and qualitative data will allow both a wide diversity of practice experiences to be analysed, and deep explanations of the revealed phenomena to be explored. From this I aim to develop theory for practical solutions to improve oral care practice within the current work environment and resources, and translate this theory into nursing practice.

### **3.4 Ontology- Pragmatism with transformative emancipatory paradigm**

Researchers who use mixed methods can use multiple world views to underpin different aspects within mixed methods research, based on how the researcher seeks to understand the social world (Creswell & Plano Clark, 2011; Halcomb & Hickman, 2015; Richardson-Tench, et al., 2014;). I identified my philosophical positions of the methodology as pragmatism with transformative emancipatory perspectives.

Pragmatic researchers view the research problem as the most important issue, rather than the methods, and use all approaches to understand the problem and seek answers (Creswell, 2003; Halcomb & Hickman, 2015; Richardson-Tench et al., 2014). In this perspective, knowledge claims arise out of actions, situations, and consequences (Halcomb & Hickman, 2015). Thus, pragmatism advances the idea that the consequences are more important than the process, and the conclusion justifies the means (Creswell,

2003; Richardson-Tench et al., 2014). Even though each method's strengths might complement each other, it is what this integration produces that is of greatest importance (Halcomb & Hickman, 2015; Richardson-Tench et al., 2014).

Howe (2004) stated that mixed methods pragmatism actively encourages stakeholder participation through the principle of inclusion and dialogue. Mixed methods pragmatism is suitable for nurse researchers to implement research that aims to include the voices of vulnerable populations to improve their health outcomes. This also allows nurse researchers to strengthen their integrity in methodology and professional identity throughout the research process (Halcomb & Hickman, 2015).

The transformative paradigm is exemplified by research into feminists, racial/ethnic minorities, people with disabilities, and marginalised people (Creswell & Plano Clark, 2011; Halcomb & Hickman, 2015; Merton, 2003). Transformative emancipatory researchers assume that all knowledge reflects power-relations within society, and it is important to be aware of the purpose of knowledge construction to improve society (Halcomb & Hickman, 2015; Mertens, 2003). Therefore, the transformative approach involves understanding cultural differences and social injustice throughout the research process, and making changes to promote equity in society (Creswell et al., 2008; Halcomb & Hickman, 2015). The research goals of transformative scholars are designed to serve the ends of creating a more democratic society (Mertens, 2003). To achieve this, Merton (2003) emphasised the importance of spending time with the population of concern and focusing on four goals: reduce biases, build trust and use an appropriate theoretical framework, develop appropriate questions, and develop questions that can lead to solutions (Merton, 2003). Therefore, mixed methods with a transformative paradigm can advance nursing research as it focuses on the democratic change for the benefit of vulnerable populations (Merton, 2003).

The transformative-emancipatory world view facilitates me to see the views of carers, nurses and HCAs, who are in frontline delivery care for the most vulnerable populations, with an open-mind attitude and to identify the problems in their care delivery based on a problem-solving principle. I have observed human interactions that stem from power dynamics between patients and nurses, between nurses and HCAs, and among other health professionals. I started to collaborate closely with nurses and the MDT before the

start of my research program, including through delivery of in-house training sessions, presentations in the allied health forum, and other presentations in the hospitals. This allowed me to build trust and develop collaborative strategies to enhance the awareness of oral health. It also facilitated my development of research questions that were aimed at enhancing oral care and thus preventing care-dependent older adult patient deconditioning, as well as at empowering nursing staff in hospital.

This research ultimately aims to promote oral practice change at multiple levels, including the individual level, the institutional level and the community level, by identifying the gaps in nursing oral care practice and advocating for the benefits of oral care in hospital settings. By including the voices of the nurse and HCA participants through data collection (a questionnaire and semi-structured interviews), I aim to identify their barriers to and facilitators of delivery of oral care practice to vulnerable and care-dependent older adults in hospital. Thus, mixed methods based on pragmatism with transformative perspectives is congruent with my philosophical ambition to make a difference in nursing oral care practice by promoting awareness among health professionals and the public. This research approach may also provide a stepping stone for improving the quality of care and quality of life for care-dependent older adults, as well as for improving nursing professional status in hospital settings.

### **3.5 Methods**

The research was conducted using a mixed methods approach. Mixed-methods methodology is appropriate where both quantitative (close-ended) and qualitative (open-ended) data are being collected (Creswell, 2003). This study employed non-experimental design surveys using a questionnaire as the quantitative method, and semi-structured interviews as the qualitative method. The questionnaire included 18 items, the purpose of which were to identify the gaps and barriers for current nursing oral care practice in medical and surgical wards. The semi-structured interviews were conducted with 13 nursing staff to gain depth of explanation for the current gaps and facilitators of their oral care delivery, and their recommendations for improving oral care practice. By integrating both methods, I tried to identify the barriers to oral care practice that nurses and HCAs experience, and to determine the facilitators that can improve care delivery for hospitalised care-dependent older adults. A key strength of this approach is that it



enables access to both a broad range of data from the questionnaire that explores current oral care practice, and depth of explanation from the semi-structured interviews that explores the reasons for the phenomena identified in the questionnaire. Therefore, at the interpretation stage I am able to integrate these data types and draw interpretations based on the combined strengths of both.

### **3.5.1 Study setting**

The WDHB has the largest number of older adults aged over 65 years in the country, with 13% of the total population in 2014 which is predicted to double by 2134 (MOH, 2002; WDHB, 2016). These older patients account for about 30% of admissions to hospital, and about 45% of bed usage (WDHB, 2016). A 10-fold increase in the number of patients admitted with respiratory symptoms, pneumonia, aspiration pneumonia, and influenza was observed in the WDHB Anawhata ward in 2017 compared to 2016 (WDHB, 2017). These patients were mostly aged over 65 and had comorbidities such as congestive heart failure, COPD, diabetes, and cognitive impairment. These chronic conditions exacerbated their acute respiratory and cardiovascular conditions, therefore they required significant nursing support to perform their ADLs, including oral care to minimise complications such as falls, delirium, and infection. The large increase in numbers in 2017 meant nurses and HCAs experienced difficulties delivering high quality of care.

I started to work with a SLT to deliver inhouse oral care training sessions in medical wards to raise awareness among nursing staff. However, there is no protocol for nursing oral care in general medicine and surgical wards in WDHB, except for patients with intubation in the Intensive Care Unit. Without protocols, oral care is not standardised and many nursing staff indicated difficulties in delivering oral care to meet individual patient needs. International studies found that oral care is lower priority than other hygiene care in wards, as nursing staff think it is a primary, not acute, health care issue (Cocker, 2013; 2014). A NZ study also suggested that oral care is one of the most frequently missed forms of nursing care in hospital (Winters & Neville, 2012), and only a single, recent nursing study in hospital setting has been published (Ross, 2018). It is important to confirm whether omission of oral care due to low priority is the same in the WDHB, and if so, the barriers and facilitators for nursing staff delivering oral care need to be identified.

Research venue; Surgical (Ward 7), medical (Ward 2, 3, 5, 6, 10, Anawhata, Titirangi, Huia, Wainamu, Assessment Diagnostic Unit), AT&R (Ward 14, 15, and Muriwai) wards in North Shore Hospital and Waitakere Hospital in WDHB.

### **3.5.2 Phase 1 Quantitative Data Sampling and Collection**

A survey provides a quantitative or numeric description of trends, attitudes, and/or opinions of a population by investigating a sample of that population (Creswell, 2003). In this research, I chose to use a questionnaire to understand the knowledge, attitude, opinions, and practice of nursing staff for care-dependent older adult oral care in a hospital setting. The questionnaire (Appendix A) for this study was based on questionnaires from previous studies (Horne et al., 2014 and McCulough et al., 2007), with modifications to achieve the specific aim of identifying the current practice gap and potential incentives for oral care in hospital settings.

The questionnaire was pretested for comprehension and face validity by two senior SLTs and a charge nurse manager with gastro speciality background. The validity test is to check whether the questionnaire questions can draw meaningful and useful inferences (Creswell, 2003). Further modifications were made based on their feedback. Next, to further test the questionnaire validity and reliability, a pilot questionnaire was distributed in my previous workplace: Anawhata ward, a general medical ward in Waitakere Hospital. The questionnaire pilot data were collected and analysed using Excel, and the results checked by my supervisor. Based on this, no further modifications were made, and the finalised questionnaire was distributed to medical/surgical wards in North Shore and Waitakere Hospitals.

The questionnaire was cross-sectional, with the data collected at one point in time (Creswell, 2003). I sent a one-week advance notice email with the research information sheet (Appendix B) and the questionnaire attached to the charge nurse managers of the Assessment and Diagnostic Unit, and medical/surgical and Assessment, Treatment and Rehabilitation wards in North Shore and Waitakere Hospitals to request permission to implement the survey to their staff. The questionnaire was distributed to nurses and HCAs by the charge nurse managers or myself from mid-January to mid-February 2018. Sampling nursing staff from these wards in these hospitals is appropriate for a study focused on frail, care-dependent older adults, as patients over age 65 occupy 40% of

hospital bed usage in the WDHB. Purposive sampling, where respondents are chosen based on the basis of the researcher's judgment about which will be the most useful or representative (Babbie, 2011), was employed. I sent a second email in the middle of February to remind staff to complete the questionnaire prior to collection at the end of February. In total, 176 questionnaires were collected.

### **3.5.3 Phase 2 Qualitative Data Sampling and Collection**

Twelve questions (Appendix C) for the semi-structured interviews were prepared as a draft together with the questionnaire for approval by Auckland University of Technology Ethics Committee (AUTEC) (Appendix D). These qualitative interview questions were then modified based on the phase 1 questionnaire results, so the analysis of these qualitative data can lead to a better understanding of the phenomena identified in the questionnaire. I implemented a pilot interview with a nurse to check the appropriateness and validity of the interview questions. Following consultation with my supervisor, I added two additional questions to gain more information about how oral care is actually delivered.

To recruit the interview participants, the nursing staff who participated in the questionnaire had an opportunity to express their interest to participate in the interview in the questionnaire. In total, 40 participants filled in their contact details to express their willingness to participate in an interview. In this sampling process, I implemented stratification of the population to select my final interview participants. Stratification means that specific characteristics of individuals, such as gender, are represented in the sample and the sample reflects the true proportion of individuals with certain characteristics of the population (Creswell, 2003). 13 interview participants were selected from the 40 to provide a good representation of the participant population, taking into account attributes such as gender, title, years of practice, and area of practice, and then gained their consent to participate in an interview via email or telephone correspondence.

The aims of the qualitative interviews were to obtain a depth of explanation of the barriers and facilitators for oral care, and to generate recommendations that improve hospital oral care practice. All interviews were conducted between April to May in 2018, for approximately half an hour. They occurred at the participants' workplaces in North Shore and Waitakere Hospitals, and were conducted before or after their shift. I

conducted each interview in a quiet and private environment, for example a staff meeting room or a charge nurse manager's office, to ensure their privacy as well as the confidentiality of the interview. The participants were informed of their right to discontinue the interview, and their right not to answer any of the questions. I also obtained their consent for audiotaping the interview and transcribing it verbatim.

### **3.5.4 Phase 1 Quantitative data analysis**

Statistics is a numerical summary of a phenomenon gathered through observation or measurement (Creswell, 2003; Richardson-Tench et al., 2014). The process of statistical inference underpins the entire research process in most traditional approaches to health research (Creswell, 2003; Richardson-Tench et al, 2014). Survey research generalises from a sample to a population so that inferences can be made about characteristic, attitude, or behaviour of this population (Babbie, 2011). If a sample is representative of the total population, we can make inferences about the population from the sample data and the statistics produced from it (Richardson-Tench et al, 2014; Creswell, 2003). In this study, a questionnaire was used as a survey method to generate inferences about nursing professionals' attitudes and barriers/facilitators regarding their oral care practice for older adult patients in hospital settings.

#### **Descriptive statistics**

In total, data from 176 questionnaires were coded into numbers and input into an Excel (Excel 2010, Microsoft Corporation, Redmond, USA) file sheet. The number coding was achieved by allocating a number to each of the choices a respondent can make for a question (e.g. if there are 4 choices, these are given numbers 1-4), and the number entered into that respondent's data for the question (Richardson-Tench et al., 2014).

In writing up the results of a research project, it is important to describe the characteristics of the group or the subgroups that comprise the group (Richardson-Tench et al, 2014; Babbie, 2011). Descriptive statistics enable us to give the total number in the group or the average score on a test by using sums and percentages to make comparisons between groups (Richardson-Tench et al, 2014; Babbie, 2011). I statistically analysed the questionnaire results using Excel to calculate the sums and percentages of responses for each question, and then put these results into frequency distribution tables with

narratives. The purpose of this data analysis was to identify nurse and HCA actual oral care practice, their usage of tools, the procedures they employ along with the frequency and intensity, and the gap between their practice and knowledge. For some questions, I generated comparative tables using Excel filtering of the data to determine whether training level, practice level, and the area of practice correlate with confidence in oral care practice. In addition, the data analysis was used to inform the qualitative interview questions that were focused on gaining a depth of explanation of the identified barriers, knowledge gaps and practice gaps for oral care delivery, and the ideas of nursing staff for overcoming these barriers and gaps.

### **3.5.5 Phase 2 Qualitative data analysis**

#### **Thematic analysis**

The 13 interviews were audio-recorded and transcribed verbatim. The verbatim transcripts were analysed using thematic analysis to identify the themes around oral care barriers, facilitators, and recommendations to make oral care more visible in hospital settings. All transcripts were coded, and then codes were grouped into categories to allow identification of the emerged themes. From this I then identified the main themes (Braun & Clarks, 2006). During the categorisation of the emerging themes, I created charts with bullet points of the emerging themes to understand how these themes relate to the main themes. I discussed the results of this thematic analysis with my supervisor, and then refined the charts. The final charts were approved by my supervisor, and I then explored and interpreted the relation of each emerging theme to the main themes, and developed the final theory. In the final stage, I used this analysis to form a story that provides a balance of analytic narrative and illustrative extracts (Braun & Clarks, 2006).

### **3.5.6 Integration of data**

In mixed methods study, integration of the two types of data can occur at different stages in the process of research: at the data collection stage, the data analysis stage, the interpretation stage, or some combination of these places (Creswell, 2003). This study employed a sequential explanatory design, thus the priority and weight were placed on the quantitative part because the data were collected and analysed first, and these data then informed the qualitative questions and data collection/analysis. The questionnaire

and interview data were integrated to determine nurses' and HCAs' experiences, behaviours, understandings, and feelings about oral care practice for care-dependent older adults, and to determine their recommendations for improving oral care practice. This quantitative and qualitative data integration involved first transforming the quantitative data into qualitative data, with constant comparison between quantitative and qualitative results (Creswell, 2003). Integration then occurred at the qualitative data analysis and data interpretation stages, and then final interpretation occurred at the end of the research. Finally, theory to improve oral care delivery in hospital settings was developed.

### **3.6 Rigour**

Rigour in mixed methods is established by providing sound justification to use this methodology (Richardson-Tench et al., 2014). The reason for using mixed methodology in this study is that quantitative questions (the questionnaire) can measure current oral nursing care practice (how often, when, how long, what kind of tools, nursing staff attitudes), and qualitative questions (the semi-structured interview) can provide information on nurses' and HCAs' thoughts, feelings, and attitudes regarding delivery of oral care in hospitals. Thus the quantitative data will provide the information on actual oral care practice, and the qualitative data will provide the depth of explanation for current nursing oral care practice phenomena. Comparing and integrating both data types helps identify the oral care practice problems and recommendations for improvements in the workplace.

By using a mixed methods approach, researchers can add strength to a study and increase rigor in the research process (Richardson-Tench et al., 2014). A combination of methods potentially allows the researcher to overcome conventional methodological weaknesses by providing more than one option to assess the validity or rigour of a theory (Richardson-Tench et al., 2014). If more than one method generates a theory, then the validity of the theory is stronger than if derived by just one method (Richardson-Tench et al., 2014). In this study, I used mixed methods through studying both quantitative and qualitative data with a sequence explanatory design. During each research process (sampling design, data collection, and data analysis) I employed various methods, such as creating tables with Excel for quantitative data analysis and bullet points chart for thematic analysis, that were

suitable for quantitative and qualitative data analysis and integration. I employed these methods flexibility to focus on the issues around oral care delivery. I made sure the whole research process (setting the research questions, designing the research approach, and implementing the research) is congruent with mixed methods study methodology underpinned by pragmatism with a transformative-emancipatory paradigm to bring improvements in oral practice that benefit older adults' health outcomes and that empower nursing staff in hospital settings.

### **3.7 Triangulation**

The mixed-method approach can be used in qualitative research to triangulate the reliability and validity of research findings by comparing data that come from multiple collection methods (Merriam & Tisdell, 2014; Nicholl, 2009a; Nicholl, 2009b). Triangulation relies on the notion of comparing a fixed point against other interpretations (Barbour, 2001; Richardson, 2005), and involves two or more people independently analysing the same qualitative data and comparing their findings (Merriam & Tisdell, 2016).

In this mixed methods research project, I implemented quantitative and qualitative data collection and analysis. To check the validity of the data analysis, the data analyst examines the credibility of the data analysis and proofreads the research findings (Richardson-Tench, 2014). My research supervisor independently checked the results of the questionnaire and interview data, discussed the research findings (barriers and facilitators for oral care), and planned further research actions to develop the research findings and theory. I plan to share the results of the questionnaire and interviews with the participants through in-house training sessions and publication, as this research paradigm is transformative emancipatory. Throughout the research process, the political empowerment of the research participants who deliver oral care to older adults was facilitated by seeking solutions for improvement and engaging in collective action to bring change. In this sense, mixed methodology theory and methods were applied to ensure rigour in this research (Braun & Clarks, 2006).

### **3.8 Ethics**

I am very aware of the importance of the Treaty of Waitangi in the study design to ensure ethical requirements (protection, participants, and partnership with stakeholders) are met (National Ethics Advisory Committee, 2012). I applied for and gained ethics approval from AUTECH (Appendix D). Locality authorisation was obtained from Awhina Waitemata District Health Board research centre; research number RM13722 (Appendix E).

### **3.8.1. Informed and voluntary consent**

The participants received both verbal and written information (Appendix B) about the study. For the questionnaire, participants gave their consents by completing the questionnaire. They also had an opportunity to express their interest in participating in the interview in the last segment of the questionnaire. Interview participants were contacted through email or telephone correspondence. The participants gave informed written consent before the individual interviews were conducted. Prior to their interview, participants were informed that their confidentiality and their right to discontinue participation at any time are guaranteed (Appendix F). To acknowledge their contribution to the study, a \$20 supermarket gift voucher was offered to the participants as Koha at the conclusion of the interview.

### **3.8.2 Implications of this study**

International research suggests that oral care is a major “missed care” in hospitals (Jenson, Maddux, and Waldo, 2018; Kalisch et al., 2009; Winters & Neville, 2012). This research will enable me to gain local data on current nursing oral care delivery in wards in the WDHB. Through the research process, I will identify the barriers and facilitators for nurses to deliver oral care for care-dependent older adults, and what the institution can do to enhance a culture of oral care among health professionals and the public. I, as the primary researcher, will get a Master of Health Science degree by producing a thesis on this research.

## **3.9 Conclusion**

Mixed methods study’s research paradigm is pragmatism that aims to practical change in practice. This study aims to explore current nursing oral care practice to identify the barriers and facilitators in hospital settings, so improvements in oral care within the current work environment and resources in the WDHB can be identified. Mixed methods



methodology enables access to both a breadth of data and a depth of phenomenological data by using questionnaires and semi-structured interviews.

This research has the potential to improve older adults' quality of life by improving their general health status through oral care. Through this research process, I gained new understanding on current nurse and HCA perceptions and practice of oral care delivery for older adults, and on how quality of care in hospital settings can be improved. Furthermore, research participants are given opportunities to reflect on their current nursing care practice in the questionnaire and interviews, and change their practice to improve their quality of care for older adults. The research may also provide opportunities for older adults and their families to access dental care that allows them to achieve good oral health, therefore helping to prevent complications from comorbidities. This research also has the potential to enhance public awareness of the importance of oral care for preventing aspiration pneumonia and functional decline in care-dependent older adults through changing oral care practice in hospitals and the resultant interactions with patients and their families. Therefore, oral care research holds the potential to improve oral-systemic health and quality of life, and to reduce health burden of older adults from the individual level to the community level.

## Chapter Four Quantitative results

### Questionnaire data results

The 250 copies of the questionnaire were distributed in the following settings: one Assessment Diagnostic Unit (ADU), ten medical wards, one surgical ward, and two Assessment, Treatment and Rehabilitation (AT&R) wards in the North Shore and Waitakere Hospitals with Charge nurse managers' consent. The questionnaire was distributed to nurses and HCAs in the staff room during handover time in each ward, and they were encouraged to complete in a two-week period. In total, 176 questionnaires (168 completed, 8 not completed) were returned between the middle of January to the middle of February 2018). One hundred and seventy-six questionnaires were analysed including 8 incomplete data to understand what questions are not answered by these participants who did not complete the questionnaire.

#### 4.1 Introduction

All questionnaire responses were coded into numerical data and the data were entered into an excel file. Firstly, to understand the participant demographic profile, profile data such as job title, country of training, and area of practice were calculated. To explore the gap in oral care practice and knowledge as well as facilitators of oral care, questions related to participants' knowledge and experience of oral care practice were analyzed. This quantitative data analysis was used to inform the qualitative questions, which were targeted to obtain a depth of understanding of the oral care experiences of nursing staff, in another words, the phenomenon of oral care practice.

#### 4.2 Questionnaire results

##### 4.2.1 Demographic Profile of Participants

**Table 1.** Participants designation.

Title	Sample (N)	Percentage
Registered Nurse (RN)	137	77.8%
Enrolled Nurse (EN)	6	3.4%
Health Care Assistant (HCA)	33	18.8%
Total sample	176	

The large majority of the 176 participants were registered nurses (77.8%), followed by HCAs (18.8%) and enrolled nurses (3.4%).

**Table 2.** Area of practice

Area	Sample (N)	Percentage
Medical	111	63.0%
Surgical	37	21.0%
AT&R	17	9.7%
ADU	11	6.3%

AT&R=Assessment, Treatment & Rehabilitation, ADU=Assessment and Diagnostic Unit

The 176 respondents came from medical wards (63.1%), the surgical ward (21%), AT&R wards (9.7%), and the ADU (6.3%). The surgical ward is the only orthopaedic ward, and the majority of patients are older adults in perioperative care for hemiarthroplasty due to neck of femur fracture. All the staff in the ward completed the questionnaire, resulting in 21% of participants coming from this one ward.

**Table 3.** Country of training

Country	Sample (N)	Percentage
NZ	113	64.2
Philippines	36	20.5
India	11	6.3
Other	16	10.0

The majority (64.2%) of the respondents were trained in New Zealand, followed by the Philippines (20.5%), India (6.3%), and other countries such as South Korea, Thailand, Fiji, Macedonia, and Japan (6.8% combined). The level of training (undergraduate, certificate, or postgraduate) was not identified in this question. Some participants indicated they had trained overseas and then re-trained in NZ and gave their response as trained in NZ. Others are from China, South Korea, and Macedonia, and 3 respondents did not specify the country of training.

#### 4.2.2 WDHB policy- oral care protocol

**Table 4.** Oral care protocol needs

protocol need	Sample (N)	Percentage
Yes	152	86.4%
No	12	6.8%
Don't know	12	6.8%

The majority of participants (86.4%) responded that there is a need for an oral care protocol. According to comments added to the questionnaire, the majority of participants think that protocols will improve oral care practice and compliance in hospital. Twelve (6.8%) participants indicated they thought there is no need for a protocol, with three (all nurses from AT&R) saying that this is because they consider oral care to be common sense.

#### 4.2.3 Oral care training

**Table 5.** Oral care training

Informal training	Sum (N)	Percentage	Formal training	SUM (N)	Percentage
Yes	112	63.4%	Yes	56	31.8%
No	64	36.4%	No	120	36.2%
Total	176		Total	176	

Responses to oral care training level questions are shown in tables 5 and 6. More than half the participants (63.6%) received informal training during their undergraduate and in-service training. In contrast, 68.2% of participants did not have any formal oral care training. No clear definition of informal and formal training was provided in the questionnaire. Some participants included undergraduate training as both formal and informal training, while some others indicated my in-service training as formal training. Therefore, there may not be complete consistency in the formal/informal responses between participants as a result of not providing a definition. Therefore, the further sections, participants who indicated formal and/or informal training were combined.

#### 4.2.4 Confidence level to deliver oral care in relation with training level, and practice level

**Table 6.** Confidence level for oral care delivery in relation with position, and training level  
N=173

Confidence level	Sample (N)	Percentage	Responder's position	Training (% of confidence level)	No training (% of confidence level)
not confident	2	1.2%	2RN	1 (50%)	1 (50%)
not very confident	13	7.5%	12 RN, 1HCA	9 (69%)	4 (31%)
somewhat confident	71	41.0%	52RN, 3EN, 16HCA	44 (62%)	27(38%)
confident	53	30.6%	46RN, 7HCA	44 (83%)	9 (17%)
very confident	34	19.7%	23RN, 3EN, 8HCA	23 (68%)	11 (32%)

The confidence level of participants to deliver oral care was measured using a 1 to 5 scale, with 1 = not confident; 2 = not very confident; 3 = somewhat confident; 4= confident; 5 = very confident. There is variation in the confidence levels of participants. The most common response was somewhat confident (41.0% of participants), followed by confident (30.6%) and very confident (19.7%). These positive responses for oral care delivery confidence accounted for more than 90% of the total responses, while only 1.2% of participants responded as not confident and 7.5% not very confident.

A comparison was made between confidence level and position. Interestingly, the two respondents who indicated 'not confident' are both registered nurses, and 12 registered nurses (RN) and only one HCA responded, 'not very confident'. Conversely, 6 (100%) of Enrolled Nurses (EN) responded somewhat confident and very confident, versus 112 (89%) RNs and 31 (94%) HCAs who responded somewhat confident, confident, or very confident. From these data, while the positive responses of ENs and HCAs is slightly higher than those of RN's, the EN and HCA sample sizes are small, and numbers are similar. Therefore, there is no obvious difference between job title and confidence in performing oral care. Further surveys specifically targeting appropriate numbers of each position would be required to determine statistically whether the position does affect confidence level.

Another comparison was performed to determine the association between confidence level and oral care training. Around 2/3rds of respondents indicated they had some type of training for each of the five confidence levels except the “confident” level, for which 83% of respondents indicated they had training. These data suggest that oral care training does not have a noticeable effect on confidence level, further suggesting that current oral care training is not adequate for nursing staff to feel confident in their oral care practice.

#### **4.2.5 Assessment of oral health (only registered and enrolled nurses)**

**Table 7.** Oral care assessment implementation at admission (N=143)

Assessment at admission	Sample (N)	Percentage
Yes	77	53.8%
No	62	43.4%
don't know	1	0.7%
Not answered	3	2.1%
Total	143	

One hundred and forty-three participants (137 RN and 6 EN) indicated whether they perform oral health assessment upon patient admission. 54.8% of nurses perform an assessment, while 43.4% of nurses do not, one did not know, and three did not answer this question. Oral cavity assessment at admission is critical for nursing care plan for older adults to support their ADLs and oral hygiene care, however, more than 40% of nurses does not perform oral care. This suggests that oral care is not prioritised by nurses in hospital.

**Table 8.** Usage of oral assessment tool (guide)

Assessment tool usage	Sample (N)	Percentage
Yes	11	7.7%
No	114	79.7%
don't know	15	10.5%
Not answered	3	2.1%
Total	143	

One hundred and seventy-one respondents answered whether they use an oral assessment tool (guide) for assessment. 131 participants (74.4%) responded that they do not use an assessment tool, while 9.7% do use an assessment tool, 13.1% did not know,

and 2.8% chose not to answer. In the WDHB, currently there is no policy for oral assessment, therefore this lack of policy means the results are not surprising.

#### 4.2.6 Oral care documentation

**Table 9.** Oral care plan documentation (N=143)

Care plan	Sample (N)	Percentage
Yes	112	78.3%
No	28	19.6%
Not answered	3	2.1%

One hundred and forty-three nurses responded to the question whether they include oral care in their nursing documentation. A large majority of 112 nurses (78.3%) responded that they include oral care in their nursing care plan for older adult patients, and 28 nurses (19.6%) responded that they do not.

#### 4.2.7 Nil by mouth (NBM) patient oral care plan (only for nurses)

**Table 10.** NBM oral care plan documentation

Care plan	Sample (N)	Percentage
Yes	113	79.0%
No	27	18.9%
Not answered	3	2.1%

One hundred and forty-three nurses responded to the question about oral care documentation for NBM patients. While a majority 113 nurses (79%) responded that they include oral care in their nursing care plan for older adult patients, 27 nurses (18.9%) responded that they do not. This is an alarming result, indicating a gap in knowledge and practice of oral health care for NBM patients amongst some nurses. NBM patients' oral care is critical to prevent aspiration pneumonia as their oral mucosa tends to dry and become susceptible with infection. However, nearly 20% of nursing staff do not include NBM oral care in the nursing care plan. This may reflect the lack of knowledge about altered oral function in NBM patients, such as development of xerostomia, which increases the risk of aspiration pneumonia, and mucositis.

#### 4.2.8 Frequently of oral status assessment

**Table 11.** Frequency of oral status assessment for older adult patients (N=176)

Frequency	Sample (N)	Percentage
Depends/variable	88	50%
2-4 hourly	11	6.3%
Daily	47	26.7%
Twice daily	11	6.3%
After meals or 3 times daily	12	6.8%
Not answered	7	3.9%

One hundred and sixty-nine participants responded regarding the frequency of oral status assessment for older adults upon admission. Eighty-eight participants (50%) responded with ‘depends/variable’, followed by 47 (26.7%) daily. Fewer participants indicated frequency of patient’s oral status as after meals or three times a day 12 (6.8%); 2-4 hourly; or twice daily (both reported by 11 (6.3%) respondents). 7 (2.4%) did not complete this question. This result may indicate that oral status assessment is not considered a part of routine nursing assessment by nursing staff, or that nursing staff practice flexibly depending on the individualised needs of patients.

#### 4.2.9 Availability of oral care tools

One hundred and seventy-one participants indicated the kinds of oral care tools available in their work place. Choice of tools was electric toothbrush, manual toothbrush, toothpaste, foam swab (dentip), cotton wool, mouthwash tablets, gloved finger, dental floss, chlorhexidine gel, and mint mouthwash. Participants could choose multiple tools. Seventy-one participants indicated they use manual toothbrush, toothpaste, foam swab (dentip), and mint mouthwash; 23 participants indicated manual toothbrush, toothpaste, foam swab (dentip), cotton wool, and mint mouthwash; and 12 participants indicated manual toothbrush, toothpaste, and mint mouthwash. The availability of tools varied by ward, depending on their nursing practice focus and speciality.



#### 4.2.10 Responsibility of oral care delivery

**Table 12.** Who is responsible for oral hygiene care?

Who is responsible	Sample (N)	Percentage
only Nurses	2	1.1%
only HCAs	7	4.0%
only Carers	2	1.1%
Nurses & HCAs	21	11.9%
Everyone	138	78.4%
HCAs & Carers	1	0.6%
Not answered	5	2.9%

HCA (Health care assistance)

One hundred and seventy-one participants responded to the question ‘Who do you think should deliver oral hygiene care? (circle all that apply)’. One hundred and thirty-eight participants (78.4%) responded with “everyone including nurses, HCAs, and carers”, followed by 11 (11.9%) with “nurses and HCAs”, 7 (4.0%) with “only HCAs”, 2 (1.1%) with “only Nurses”, 2 (1.1%) with “only carers”, and 1 (0.6%) with “HCAs and carers”. 5 (2.9%) did not complete this question.

#### 4.2.11 Duration of oral hygiene care delivery

**Table 13.** Oral care time requirement

Duration	Sample (N)	Percentage	RNs	HCAs	ENs
<20sec	4	2.2%	4 (2.2%)	0	0
20-60sec	50	28.4%	42 (30.7%)	8 (24.2%)	0
60-120sec	57	32.4%	42 (30.7%)	11 (33.3%)	4 (66.7%)
>2mins	58	33.0%	43 (31.4%)	13 (39.4%)	2 (33.3%)
Not answered	7	4.0%	6 (4.4%)	1 (3%)	0

One hundred and sixty-nine participants answered the question on the duration of oral hygiene delivery. Fifty-eight (33.0%) responded that they spent more than 2 minutes, followed by 57 (32.4%) between 60 seconds to 120 seconds, 50 (28.4%) between 20 seconds to 60 seconds, 4 (2.3%) less than 20 seconds, and 7 (4.0%) did not complete this question.

Another comparison was performed to determine the association between titles and time spend for oral care. About a third of participants appeared to know that appropriate oral

care practice requires more than two minutes to deliver oral care. However, there is large variation in the time spent on oral care practice amongst participants. For the time categories of more than 20 seconds spent, the numbers of participants are split approximately equally for both RNs and HCAs, while the number of ENs are too few to robustly analyse.

#### 4.2.12 Difficulty of oral care delivery

**Table 14.** Difficulty for oral care delivery

Difficulty	Sample (N)	Percentage
Yes	134	76.1%
No	36	20.5%
Not answered	6	3.4%

Out of 170 respondents, 134 participants (110 RNs, 5ENs, and 19HCAs), 76.1% responded that they experience difficulty delivering oral care, while 36 (20.5%) indicated no difficulty, and 6 (3.0%) did not complete this question.

From these data, a large majority of nursing staff experience difficulty delivering oral care. Interestingly, among the 36 participants who do not experience difficulty delivering oral care, 13 are HCAs (39%), while 22 are RNs (16%). This may suggest that nursing staff rely on HCAs for hospitalised care-dependent older adults' hygiene care, although HCAs did not have a noticeably higher level of confidence in delivering oral care (Table 7).

#### 4.2.13 Identified barriers for oral care delivery

**Table 15.** Type of difficulty in oral care delivery (multiple selections) (N=134)

Type of difficulty	Sample (N)
Lack of time	92
Lack of tools	29
Not sure how to deliver oral care	13
Challenging behaviour	119
Not priority	24
Other	4

One hundred and thirty-four Participants who answered 'yes' for difficulty in delivering oral care were asked to identify the barrier(s) from the following options: 1 lack of time, 2 lack of tools, 3 not sure how to deliver oral care, 4 patients' challenging behaviour, 5 not

priority, 6 other. The majority of participants chose challenging behaviour (119), followed by lack of time (92), lack of tools (29), not priority (24), not sure how to deliver oral care (13), and other (4).

**Table 16.** Type of difficulty reported by the area of practice

Area	Challenging behaviour	Not priority	Lack of time	Not sure what to do	Lack of tool	Other
Medical	82	15	62	8	23	2
Surgical	23	3	16	4	2	2
AT&R	8	3	8	0	1	0
ADU	6	3	6	1	0	0

AT&R=Assessment, Treatment, and Rehabilitation, ADU=Assessment and Diagnostic Unit

Another comparison was made between the area of practice and type of difficulty delivering oral care. Both ADU and AT&R nursing staff identified lack of time as much as challenging behaviour as being a barrier to oral care delivery. The AT&R ward focuses on rehabilitation and medical care to maximise older adult patients' ADL performance, while the ADU focuses on acute medical nursing, such as stabilisation of patient condition, and they implement many procedures and diagnostic interventions. Therefore, it is interesting that lack of time is such a major barrier in the AT&R ward.

#### 4.2.14 Oral care practice

**Table 17.** Oral cavity rinse frequency

Frequency	Sample (N)	Percentage
2-4hourly	20	11.4%
Daily	50	28.4%
Twice/day	41	23.3%
3 times/day	17	9.6%
Not specified	42	23.9%
Not answered	6	3.4%

One hundred and seventy participants indicated the frequency with which they performed oral cavity rinse. The three main responses were 'daily', 50 participants (28.4%), followed by 'twice a day', 41 (23.3%), and 42 (23.9%) did not specify. The large variation in response, particularly the high rate of not specifying an answer, suggests that

oral cavity rinse is not considered routine oral care for nursing staff, or that nursing staff practice flexibly depending on the individualised needs of patients.

**Table 18.** Natural teeth cleaning frequency

Frequency	Sample (N)	Percentage
Daily	53	30.1%
Twice/day	66	37.5%
3 times/day	24	13.6%
Not specified	28	15.9%
Not answered	5	2.8%

One hundred and seventy-one participants indicated the frequency with which they performed natural teeth cleaning. Sixty-six participants (37.5%) specified twice daily and 53 (30.1%) daily. Since most nursing staff work an eight-hour shift, this question may have made them think within the eight hours of their shift and so may explain why a majority of them answered daily or twice a day. The 24 (13.6%) participants that answered three times daily might have considered a 24-hour cycle. For this question, 28 (15.9%) participants did not specify and five (2.8%) did not complete. It is useful to identify what time of the day nursing staff deliver cleaning teeth for care-dependent patients.

**Table 19.** Soft tissue cleaning

Frequency	Sample (N)	Percentage
2-4h	14	8.0%
Daily	51	29.0%
twice/day	38	21.6%
3 times/day	28	15.9%
Not specified	40	22.7%
Not answered	5	2.8%

One hundred and seventy-one participants indicated the frequency with which they performed soft tissue (tongue, plate, and gums) cleaning. The three most common responses were daily (51 (29.0%) participants), twice daily (38; 21.6%), and did not specify (40; 22.7%). Other responses were three times daily (28; 15.9%) and every 2 to 4 hours (14; 8.0%), while five (2.8%) did not complete this question.

Nursing responses varied for the actual oral care practice areas of frequency of oral cavity rinse, and natural teeth and soft tissue cleaning. In particular, a relatively high proportion of nursing staff responded 'not specified' for oral cavity rinse (23.9%), teeth cleaning (15.9%), and soft tissue cleaning (22.7%). This suggests there is a lack of standardisation in oral care practice. This may indicate a gap in practice and knowledge, or it could be a result of nursing staff applying different, individualised oral care for patients depending on their oral cavity status. Therefore, how nursing staff perform oral care for older adult patients was explored in the interview stage.

### **How do you perform denture care**

**Table 20.** Denture care

Denture care methods	Sample (N)	Percentage
left in situ all of the time	5	2.8%
removed through day time, inserted for meals	7	4.0%
removed through day time inserted for meals & visiting	3	1.7%
removed overnight	117	66.5%
no generic approach	39	22.2%
Not answered	5	2.8%

One hundred and seventy-one participants indicated how they perform denture care. The majority of participants (117; 66.5%) indicated that they remove dentures overnight, while very few removed them during the day and inserted them for meals 7 (4.0%), or removed them during the day and inserted them for meals and visiting 3 (1.7%). A high number, 39 (22.2%), had no generic approach, and this may also indicate no standardised denture care practice amongst hospital nursing staff.

## How do you wash dentures?

**Table 21.** Denture wash tools (filled space indicates the choice of tools by participants)

[illegible]

One hundred and sixty-nine participants indicated how they wash dentures by choosing one or more from the following options: 1= water/non-fragrant soap; 2=corsodyl/chlorhexidine; 3=mouthwash tablets; 4= sodium bicarbonate; 5=saline/sodium chloride; 6=toothpaste; 7= patients' own products. The majority of participants (44) used toothpaste and patients' own products, followed by 24 who use a combination of water, soap, toothpaste and patients' own products. 18 use toothpaste and normal saline alone, and 16 use patients' own products. As with the variation in denture care in terms of when to remove dentures (Table 21), the responses for how to wash them also varied. Therefore, how nursing staff deal with dentures was also explored in the interview stage.

## Dry mouth care

**Table 22.** Dry mouth care methods.

Methods	Sample (N)	Percentage
1 artificial saliva	14	8.0%
2 moisturise with foam swab	97	55.1%
3 Food staging, dietician ref, fluid balance chart	6	3.4%
1 and 2	23	13.1%
1, 2 and 3	6	3.4%
1 and 3	2	1.1%
2 and 3	7	4.0%
Not answered	21	11.9%

One hundred and fifty-five participants indicated how they make care plans for patients with a dry mouth (xerostomia). More than half, 97 participants (55.1%) indicated that they moisturise with foam swab, followed by 23 (13.1%) who indicated a combination of artificial saliva and moisturising with foam swab, 7 (4.0%) moisturising with foam swab and food staging/dietician referral/fluid balance chart, 6 (3.4%) food staging/dietician referral/fluid balance chart, 6 (3.4%) a combination of all interventions, and 2 (1.1%) a combination of artificial saliva and food staging/dietician referral/fluid balance chart.

Artificial saliva has to be prescribed by medical staff, therefore the majority of nursing staff may have indicated moisturising with foam swabs because they are able to do this on their judgement. The lack of responses choosing food staging, dietician referral, and fluid balance chart or moisturising and food staging, dietician referral, and fluid balance chart (six (2.3%) and seven (4.0%), respectively), reflects a lack of awareness amongst nursing staff for how to solve the problem in dry mouth care.

Twenty-one (11.9%) did not complete this question, and this is the highest rate for participants not answering a question in this questionnaire. This suggests there is a lack of standardisation in oral care practice for xerostomia. This may indicate a gap in practice and knowledge for xerostomia. Therefore, nursing staff understanding of xerostomia was also explored in the interview stage.

### **4.3 Quantitative findings summary-Gaps and barriers for oral care**

#### **Barriers for oral care delivery**

In terms of oral care barriers, patients' challenging behaviours was the most commonly identified barrier for oral care followed by lack of time, lack of tools, not a priority, and not sure how to deliver oral care.

#### **Insufficient oral care training and education**

Regarding to oral care training, 112 (63%) of participants had informal training for oral care in WDHB, while 56, (31.8%) of participants had formal training, either external provider, or university, and 64, (36.4%). Interestingly, neither training level nor participant position was positively associated with confidence level in delivering oral care. No clear definition for informal and formal training was given in the questionnaire, therefore this categorisation depends on participant perception

#### **Not clear responsibility and delegation for oral care**

The large majority of participants (138, 78.4%) think that nurses, HCAs, and carers should deliver oral care for care-dependent older adults. 21 (11.9%) participants indicated that nurses and HCAs should be responsible for oral care, and seven (4.0%) nurses responded that oral care should be an HCA responsibility. This indicates there are different attitudes and perceptions of oral care practice amongst nurses, with some thinking oral care is their responsibility, and some that it is not.

#### **No generic approach or not specified oral care due to a gap in knowledge and oral care practice in hospital**

There appears to be a lack of oral care planning for NBM patients, with 18.9% of respondents not including NBM patient oral care in their care plans. There seems to be a gap in knowledge about how NBM status negatively influences patients due to xerostomia and an increased risk of aspiration pneumonia. NBM patients require more frequent oral care to decrease the risk of these adverse events. Thus, there is an urgent need to address the gap in knowledge and practice for NBM patient oral care to improve nursing practice and patient health outcomes in hospital.



There was significant variation in the duration, frequency and usage of oral care tools. Between 15.8% to 23.9% of participants indicated 'no generic approach' or 'not specified' to the questions on denture care, the frequency of teeth cleaning, and oral cavity rinse frequency. This suggests that denture care, brushing teeth, and oral cavity rinsing are not considered a part of routine hospital nursing care. Only 30% of participants spend more than the recommended two minutes teeth cleaning, suggesting there is a practice/knowledge gap in the oral care practice of many health professionals.

Regarding to dry mouth care, there is no generic approach for patients' oral care identified. For instance, 97 participants chose to moisturise oral cavity by rinsing mouth with water, 14 answered artificial saliva, and only 3 people respond to make a referral to dietician and fluid balance chart to review fluid balance.

Oral health assessment implementation, and care delivery by nursing staff is varied due to lack of protocol, assessment tools, and gap in knowledge and practice, these factors further compromised to trigger nurses to think of oral care for older adult patients with altered oral health. It is important to explore more depth of explanation for oral care practice and knowledge level of nursing staff to identify the barriers and facilitators to change their practice to improve patients' health outcomes in hospital.

### **No oral care protocol, no standardisation of oral health assessment, care planning, and actual practice**

The large majority of participants (152; 86.4%) think that an oral hygiene care protocol is needed to deliver standardised oral care. The majority of 114 (79.7%) nurses do not use an oral assessment tool (guide) to assess patient oral status. The lack of protocols and lack of an available assessment guide are likely to contribute to the low oral health assessment implementation rate (54.8%) by nursing staff, as well as to the significant rate of no documentation for oral care plan (19.6 %), NBM care plan (18.9%), and the great variation in participants' actual oral care practice, denture care, and the usage of tools. Assessment is not standardised and there is no clear guidance for how nurses should assess oral status for hospitalised older adult patients.

From the above questionnaire finding, the following 10 interview questions were identified to obtain the depth of explanation about barriers and facilitators for oral care, as well as suggestion to improve oral care.

## Chapter Five Qualitative data results

### 5.1 Introduction

This mixed method study employed sequential explanatory design, which quantitative study (Chapter 4) results informed interview questions and integrated into qualitative study findings. From the results thematic analysis of the interviews, three main themes emerged: 1. the barriers for oral care, 2. the facilitators for oral care, and 3. suggestions to improve oral care. Under these three themes, several sub themes were identified and summarised following analysis of the data (see Table 23).

**Table 23.** Themes and subthemes

Theme one	Theme two	Theme three
Barriers for oral care	Facilitators for oral care	Suggestions to improve oral care
Subthemes	Subthemes	Subthemes
Workload related barrier	Positive feedback	Increase human capacity
Psychological barrier	Improvement on oral health	Strategies to make oral care visible
Physical barrier	Prevention of adverse event	
Lack of awareness & knowledge	Self-reflection	

### 5.2 Demographic Profile of Participants

In total 13 interviews were conducted at the participants' workplaces in North Shore and Waitakere Hospitals. The age range of the participants was from 25 to 62. The participants were ten registered nurses (RN), one enrolled nurse (EN), and three HCAs, with eleven of them being female and two males (one RN and one HCA). In terms of ethnicity, eight New Zealanders, three Filipinos, one Fijian, and one Japanese participated. Four of the participants were from general medical wards, three from Bureau who cover ED, ADU, general medicine, surgical, and AT&R areas of practice, two from stroke wards, two from

AT&R, and one each from ADU and a surgical ward. All participants spoke in English. A summary of the demographic data is displayed in Table 24.

### **Lists of interviewees and their background**

**Table 24.** Demographic profile of participants

Pseudonym	Age	Gender	Ethnicity	Area of practice	Title	Years of practice
Carole	60	Female	NZ	AT&R	RN	20
Jane	58	Female	Fiji	AT&R	RN	10
Mary	30	Female	Philippines	Stroke/Renal	RN	8
Kathy	53	Female	NZ	Medicine	EN	6
Matthew	27	Male	NZ	Medicine	RN	2
Pat	55	Female	NZ	Stroke	RN	20
Katie	40	Female	NZ	ADU	RN	10
Mel	58	Female	NZ	Surgical	RN	20
Shelly	62	Female	NZ	Medicine	HCA	20
Mae	25	Female	Philippines	Medicine	RN	3
Miho	42	Female	Japanese	Surgical	HCA	10
Chris	50	Female	NZ	Bureau	RN	10
Bert	27	Male	Philippines	Bureau	HCA	3

### **Theme 5.3. Barriers for oral care**

The first theme is the barriers for oral care, which is highlighted as workload, psychological, physical, and lack of awareness and knowledge. Barriers that caused stressed interactions between patients and nurses were identified by all 13 participants. From the data analysis categories of these barriers for oral care were classified into four types: Workload related barriers; Psychological barriers; Patients' physical barriers; and Lack of awareness of oral care

#### **5.3.1. Workload**

Workload associated with omission of oral care was reported by the ADU nurse (Katie) and three general medical ward nurses (Kathy, Matthew, and Mae). They explained that heavy workloads resulting from patients' acute conditions caused nurses and HCAs to miss opportunities to think of and deliver oral care.

*"They feel pressured to send patients to the wards, as they constantly receive patients from ED and do things absolutely need to do for them and send them to*

*the ward. It is nice if we can clean patients and shower patients before we transfer them (laugh)... if patients are new and acutely unwell, oral care drops to the bottom of the list. "(Katie)*

This explanation is similar to that provided by the three medical nurses, that the afternoon shift is difficult as they often receive patients from ADU in the evening, at which time the nurses are busy with meal time medication, dealing with meal trays, making observations, and liaising with doctors regarding deteriorating patients.

*"Admission assessment for new patients from ADU, Acuity of patients, prioritising more important and things need to be done on time." (Mae).*

*Obvious needs at time, like toileting, stat meds, ECG is higher priority than oral care." (Matthew)*

Having high acuity patients makes it difficult for nurses to think about and deliver oral care for their patients, Therefore, other procedures that need to be done urgently are given higher priority and oral care often drops out from the list. Several nursing staff said that the chance to think about and do oral care is when patients are toileting. However, Kathy mentioned missed the opportunity for oral care, in particular, in the afternoon shift.

*"When nurses get time, patient already sleep. Don't want to upset patient..., it is difficult one nurse to cover oral care at bed time." (Kathy).*

Katie, Miho, and Bert also mentioned time constraints makes it difficult for them to deliver oral care, as they sometimes find difficulty to have their own meal break in busy shifts.

However, in contrast to these nurses' comments, Matthew mentioned that he delivers oral care more often in afternoon shift, as he always does his own mouth hygiene care at bed time. Two experienced nurses, Jane from AT&R and Pat from stroke ward, also mentioned the importance of oral care in their nursing care.

*"Time and workload are not constraint for my oral care delivery." (Jane)*

*"It's is priority for me." (Pauline)*

Nursing staff perception of 'workload time constraints' depend on what their priorities are, and where oral care is positioned in their nursing intervention lists. The priority of

oral care may depend on the personal values, practice and education levels, and focus area of practice of the nursing staff.

### **Too much documentation**

More than half of the interviewees (six nurses: Carole, Matthew, Mal, Mae, Chris, and Kathy; one HCA: Miho) mentioned that electronic documentation (evital) increases their workloads, and that this negatively affects their time and capacity to deliver oral care. The WDHB implemented the evital system in 2016 to regularly record patient vital signs and other assessments, such as weight, smoking and nutrition status, fluid balance chart, bowel chart, etc. If these items are not input in time, the evital system indicates this as overdue and turns on a red alert on the screen.

*“Overdue, red items need to be ticked on time.” (Mae)*

*“So many protocols, but they do not help nurses to do proper assessment.”  
(Matthew)*

*“Evital lists are not helpful-so many assessment boxes that are not always relevant for each patient condition and diagnosis...individualised case by case assessment tool would be more helpful...” (Matthew)*

*“Everyone knows evital and focus on numerical data. But it is when weigh your patients, have you noticed how much patients eat: evital data does not connect with patients.” (Mel)*

These negative attitudes towards evital documentation are associated with a reluctance to having oral care protocols because of the potential for increased documentation and prolonged work hours.

*“How would the protocol help us oral care?... What’s for?... Is it for another check box? I am not keen for the check box...” (Carole)*

Matthew was also concerned about having so many protocols that are not useful as they are not individualised for actual nursing assessments and interventions that patients need. Therefore, having oral care protocols that increase nursing documentation and assessments without clear indicators and rationales for who needs oral care, what kind of

oral care is required, and how often it needs to be done may impact nurses' decision to do or not do oral care.

Katie also said regarding having an oral care protocol:

*"Protocol would be good, although it should not be just standardised for everyone." (Katie)*

Mel explained that her reluctance for oral care to be on the checklist in evital or documentation is because:

*"A lot of documentation around examination and neurovascular obs, hygiene and shower, but it does not specify oral care. If it is specified, and unfortunately people often think of the check list. It should not be on the checklist. I think it more naturally should come through as a basic and an essential care, but people don't really emphasis on..., big picture. We just focus on the area to tick off the box." (Mel)*

Nurses are concerned that evital assessment tools negatively influence their assessment skills and cause them to spend less time at patients' bedsides, as nurses follow the evital system and implement nursing assessments away from the patients at the end of their shifts.

Increased electronic documentation gives nurses a sense of being passive and losing autonomy, therefore they voiced negative feelings about being prompted to do nursing assessments by electronic devices. Furthermore, the standardised assessment items are not always relevant for their patients. As a result, nurses think that evital deprives their time to be with patients and also negatively influences their ability to assess patients based on their assessment skills and clinical judgement. Therefore, nursing assessment based on evital can lead to a lack of critical thinking and a lack of individualised nursing assessments.

Interestingly, Kathy and Mel also pointed that there is no documentation about dental status or oral cavity status as the admission checklist regarding oral condition is no longer used. Without an alerting system such as evital or admission checklist, oral care may become further compromised in hospital settings.

### 5.3.2. Psychological barriers- Fear, anxiety, and stress around oral care

In the questionnaire, the majority of nurses and HCAs indicated that patient challenging behaviours are a barrier for oral care. The interview data supported this finding, identifying barriers in particular patients with stroke, delirium, confusion, and advanced dementia.

*“Some stroke patients are quite agitated, sometimes we do more mouth care for them. That sometimes settle them, but receptive aphasia patients. Whatever we try to make them understand, they understand you wrongly.” (Mary)*

Two other nurses described challenging behaviours of patients with severe dementia.

*“Those patients had already been man-handled from the time they had a fall from private hospitals or respite care facilities. They were transferred by ambulance and handled and receive some invasive treatment and tests by many health professionals in hospital in a state of confusion or delirium on top of dementia, therefore they often overwhelmed and said to nurses and HCAs, ‘don’t touch me I had enough.’ (Mel)*

*“They had enough. Not wanting to stick anything in their mouth. Personal space. Nurses are also stressed and fear whether they harm patient by doing oral care, and vulnerable patients may think nurses hurt them.” (Chris)*

Chris talked about her observations of stressful interaction between nurses and patients around oral care, and also mentioned young nurses’ negative responses to dentures as they are not used to seeing them.

*“Maybe people can be rough when doing it (oral care). If we go too deep in the mouth, people feel choke and go cough cough. That make them uncomfortable. You’ve done too much. Patient have swallowing impairment they gag on the water and cough at times. That affects the interaction between nurses and patients.it becomes stress. Patients think the nurses try to hurt them, in particular dementia patients. And nurses think ‘oh what I have done. Have I given them aspiration pneumonia?” (Chris)*

*“I think nurses, ah particular young nurses don’t like the thoughts of false teeth. They don’t like thinking of taking out someone’s teeth and put them in the water*



*in the pottle beside bed. It's not natural not to have teeth in the mouth. They don't like to clean it. People tend to think it is revolting. They don't know how to get them out. Or how to clean them out. They don't know to keep it cabinet, scrub. People don't like the thoughts of having false teeth over water like this uuuuuu it's revolting. They just don't like it. They have never exposed with false teeth.” (Chris)*

In contrast, Jane and Bert indicated that oral care is easy. They did not describe any difficulties, but they admitted that some patients refuse oral care because they do not perform oral care in their usual life, or because of increased confusion or delirium resulting from their acute medical condition.

### **5.3.3. Physical barriers**

HCA Miho expressed her frustration in getting help from nurses to deliver oral care for fully dependent patients due to their physical disabilities. To re-position these bed bound patients often requires at least two staff, and Miho indicated difficulties in asking nurses because they are already busy. As a result, Miho sometimes finds she gives up on or forgets oral care for patients who really need help, and this missed oral care influences her job satisfaction. She used words such as:

*“...nothing changes because of lack of teamwork, and I felt left alone...” (Miho)*

Kathy (currently an EN) also commented on difficulties in delivering oral care for fully care-dependent patients that she found when working as an HCA

*Yes, you do a lot of shower and things, and have that process (Oral care). But I think it is fall down if patient is not mobile. It is time factors. Generally, it requires two of you, and you are doing wash and anything else, that is time restraint, and another time to do oral care to get toothbrush and toothpaste to clean their teeth. It is timing. (Kathy)*

Another HCA, Shelly, talked about her fear of delivering oral care for patients with a high risk of aspiration and seizure.

*“I just don't like them to suck it, when they got swallowing problems.” “When people have seizure, you cannot clean the mouth. Patient may aspirate. Clinched teeth. You can clean outside the mouth. If they are not cooperative, you cannot do.” (Shelly).*

Only HCAs mentioned patients' physical barriers in relation to oral care. This may indicate that nurses rely on HCAs for the oral care of fully dependent and complex patients.

Interestingly, Chris mentioned uncomfortable feelings around mouth care.

*"A patient face and a nurse's face are so close each other when delivering oral care. Nurses may feel uncomfortable to expose patient's saliva if a patient coughs, and feel each other's breath during oral care, and patient also may have a dental fear." (Chris)*

HCAs indicated that patients' physical disabilities are a barrier for oral care delivery in the interviews. Positioning patients requires extra time and effort for nursing staff, and these complex patients' oral care might be compromised or not optimised because they are attended by less trained nursing staff. Therefore, this is a potential issue that compromises patient safety. Nurses need to pay more attention and be more involved in oral care delivery to these fully care dependent patients by optimising patient position and delivering individualised oral care based on evidence-based assessment in collaboration with HCAs and the MDT.

#### **5.3.4. Lack of awareness and knowledge for oral care**

In the questionnaire, some respondents indicated they are 'not confident', 'not very confident', or 'not sure what to do' for oral care assessment and care delivery. Interviewing nurses and health care assistants revealed a lack of knowledge and awareness of the extra care requirement for patients with dysphagia, NBM, and dentures. The three main reasons for this issue can be summarized as follows: 1. not knowing what to look for and how to do for oral care (Mary and Matthew); 2. lack of training, reminders, and education (Carole, Jane, Kathy, Mathew, and Miho); and 3. new staff and high staff turnover that affect the standardisation of oral care and training (Jane and Mary). Nurses are aware that there is a gap in knowledge and practice regarding oral care for care dependent patients and dysphagia patients.

*"I do not know much about oral care... I don't think of oral care plan for NBM patient..."*

*"I am not feeling like to correctly doing stuff. I am not thinking too many things .but. I am looking what the mouth coating, tongue coating or clean, dry mucosa or tongue, moist. Sometimes I just look at hydration. I certainly notice if they have*

*rotten teeth or broken teeth. I am looking something obvious how much food there or not, or how clean it is..."(Matthew)*

Matthew admitted that he is not knowledgeable about oral care. He also mentioned that he did not think about oral care for dysphagia patients who need to be NBM.

Mary also expressed her concern about ED and ADU nurses' knowledge of stroke patients' risk of aspiration.

*"Patients came from ED or ADU with stroke, but they were already fed without proper dysphagia screening. And in the stroke ward, they have to tell patients the need of NBM. It's not fair for patient." (Mary)*

She mentioned that there is a lack of knowledge and uniformity in oral care for patients with dysphagia or stroke, and in the clinical judgment of NBM.

The lack of knowledge and uniformity of oral care not only applies to stroke or dysphagia patients, but also to care dependent patients. Only the three most experienced nursing staff (Mel, Kathy, and Shelly; Table 24) mentioned denture care during the interview without prompting. The responses to the questionnaire suggested that denture care is variable in terms of usage of tools and how to wash dentures in hospital oral care practice. Consistent with this, most interviewees indicated that they use standard toothpaste with abrasives that can damage the dentures. Kathy and Mel mentioned their concern about how well dentures fit, but they were not sure what the best practice for denture care is. No nursing staff mentioned anything about observing, cleaning or moisturising gums and the oral mucosa of patients with dentures.

The knowledge gap and a lack of awareness of oral care practice, in particular for NBM patients, those with dysphagia and xerostomia, and those requiring denture care have been clarified in the interviews. There is an urgent need for regular education and in-service training to fill these gaps in practice so that the standard of oral care can be maintained and enhanced. These knowledge gaps may not be only an issue for education or training, as the knowledge is consolidated in actual practice by applying critical thinking and constant self-reflection. These advanced nursing skills may require years of practice, as reflected in the experienced nurses' interview comments. An oral care assessment guide and standardisation of oral care delivery are also urgently required to be established, something that should be based on interprofessional oral care research.

These four main barriers (increased workload, psychological barriers created by patients' care-resistive attitudes, patients' physical barriers, and lack of awareness and knowledge) all can cause nursing staff uncertainty in how to deliver oral care, and thus contribute to heighten the stress levels of staff performing oral care practice in hospital. These four factors can also lead to challenging interactions and communication between patients and nurses, and therefore can result in additional barriers to oral care delivery between stressed patients and stressed nurses.

#### **5.4 Theme 2. Promotors/motivations to do oral care**

The second theme identified is promotors/motivators to do oral care. Participants reported four main promotors or motivations for delivering oral care: 1 patient positive feedback; 2 patient oral hygiene, function, and comfort improvement; 3 prevention of adverse events, and 4. opportunity to reflect on their own oral health and comfort.

##### **5.4.1 Patients' positive feedback**

Pat, Katie, Mel, Mae, and Shelly mentioned that patients saying "feels good" motivates them to deliver oral care. They also said they consider oral care to be a holistic care for improving the general condition of patients. Shelly shared her patients' comment about oral care delivered as:

*"Thank you so much I feel so much better, and that makes you feel so good. oh my gosh, I made a difference. They must feel better." (Shelly)*

##### **5.4.2 Patient improvement**

The majority of nurses (Jane, Mary, Kate, Pat, and Chris) said that patient improvement in oral health and function was their primary motivator to deliver oral care.

*"it's so important for us and patients' own comfort alongside health benefit. Thinking of your own comfort (by brushing own teeth), their mouths are gonna feel better, more likely to drink and more likely to eat, and less likely to get mouth infection, people interacting people only fresh mouth. To me, poor oral hygiene goes alongside often poor health." (Pat)*

Katie and Chris made similar comments:

*“Oral care makes really difference in patients’ feelings. It makes them look healthier and speech better after cleaning it up as well as patient with dentures. You take them out and clean them up and put them back in the mouth ‘oh it’s so nice’. And you feel how much clean mouth means to them.” (Katie)*

*Patients breathe better, speak better, and feel better (Chris)*

Mary gave the example of nystatin treatment as a motivation to do good oral care:

*“Nystatin really changes the status of tongue, healthy pink tongue. If we constantly use it, three times a day, it makes very different on patient’s white coated tongue. At least three times a shift, their tongue becomes healthy pink colour as the white coats gradually comes off. “(Mary)*

*“When I see a patient’s swallowing gets better, and I found it is pleasure.” (May)*

#### **5.4.3 Want to prevent adverse events in hospital**

All participants said that their motivation to do oral care is about patients’ comfort, such as refreshing the mouth, and improve altered oral health conditions, such as dry mouth, ulcers, and unhygienic dentures and teeth. Miho and Mel mentioned that good oral care can prevent aspiration pneumonia and improve swallowing function.

*“We can reduce aspiration pneumonia and make them ready for drinking and eating by good oral care for full care patients.” (Miho)*

*“Before patients are going for surgery, our checklist includes NBM care. We use mint mouth spray and dilute it into water, and do mouth wash for these patients to prevent pneumonia.” (Mel)*

Furthermore, Mary shared her experience that oral care can reduce agitation and thus be an effective intervention to reduce delirium for stroke patients:

*“NBM patients with delirium can settle when you do frequent mouth care. I think they feel comfortable by moistening the oral cavity. They get less agitated and settled.” (Mary)*

#### **5.4.4 Reflection own oral health and families-put yourself into other’s shoes**

The majority of nursing staff reflect on their and their family's health and value of oral care when they deliver oral care to patients.

*"I don't like my own teeth dirty. It's just feels good me, why it would feel good to my patients. Putting myself into other's shoes." 6RN said 'Time constraint? it's not barrier. It's me, it's one of the really important things. Rather I have my patient's mouth clean. They I don't know do something else. It's a priority anyway. "(Mel)*

*"Thinking of patients are your family. "(Bert)*

Chris shared her own experience of her father as a patient,

*"My father was near to death, and I was a visitor. I visited him, and he had false teeth. And the nurses never gave him clean teeth. So, I took his teeth out and clean them, and he felt much better." (Chris)*

Nursing staff often motivate themselves to deliver oral care through positive interactions with patients, through their own ethics to improve patient outcomes, promote comfort, and prevent harm, and through reflecting on their own experiences and compassion in putting themselves into someone's shoes.

To overcome gaps and barriers for oral care delivery, nursing staff motivate themselves using a variety of means. These motivators are all intrinsic factors that come from interactions between patients and the nursing staff, and from the daily efforts of nursing staff to improve their practice and care delivery. However, there is a gap in organisational support and incentives to acknowledge and respond to their oral care endeavours and achievements.

### **5.5 Theme 3. Suggestions to improve oral care**

The last theme identified is suggestion for oral care practice improvement, which is highlighted from current participants' work environment and practice. The final part of the interview involved participants suggesting various measures that could improve oral care in hospitals. Their suggestions have been placed in two categories: 1. increased capacity in human resources, and 2. strategies to make oral care more visible.

#### **5.5.1 Increased capacity in human resources**

**Extra HCA to focus on hygiene care and include families in oral care delivery**

Kathy and Mae suggested hiring extra HCAs to focus on hygiene care, even though they knew this is unlikely to happen with the current shortages of staff at the hospital level.

*“It makes a big difference to be able to provide extra care for patients.” (Kathy)*

*“If there is another HCA, at least we would be able to delegate oral care. It would make it easier, so that mouth care should not be disregarded.” (Mae)*

All participants suggested involving family into oral care delivery for patients. This reflects the questionnaire results, where 78.4% of participants indicated that oral care is everyone’s responsibility, including families.

*“Ask family to come around. Talk to family and teach them how to do. Give them reasons.” (Pat)*

The nursing staff said that the involvement of families is important, particularly for palliative care patients and patients with long term conditions. If families can contribute to patient oral care delivery, this would promote continuity of care after discharge. To achieve this, nurses mentioned the importance of family education and the facilitation of ownership of patient oral health and general wellness by families and patients.

### **Grouping oral care with morning hygiene care**

The nurses Carole, Jane, Mary, Kathy, and Mae, and HCA Bert all recommended that oral care be integrated with showering and bed sponge so that oral care is not likely to be missed in the morning shift. Furthermore, this would be time effective for patients and health care professionals, as oral care would not be another care intervention that is done at a different time. Miho also mentioned the importance of preparation of tools to deliver oral care alongside other hygiene care.

*“Before I go to patients’ bedside, I always make sure to take all equipment to do all morning hygiene care for them one time, so I don’t need to waste my time to go back and forth.” (Miho)*

### **Training to enhance awareness**

The nurses Carole, Jane, Mary, and Chris said that it is important to have oral care training, and to have repeated inhouse sessions. Matthew also talked about the need for oral care training as a part of nursing education, because health professionals need to know the

reasons why oral care is necessary. The HCA Miho is from Japan, and when she used to work there as a nurse, she had oral care training by dental hygienist. She suggested that having a session with a dental hygienist or dentist is important to improve oral care including assessment and actual oral care delivery.

Jane pointed out that not every nurse wants to study to advance their practice, and there are always new staff who are not familiar with oral care and its purpose, therefore it is important to have repeat inhouse training twice a year. Oral care education may increase health professionals' awareness of the purpose and benefits of oral care in hospital settings. Katie also mentioned the importance of thinking of the benefits of oral care.

*"Nurses are really caring for their patients. When they do care, they really do care. They would like to minimise harm. I think approaching that way (having a thought of benefit of oral care) rather than another task to do, and it is important to encourage them to do." (Katie)*

Mel pointed out that

*"People don't see the connection between the benefit of oral hygiene and influence of not to notice the need of oral care for patients. If mouth smells, some older adults with dysphagia, they are not good at taking meds, they tend to get dehydrated." (Mel)*

Mel and Katie are experienced nurses and their comments reflect their understanding of the connections between oral health and systemic health. They explained to me that this holistic view comes from their own hospital-based training, postgraduate studies, and years of practice continuously utilising critical thinking and reflection. This suggests the importance of experience and continuous individual commitment to professional development through portfolio and postgraduate study in improving oral care practice.

### **Flexible approach-how to communicate with delirious, confuse, and stressed patients**

The HCAs Shelly and Miho recommended negotiation with patients who are reluctant to receive oral care, by saying

*"You would feel a lot better if you have done." (Shelly)*

*"Once patients decline oral care, I observe them, and come back again when they agree." (Miho)*



Both of HCAs apply flexible approaches to deliver oral care for patients who are reluctant or resisting oral care because of their medical or cognitive issues. In contrast, no nurses mentioned negotiation or flexible approaches for patients who refuse oral care. This may reflect nurses' time constraints due to the diverse nursing interventions they are required to perform, and their responsibility to care for unwell patients. Patients who need more time and care support may be delegated to HCAs or their oral care simply be missed from their nursing care. This may be why fewer HCAs in the questionnaire indicated 'no difficulty' to deliver oral care compared to nurses. This may suggest that nurses are more focused on medicalised care and have more responsibility for delivery of technical care, while essential care delivery for care-dependent patients is likely to be left to HCAs.

### **5.5.2. Strategies to make oral care more visible in hospital**

#### **Oral care trolley**

Chris recommended to set up an oral care equipment trolley in the ward to eliminate time wasted looking for equipment.

*"If you have all equipment ready, it does not take time to look for equipment."*  
(Chris)

Similar to Chris' comment, Pat talked about her own oral care trolley that she uses when going to see her patients to take vital signs and make assessments. However, she sometimes cannot find basic oral care equipment in the ward, and said,

*We should have toothpaste and toothbrush available. (Pat)*

Bert also suggested having more oral care equipment, such as dental floss and water with fluoride to prevent dental decay, in the ward.

#### **Oral care protocol and oral care assessment tool to define actual oral care procedures**

Carole, Katie and May said that they did not know that there is an oral care policy for dysphagic patient in WDHB. Mary commented on oral care procedure

*"We don't have order for oral care procedure. So, we make sure tongue, teeth clean, we do sides as well. I do not remember there is any order like upper or lower*

*first...to make sure every side is clean (laugh). I don't know the proper way to do in order."* (Mary)

This lack of oral care protocol may also underlie some questionnaire responses, where 13 nursing staff indicated "not knowing what to do" for oral care, and there were no consistent responses to the soft tissue cleaning, oral cavity rinse, and denture care procedure questions. Thus, their oral care practice may be spontaneous rather than evidence-based. Protocol and standardisation of practice is one potential solution to improve oral care and assessment in hospital.

### **Normalise oral care in hospital by activity enhancing awareness**

*"Normalise oral care as hand washing by advocating everyone needs to do. It's not okay not having oral care. Sitting them up. NBM patients usually need to sit up."* (Pat)

Pat's suggestion to normalise oral care in the same way as hand washing is normalised is one of the most important ways to start enhancing awareness of oral care for hospitalised care-dependent older adults. Pat recommended distributing information on oral care to patients and their families as one way of achieving this. Mel also suggested audits for oral hygiene care for patients in the ward, the same as currently occurs for hand hygiene. Furthermore, Matthew recommended to use the current HASI communication board at the patient bed side to highlight special oral care needs, such as NBM oral care for care-dependent patients.

To normalise oral care in hospital is to raise awareness of oral care. This awareness is important because the significance of aspiration pneumonia in deconditioned older adults has gained more medical attention as the aged population increased, similar to what has happened with fall prevention over the last 20 years. The nurses' suggestions to implement measures such as education sessions, information distribution, improvements in communication using the HASI board, and oral hygiene care audits, will contribute to enhancing awareness of oral health amongst health professionals as well as the public.

Nursing staff shared their ideas and thoughts to improve oral care in hospital, and this reflects their problem-solving approach in the current work environment. These suggestions, such as implementing effective teaching sessions to remind health

professionals of the importance of oral care, grouping oral care with other nursing interventions, including family in oral care, and flexible approaches using special communication skills to talk to care resistive patients, are more feasible approaches than hiring extra HCAs to do oral care. They also suggested taking more systematic approaches: setting up an oral care trolley, establishment of an oral care tool guide, and implementing activities to enhance oral care awareness. These suggestions require institutional support to be achieved. However, the outcomes will be enhanced awareness and knowledge around oral care among health professionals as well as the public.

## **5.6 Summary**

In this chapter, three main themes were identified and discussed: barriers for oral care, facilitators for and motivators of oral care delivery, and suggestions for improving oral care. The participants identified various types of barriers for oral care and reflected on how they tried to get over the barriers by utilising their own facilitators and motivators. The nursing staff who work at patient bedsides struggled with heavy workloads and limited resources, with the resources they did have mainly coming from their individual endeavour without external support. Altogether, these heavy workloads and lack of resources are the biggest barriers to oral care. The participants suggested that a practical, systematic approach would help to improve oral care practice. They felt that clear and practical oral care protocols and guidelines that include practice techniques, tool usage and storage information, and oral status assessment tools would all be valuable in supporting nursing oral care practice. However, participants also pointed out disadvantages with oral care protocol establishment, and these will be discussed in the following final section.

## Chapter Six Discussion

This study aimed to identify the factors that impede nursing delivery of oral health care. Data from 176 questionnaires and 13 interviews were collected from nurses and HCAs in two hospitals. Analyses of the questionnaire findings informed the interviews questions. The overall analyses and integration resulted in three main themes influencing nursing staff's oral care assessment and delivery emerging. They are: lack of oral care protocol; oral care training and education, and facilitators of oral care delivery. First, lack of an oral care protocol results in current nursing oral care practice being ad hoc, left to patient choice, and subjective rather than evidence-based. Second, oral care training and education is not consistently implemented in undergraduate nursing study or in the hospital. Even among nursing staff who underwent training, it does not appear to increase their confidence level to deliver oral care. Thus, current oral care training and education is not effective to promote a high level of nursing staff oral care delivery. Third, under the current work environment, nursing staff largely rely on their own internal facilitators to motivate their oral care delivery without institutional support.

These main factors are influencing each other, and a lack of oral care protocol is the root cause of ineffective training and education, and limited facilitators for nursing staff to deliver oral care, as there is no oral assessment tool and guidance for oral care procedure that appeared to affect nursing assessment on oral cavity, actual oral care delivery, and appropriate equipment and preparation to deliver oral care. In the current situation, oral care is spontaneous and variable, not informed by evidence-based care, and nursing staff motivate themselves by their internal facilitators, such as patient' comfort, better outcomes of health, and compassion by reflecting their own health to overcome gaps and barriers for oral care. In particular, NZ is experiencing more aged population with complex medical condition and cognitive function problems, and these populations' oral health problems are become more apparent in the public as well as acute settings (Thomson et al., 2018). To improve oral care for care-dependent older adults in hospital, the issues around oral care protocol, staff training and education for oral care assessment and delivery, and facilitators to implement oral care will be discussed as referring to the current literature.

## **6.1 Protocol**

### **6.1.1. Issues around oral care protocol and policy**

There has historically been a lack of focus on dependent older adults oral health care amongst health professionals and society in New Zealand (MOH, 2016; Smith & Thomson, 2017). The New Zealand Ministry of Health surveyed issues around care-dependent older adults' oral health, and this identified three main barriers to oral care in residential care facilities: older people's disabilities, the attitudes and knowledge of carers, and the availability of dentistry support. With regards to the third barrier of dentistry support, dental therapists in NZ are currently restricted in their preventative care to people aged under 18. However, they are able to work under dentist supervision for older people (Dental Council, 2019). These barriers strongly overlap with the barriers I found from the quantitative and qualitative data analyses. These barriers particularly increase physical/psychological barriers and workloads for delivering oral care to care-dependent older adults with poor oral health in hospitals, further highlighting the lack of knowledge and resources available to nursing staff.

Currently, there is no oral care policy for older adults in New Zealand (Smith, 2010). Therefore, there is no clear definition of and guidance for oral care for care-dependent older adults and NBM patient mouth care in WDHB. Unsurprisingly, the questionnaire and interview results revealed significant variation in oral care assessment and delivery, including tongue, cheek, and gum assessment, usage of tools, and the duration, frequency, and procedure for oral care delivery. These findings are congruent with Cocker et al. (2016)'s findings that oral hygiene care is often spontaneous and variable and may not be informed by evidence-based practice. This suggests that establishment of an oral care protocol can promote standardised oral care and increase compliance of oral care by having oral care policy and protocol in hospital.

There is emerging evidence that having a standardised oral care protocol can lead to positive health outcomes. A new study demonstrated the association between oral status, cognitive function and dependency among older adults in residential care home (Thomson et al., 2018). Thompson et al (2018) also stated that impaired cognitive function is a risk indicator for both dental caries and poor oral hygiene in rest home. While their

findings suggested the special need of oral care for those older adults with cognitive impairment, many of rest home do not have written oral health policies (Kelsen, Thomson, & Love, 2016). Many older adults in rest home have poor oral condition, and they are likely to be admitted to hospital due to aspiration pneumonia or other respiratory tract infection with further altered oral health (Smith, 2010). Therefore, there is an urgent need for oral care protocol in hospital settings to screen patients who have an oral health and identify who additional support for oral care and deliver the evidence-based oral practice and education protocol to health professionals and the public. Furthermore, Jansen et al (2018) found that standardisation of oral care by protocol reduced the barrier of time and resources constraint through nursing staff and patient use of a bedside oral hygiene kit, contributing to improved oral care documentation. Despite the study did not clarify the impact of patient behaviour as a barrier to the frequency of oral care, it did identify the existence of gaps in staff knowledge regarding oral care (Jansen et al., 2018).

The necessity of establishing an oral care protocol is supported by the questionnaire results, with 86.4% of participants indicating that an oral care protocol is needed, and only 6.8% answering no need. Furthermore, from the interviews two senior nurses (Mel and Kathy) suggested that if there is no protocol for oral care, oral care will be further compromised.

However, there was a significant discrepancy in the results regarding the need for an oral care protocol between the questionnaire and interviews. Although two nurses in the interviews supported establishing an oral care protocol, four nurses and one HCA expressed suspicion about the actual purpose and effect of protocols in interviews. While they accepted that an oral care protocol may enhance oral care delivery awareness and compliance amongst nursing staff, they were more concerned about the potential for it to increase documentation.

More than half nurses indicated that health electronic record (HER) including evital takes nursing practice time more than actual face-to-face nursing at patient's bedside, and that this can prolong their work hours and lead to omission of oral care. Increased HER is an ongoing discussion among health professionals worldwide (Baumann, Baker, & Elshaug, 2018). Bartol (2018) also reported that clinicians spent twice as much time on HER documentation and other desk work than on direct, face-to-face time with patients. HER

allows health professionals to access patient records spontaneously and from a variety of places, but the downside is increased administrative burden. Health professionals are asked to tick off to show comprehensive assessment and patient-centred care, but this detracts from putting patients first and becomes a barrier against engaging patients directly (Bartol, 2018). Baumann et al. (2018) also suggested that HER can lead to multitasking and distraction for work flow for nursing staff and can compromise patients' safety. Meanwhile, hardworking, caring clinicians are burning out and leaving clinical practice because of the administrative burdens (Bartol, 2018), as HER increases documentation and require more clinical documentation for nurses (Baumann et al., 2018). Therefore, my results did not show a consensus regarding establishment of an oral care protocol, particularly at the interview stage.

My results and current research both suggest there is a need for an oral care protocol and oral care assessment tools that support health professionals to implement assessment, care plan, and care delivery for care-dependent older adults in hospital. However, at the same time there are concerns regarding how such a protocol will impact on nurses, in particular by increasing administration burdens that take time away from patient bedside care. Therefore, any oral care protocol should take these concerns into account to minimize the negative effects while still achieving the benefits.

#### **6.1.2. Establishment of an oral care protocol and oral assessment guide**

It is time for a change that will put the patient back in the centre of care. Therefore, nurses will be able to bring essential care to the front focus of nursing practice, so that oral care will be more visible in acute setting.

Oral care protocol and oral assessment guides should clarify the level of oral care needs depending on oral cavity status and patient condition, such as NBM, stroke, dysphagia, and palliative oral care or dentate status (Hill et al., 2014; Horne et al., 2014; Sato et al., 2015; ; Stout et al., 2009). Warren et al (2019) produced a comprehensive evidence-based oral care programme. This programme includes risk-stratified oral care products usage protocols, such as the use of suction toothbrush for patients with a high risk of aspiration during oral care. It also includes systematic oral kit storage recommendations, and a protocol for improved oral care delivery with clear guidelines for routine oral status

assessment and the frequency and duration of oral care, as well as an educational information sheet for patients and families that was produced through a collaboration between nurses and dental professionals (Warren et al., 2019). Bedside nurses review the information sheets with patients to reinforce the importance of consistent oral care (Warren et al., 2019). Protocol enables nursing staff to clarify the purpose of oral care, such as functional rehabilitation, hygiene care, and comfort care, and once a type of oral care requirement is determined and planned for each patient's oral cavity condition. The protocol also clarifies the purpose, frequency, tools of oral care depending on each patients' oral health status and diagnosis, so that nurses and HCAs can practice with clear understanding of their oral care for patients (Horne et al., 2014; Sato et al., 2015).

The clear oral care protocol and oral assessment guide should enhance their confidence level and support to deliver oral care. By establishing oral care protocol and training should encourage nursing staff to engage with the process of enquiring, acquiring knowledge to the questions, and practicing oral care for those needs. Therefore, the establishment of oral protocol, oral assessment tool and the evidence-based practice will improve oral hygiene care, and this nursing commitment for their practice advancement, and this will ultimately lead to overall improvement on nursing care and practice-better patients' outcome.

Harris et al (2008) suggested that the focus of oral care protocol is on feasibility, compliance, and patient education. The protocol also needs to be specific and matched to patients' diagnosis and treatment (Harris et al., 2008). The basic components of an oral care protocol include assessment, patient education, tooth brushing, flossing, and oral rinses. The basic components of an oral care protocol include assessment, patient education, tooth brushing, flossing, and oral rinses. In NZ, Smith (2010) and Kelsen et al. (2018) also highlighted a need for guidelines for more affordable, timely access to oral health care, provided by appropriately trained individuals as well as identification of foreseeable barriers. To achieve this, a multidisciplinary, collaborative team approach is indispensable (Harris et al, 2008; Kelsen et al., 2018; Smith, 2010).

Nurses also mentioned the need of clarify the purpose of oral care to enhance their awareness of the significance of oral care, and the benefit of oral care for patients. To actualise this, there is an urgent need for oral care protocol and oral assessment tool for



older adults to clarify the purpose and guidance to facilitate nurses and HCAs oral care practice in hospital. Therefore, targeted education to fill the gap in knowledge and practice based on the protocol to overcome this barrier is clinical significance. Establishment of oral care protocol can set the standard and guide for oral care assessment, care plan, and care delivery, and this will be incorporated into education of staff, patients, and families (Gibney et al., 2015; Harris, et al., 2008).

## **6.2. Training for oral care**

Nurses and HCAs in the questionnaire and interviews reported a lack of oral care training. Furthermore, even among the nursing staff who received oral care training, this training does not appear to reflect their confidence levels in delivering oral care. The interviewed nursing staff also indicated they are not sure what to do from assessment to actual intervention, and they also admitted a lack of education and training about oral health. This may indicate that current oral care training is not effective to support the oral care practice of nursing staff.

Many studies stated that lack of oral care education and training negatively influences nursing oral care delivery (Cocker, 2016; Hester, 2017; Kelsen et al., 2018). Both nurses and HCAs often have no formal training in how to perform either oral care or feeding assistance, and often the only traditional training for task-based care is classroom or video based (Hester, 2017; Kelsen et al., 2018). Even though oral care training guides and online training resources are available in NZ, nurses do not know where to find these (Kelsen et al., 2018).

Hester (2017) criticised that oral care is often assumed simple task and often the use of oral care skills are not evidence based and even harmful to patients. Therefore, Hester (2017) recommended empowerment training for nursing staff to explore current knowledge and practice through teamwork and creating learning opportunities via hands on practice and discussion in focus groups. Smith (2010) and Kelsen et al. (2018) also advocated for improvement in oral health knowledge and training for care staff within facilities, in particular how to provide for care dependent older adults' day-to-day oral hygiene care. Development of a workforce with the skills to meet the dental needs of the older population is an urgent need, and this may involve using dentists and other dental professionals to provide a service that is seamless and equitable (Hester, 2017; Kelsen et

al., 2018). Oral care practical sessions with these available resources and dental professionals training will be beneficial for nursing staff's oral care training (Kelsen et al., 2018).

The National Health Service (NHS) (2015) established a mouth care team that includes dental care professionals. This team implemented interactive oral care teaching sessions for all health care professionals, provided ward-based training and support, produced denture awareness stickers to reduce the number of lost dentures, and distributed mouth care matters resources (posters, newsletters, manual and e-learning) (NHS, 2015). An audit of this campaign found positive health outcomes in patients, improvements in staff oral care delivery and positive responses to the training, and positive feedback from patients and their families (NHS, 2015). Similarly, Gibney et al. (2019) studied the effectiveness of training on the ward by practicing care-dependent patient oral care, and by dental health therapists providing education to nursing staff. They found that nurses improved the oral health of older patients to a level similar to that achieved by oral health therapists (Gibney et al., 2019). It is important to have a systematic approach for oral care that includes interprofessional collaboration, education and training sessions based on an oral care protocol, and repetitive in-service sessions.

Communication training is also a key to enhance oral care delivery of patients with high stress, dementia, delirium, and aphasia (Nordenfelt, 2009; Hoben et al., 2017; Inouye et al., 2014; Unfer et al., 2012), as the majority of nursing staff indicated that patient challenging behaviours is the greatest barrier for oral care delivery. Patients with communication difficulties tend to respond better in familiar environments (Hoben et al., 2017; Inouye et al., 2014). To facilitate the familiarization of these patients with the hospital environment, families and significant others involvement in their care is indispensable (Inouye et al., 2014). Special communication skills that enhance the resilience, flexibility, and creativity including negotiation of nursing staff (Nordenfelt, 2009) is also important for oral care training of patients with dementia, delirium, or in distress.

Best Practice (2004) recommended behaviour management of and communication with patients with challenging behaviours due to dementia through the use of the dementia communication techniques of chaining (helping patients hold a toothbrush to help them

understand oral care intervention), bridging (helping patients complete oral care by taking over the task from them), and rescuing (when another carer joins or takes over the task if one carer experiences difficulties due to increased agitation or resistive behaviour). However, research on the effectiveness of interventions to prevent and manage responsive behaviours, and to improve care providers' communication skills, is still insufficient and inconclusive (Hoben et al., 2017). It is important to enhance staff knowledge that responsive behaviours may be the only way residents with dementia can communicate unmet needs such as discomfort, pain, fear, or dislike of care provided (Hoben et al., 2017). Furthermore, nursing staff need training to enhance therapeutic relationships with patients and person-centred communication approaches are key to preventing and overcoming responsive behaviours (Hoben et al., 2017; Nordenfelt, 2009).

Forsell et al (2011) stated that perceived unwillingness of older adult patients to receive oral care is reduced after nurses complete advanced dental hygiene education. Therefore, dental hygiene education and training should aim at changing attitude of nursing staff towards oral care (McCullough et al., 2007; Harris et al, 2008; Smith, 2010; Kelsen et al., 2018). Interestingly, Janssen et al (2014) stated that oral care training and education based on oral health care protocol significantly improved the knowledge level of nursing staff, however, there was no significant improvement in their attitude to deliver oral care.

The NHS (2015) example suggests that organisational level of support for oral care training and education sessions is an important factor. This is happening at the WDHB level, through an oral care session in the NETP programme and ward-based in-service oral care sessions, as well as beyond the DHB level with an Auckland regional enrolled nurse study day session for oral care. However, these sessions are largely ad hoc, and the WDHB does not have a systematic approach, or an oral care policy and protocol.

Koyama et al (2016) emphasized the importance of a systematic approach to oral care through multidisciplinary collaboration. In their view, multidisciplinary comprehensive oral care is not only important for oral hygiene and oral function rehabilitation, but also for risk management. For example, management of aspiration pneumonia risk includes various nursing interventions (such as food and liquid modification, and assist for adequate sitting posture and position of the neck), as well as treatment of underlying

conditions (such as medical conditions, cognitive impairment, and dysphagia), therefore it is best performed by a multidisciplinary comprehensive care (MDCC) team. A MDCC team can increase the availability of support and staff motivation, as well as coordinate multi-disciplinary interventions to assess and treat frail older adults in a timely manner and perform long-term monitoring (Koyama et al., 2016).

### **6.3. Facilitators**

The barriers for oral care identified in interviews form the biggest part of the interview data. This reflects the significance of nursing staff perception of barriers for oral care delivery, which are predominately time and resource constraints, and patients physical, medical disabilities. In particular, in the acute settings, medical procedures are more prioritised than prevention of harm and patient's comfort by nursing staff. Nurses are pressured to do more medicalised care which needs to be done on time. Therefore, nurses and HCAs described their efforts, struggles, and creativity to overcome the barriers in delivering oral hygiene care. The motivators and facilitators they described were only from the individual level: from the patient and health professional side, not from the organisational level. The motivations of the interviewees are rooted from their own ethical commitment and responsibility to keep patients free from pain and discomfort, and to avoid harm, as well as their compassion to put themselves in others' shoes. They said they sometimes sacrifice their time to complete all their daily nursing duties. Therefore, nurses who are aware of the importance of oral care struggle with their workload, and experience frustration, despair and/or apathy as a result of not being able to deliver oral care as much as they want. Such nursing staff struggles, and stresses around oral care delivery need to be understood and mitigated by increasing the facilitators for oral care delivery, otherwise these negative factors will affect patient health outcomes as well as staff motivation for performing this work.

Hoben et al. (2017) identified that facilitators for nursing staff delivery of oral care include having sufficient knowledge and training in oral care, time, teamwork, and supplies. Additionally, good communication between health professionals is a great facilitator to enhance teamwork to complete oral care effectively (Hoben et al., 2017; Inouye et al., 2014). In one interview, a senior surgical nurse suggested the importance of loop communication between nurses and HCAs. This refers to both sides needing to report

back to each other about oral care implementation to their patients when oral care is delegated to HCAs by nurses.

The perceptions of nurses and HCAs towards oral health reflects their oral hygiene practice to their patients (Cocker, 2016; Smith & Thomson, 2017; Unfer et al., 2012). The interviews suggested that experienced RN and HCAs tend to view oral health from a holistic nursing care intervention to improve patients' overall well-being. They often referred to their own experiences looking after their family members, or as patients themselves. They incorporate their experiences, thoughts, and feelings into their own practice improvement, and advocate for patients and their families. Furthermore, Marshal and Finlayson (2018) identified that nontechnical skills are the critical skills that nurses need to overcome difficult situations. Nontechnical skills are defined as the cognitive, social and personal resource skills that complement technical skills, and these skills contribute to safe and efficient task performance (Marshal & Finlayson, 2018). They are communication, leadership and management, planning, decision-making, situation awareness, teamwork and patient advocacy, and of these, communication was foremost important (Marshal & Finlayson, 2008). Consistent with this, senior nursing staff indicated that they use problem-solving approaches, communication skills, and leadership to overcome difficulties associated with working in teams and have a high level of commitment for professional development based on their ethics. In this way, they are role models for less experienced nursing staff. Therefore, it is important to have a skill mix in the ward to facilitate and maintain quality of care delivery, including oral care, for care-dependent patients.

Hoben et al (2017) stated that families often have rich biographical knowledge that can enhance understanding patient behaviour, identify unmet care needs, and apply appropriate care strategies. Families are generally motivated to be involved in providing care, but they are not comfortable performing patient oral care due to their limited medical knowledge. Nursing staff need to know level of health literacy of patients and their families and make an effort to build partnerships with them (Hoben et al., 2017; Inouye et al., 2014). Good communication amongst health professionals, patients and their families can make oral care easier by knowing patient likes, dislikes, and routines,

thereby enabling nursing staff to adjust their practices to make patients more comfortable (Hoben et al., 2017).

Hoben et al. (2017) concluded that issues around how to develop effective strategies for overcoming barriers and increasing facilitators of oral care delivery is one of the most critical research gaps. In particular, strategies to manage older adults' resistive behaviours and to improve the oral care knowledge of nursing staff are urgent needs (Hoben et al., 2017). Therefore, interprofessional efforts to establish evidence-based oral care protocols and oral assessment tools to increase facilitators for oral care delivery are critical. Such evidence-based protocols will be a foundation for more effective and standardised education and training that will enhance knowledge and techniques for oral care delivery. This advanced education and training will improve oral care delivery, and lead to improved oral health of older adults with complex medical conditions (Dolce et al., 2014; Harris et al., 2008; NHS, 2015; Unfer et al., 2012; Yoon & Steele, 2012;).

For nursing staff to deliver oral care as an essential nursing care, it is important for them to feel supported and acknowledged by the organisation for their daily efforts to deliver oral care. One way the organisation can help increase facilitators for nursing staff to deliver oral care is to celebrate the daily efforts of staff in delivering oral care for care-dependent older adults (Forsell et al, 2011). For example, the organisation could establish an award for wards and/or individuals who make outstanding efforts or bring a positive change in oral care delivery in hospital.

Oral health is intimately connected with systemic health, therefore it is important to support older adults' overall health in the later stages of life to maintain quality of life. In hospital settings, as the general condition of older adults worsens, their oral health also deteriorates. However, currently nursing staff in acute settings tend to focus more on medical care while fundamental nursing care to maintain general health, in particular oral care, is often missed due to lack of oral care protocols, resources, and heavy workloads. These difficulties in delivering oral care for care-dependent older adults causes nursing staff to feel frustrated, and to feel guilt and ethical dilemmas, which can lead to poor job satisfaction. A facilitator of oral care delivery for nursing staff is the prevention of adverse health outcomes. I identified that nursing staff are well aware of the negative health effects of poor oral health in care-dependent older adults in hospital. In the questionnaire

and interviews, the nursing staff noted that poor oral health can cause aspiration pneumonia, mouth ulcers, dry mouth, dysphagia, speech problems, respiratory distress, and even trigger psychological symptoms of dementia such as delirium, agitation, and aggression. Positive patient health outcomes coming from the delivery of oral care can motivate nursing staff, leading to empowerment of their practice and enhancement of their health professional identity. Furthermore, nursing staff are in the optimal position to assess and advocate for the significance of oral care in preventing deconditioning due to dysphagia, respiratory tract infection, and malnutrition. Therefore, it is important to have strategies to increase the facilitators for nursing staff to re-focus on delivering oral care as an essential care to prevent harm and enhance patient comfort.

#### **6.4. Strengths and limitations of this study**

This study's strength is that barriers and facilitators of oral care practice were identified from the substantial quantitative and qualitative data from the local nursing community in two hospitals in WDHB. For example, I could identify that evital documentation as an extra workload is a specific barrier to hospital nursing oral care practice in WDHB.

This study also has a few important limitations. The primary limitation of this study is the small and unequal numbers of participants in different job roles (RN, EN and HCA) and areas of practice. Furthermore, the sampling technique is purposive sampling to make sure the sample size is appropriate for representing nursing staff opinions around oral care. However, the sample sizes of the Registered Nurse, Enrolled Nurse, and HCA categories in each ward is varied, meaning the ability to generalise from the results is limited.

Survey answers were self-reported and questions in the questionnaire, particularly on formal/informal training are not defined clearly. Therefore, the accuracy of participant answers for these questions may have been compromised.

The qualitative part of this study is limited in its scope because most of the participants are from general medicine. More robust data triangulation (questionnaire and interviews) and member checking (interviewing health professionals) could have contributed to the trustworthiness of the data. Future research might consider more exhaustive sampling from each job role and area of practice, revision of the questionnaire to clarify the

definitions used in the questions, and qualitative data collection by a third party to enhance the trustworthiness of the data.

## **6.5. Conclusion**

This study aimed to identify the factors that impede nursing delivery of oral health care and determine what is required to overcome these barriers. Data from 176 questionnaires and 13 interviews were collected from nurses and HCAs in two hospitals. The results indicated three main barriers to oral care delivery: 1. oral care practice gaps, barriers, and facilitators; 2. insufficient oral care delivery training; and 3. lack of oral care protocols and policies.

The most prominent barriers identified by nursing staff were patients' challenging behaviours, and a lack of time. The results also indicated that current oral health education and training are not effective to support delivery of oral care, in particular for care-resistant and NBM patients. Oral care is spontaneous, variable, subjective, and not informed by evidence-based care, and nursing staff motivate themselves by their internal facilitators, such as patient' comfort, better outcomes of health, and compassion by reflecting their own health to overcome gaps and barriers for oral care. These problems appear to be routed from a lack of oral care protocols.

Establishment of an oral care protocol is the primary step that can be taken to make oral care delivery for care-dependent older adults in hospital more visible. Such a protocol will support the assessment, care plan, care delivery, and care evaluation performed by nursing staff, as well as increasing their knowledge and awareness. Oral care training based on an evidence-based oral care protocol needs to be implemented repetitively to enhance staff awareness of the significance of oral care practice, and to ensure maintenance of oral care delivery. An evidence-based oral care protocol and oral care training based on this protocol will further facilitate nursing staff to implement a high quality of care delivery that improves quality of life and produces better outcomes for care-dependent older adults.

Oral care can be a challenging and complex intervention for nursing professionals due to comorbidities and severe physical and cognitive disabilities of care-dependent older adults. Delivery of oral care for these patients requires extra skills and attention that



includes comprehensive oral care assessment, special communication skills and approaches, and the appropriate usage of tools. Therefore, there is an urgent need to enhance interprofessional collaboration to establish a comprehensive, practical, and easy-to-use oral care protocol. Furthermore, institutional level support is indispensable to promote this interdisciplinary collaboration. An oral care protocol is the foundation for enhancing awareness for oral care, more effective oral care education and training, and improved oral care delivery. This will result in positive health outcomes for care-dependent older adults through empowerment of nursing staff to deliver oral care in hospital by overcoming the barriers and increasing the facilitators for oral care delivery.

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## Appendix A

### Questionnaire: Barriers and facilitators in the delivery of oral cares for older adults in a hospital setting

The purpose of this research project is to gain a better understanding of the barriers and facilitators in the provision of oral care by nurses/ HCAs for hospitalised older adults. Your participation in this survey will be helpful to understand current nursing oral care practices and identify the issues around oral care for older adults admitted in a hospital setting. You are invited to answer this questionnaire, and its completion means consent to participate in this research.

#### Questionnaire

##### I. Profile

###### Work experience

Please circle your designation

Registered nurse

Enrolled nurse

Health care assistant

Please circle your clinical practice area

Assessment Diagnostic Unit

Medical

Surgical

AT&R

Years of practice in total

( ) years

###### Education/ training

NCEA level

BA

Postgraduate certificate

Diploma Master

Doctor

###### Health care professional Education

Where were you trained?

NZ (Please specify the area; )

Overseas (Please specify the country )

##### II. Questionnaire item

###### WDHB policy

1. Do you think an oral hygiene protocol is needed on the general medicine ward?

Yes reason ( )

No reason ( )

Don't know

2. Are you aware of an oral hygiene protocol being used elsewhere in the WDHB?
- Yes
- No
- Don't know
3. Have you had any informal patient/carer education for oral hygiene?
- Yes/No
4. Have you had formal staff training for oral hygiene care?
- Yes/No
5. Are you confident to deliver oral hygiene care and assessment? Please score 0-5  
(1. Not confident at all, 2. Not very confident, 3. Somewhat confident, 4. confident, 5. Very confident)

Assessment of oral health

6. Do you perform oral assessment for older adult patients upon admission?
- Yes/No
- Don't know
7. If yes, is there an oral assessment tool you use?
- Yes/No
- Don't know
8. How frequently do you assess older adult patients' oral status?
- Depends/variable
- 2-4 hourly
- Daily
- Twice daily
- After meals or TDS
9. Do you include oral care in your Nursing care plan (clinical notes) for older adult patients

requiring oral care?

Yes/No

10. Do you include oral care in your Nursing care plan for NBM older adult patients?

Yes/No

11. Who do you think should deliver oral hygiene care? (Circle all that apply)

Healthcare assistants

Nurses

Carers

If you can, please provide the explanation for this

(  
)

Oral hygiene practice

12. What kind of oral care tools are available in the ward?

Electric toothbrush

Manual toothbrush

Toothpaste

Foam swab

Cotton wool

Mouthwash tablets

Gloved finger

Dental floss

Chlorhexidine gel

Mint mouthwash

13. How long do you spend time to deliver oral hygiene care?

Less than 20 seconds

20-60s seconds

60-120 seconds

More than 2 minutes

14. Do you experience difficulties delivering oral hygiene care?

Yes

No

If yes, please circle the reasons or factors contributing to difficulties to oral hygiene care.

Lack of time

lack of tools

not sure how to deliver oral care

patients challenging behaviour

not priority

Other ( )

15. How often do you deliver the following oral hygiene care interventions to older adult patients?

a. Oral cavity rinsed

2-4 hourly

Daily

Twice daily

TDS

Not specified

b. Natural teeth cleaning

Daily

Twice daily

After meals

Not specified

c. Tongue, palate and gums cleaning

2-4 hourly

Daily

Twice daily

After meals or TDS

Not specified

16. How do you perform denture care?

Left in-situ all of the time

Removed through daytime, inserted for meals

Removed through daytime, inserted for meals/visiting

Removed overnight

No generic approach

17. How do you wash dentures?

Water/non-fragrant soap

Corsodyl/chlorhexidine

Mouthwash tablets

Sodium bicarbonate

Saline/sodium chloride

Toothpaste

Patients' own products

18. Which of the following products/methods do you use for dry mouth? (Circle all that apply)

Artificial saliva

Moisturising with foam swab

Food staging, dietician referral FBC

Thank you very much for your time filling in this questionnaire. We are planning to interview nurses and HCAs to gain a better understanding of oral nursing practice in hospitals. Please complete the separate page for your contact details.

----- Separate here for anonymity of questionnaire -----

-----

If you are willing to be interviewed by the primary researcher, please fill out your name and contact details below:

Name ( )

Designation ( )

Email address ( )

Phone number ( )

Approved by the Auckland University of Technology Ethics Committee on **17/07/2017**, AUTEK Reference number **17/201**.

## **Appendix B**

### **Date Information Sheet Produced:**

24<sup>th</sup> May 2017

### **Project Title**

The barriers and facilitators to deliver oral care for older adults in hospital

### **An Invitation**

You are invited to take part in a research project exploring nursing oral care practice for hospitalised older adults with co-morbidities (including dementia and physical disability). Your participation in this project is entirely voluntary. You have a right to withdraw at any time, and this will not affect your practice in any way.

### **What is the purpose of this research?**

The purpose of this research project is to gain a better understanding of the barriers and facilitators for nursing oral care for hospitalised older adults with co-morbidities so we can prevent older patients deconditioning and improve their health outcomes. In this project, we will use a methodology, called mixed methods research. You will be asked to complete a questionnaire and a semi-structured interview, if you agree. The mixed method research methodology supports your participation in research processes by filling questionnaire, and being interviewed about your oral care practice, and possibly promotes changes in practice to improve nursing care delivery. We plan to use the information gained in collaboration with you to create an oral care protocol and standardisation of oral care.

### **How was I identified and why am I being invited to participate in this research?**

You are working as a nursing staff or health care assistant who delivers daily hygiene care and supports older adult patients' ADLs in the general medical ward. Older adult patients with co-morbidities tend to be dependent for oral care due to their disabilities, and oral care is one of the most neglected nursing care interventions in hospital settings. To understand current oral care delivery, you were chosen to complete a questionnaire and potentially be interviewed about your experiences of oral care delivery in the ward. If you choose to participate, your contact information will be passed to a researcher, who will keep this confidential.

### **How do I agree to participate in this research?**

Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You can withdraw from the study at any time by not filling questionnaire or discontinuing interview. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing

it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

### **What will happen in this research?**

In addition to completion of the questionnaire (it takes 10-15 minutes to fill), we will ask permission to conduct an interview with you. If you give us consent, you will be interviewed for 30-45 minutes by a researcher about your experiences of delivering oral care for the patients. This interview will be audio-taped.

### **What are the discomforts and risks?**

There is a possibility that you may feel uncomfortable or distressed during the interview talking about your challenging experiences delivering oral care for patients, and about your own oral health. The researchers are fully aware of the challenging nature of nursing oral care delivery, and they are trained to be supportive and respect all participants' privacy and experiences. Therefore, we believe there is no risk for participants in sharing their experiences.

### **How will these discomforts and risks be alleviated?**

Being a nurse, the researchers are aware of challenging experience of nurses and HCAs to provide personal hygiene care, oral care to hospitalised care-dependent older adults. The primary researcher who administers questionnaire and interview will offer a comfortable, private, and safe environment to you to facilitate your participation to this research. The primary researcher will make you feel your participation fully appreciated, respected, free from judgement as a respectful health professional.

AUT Health Counselling and Wellbeing is able to offer three free sessions of confidential counselling support for adult participants in an AUT research project. These sessions are only available for issues that have arisen directly as a result of participation in the research, and are not for other general counselling needs. To access these services, you will need to:

- drop into our centres at WB219 or AS104 or phone 921 9992 City Campus or 921 9998 North Shore campus to make an appointment. Appointments for South Campus can be made by calling 921 9992
- let the receptionist know that you are a research participant, and provide the title of my research and my name and contact details as given in this Information Sheet

You can find out more information about AUT counsellors and counselling on <http://www.aut.ac.nz/being-a-student/current-postgraduates/your-health-and-wellbeing/counselling>.

### **What are the benefits?**

There are benefits to your professional development recognition programmes for taking part in this project as a co-researcher. You will be contributing to the creation of an oral care protocol in the WDHB that may benefit patients' health outcomes. One goal of this participatory action research project is to enhance the nursing team's capacity and collaboration with the MDT, and this could result in a better delivery of services



for your patients. In addition, some people find that being interviewed, and discussing sharing their practice experiences is an enjoyable and/or interesting experience.

**How will my privacy be protected?**

Questionnaire data will be coded as Nurse A or HCA B, thus the data you will provide will be not identifiable as an individual, and your privacy will be protected.

Interview recordings and transcripts will be kept strictly within the research team. No information identifying you as an individual participant in this project will be included in any of the project reports or publications.

**What are the costs of participating in this research?**

The only cost to you taking part in this research is your time to complete a questionnaire and be interviewed for 30-45 minutes by a researcher. Interviews will take place in the ward while you are on duty.

**What opportunity do I have to consider this invitation?**

Questionnaire; the primary researcher will deliver a short presentation about this research. You can decide whether you will fill the questionnaire on site.

Interview; you will be contacted by the primary researcher on a phone two weeks prior to interview, once you give a consent to be interviewed, and the researcher select you to be an interviewee.

**Will I receive feedback on the results of this research?**

Research findings will be shared with you in the charge nurse meetings and ward meetings, and you can also choose to receive a summary of the research findings in an electric form.

**What do I do if I have concerns about this research?**

Any concerns regarding the nature of this project should be given in the first instance to the Project Supervisor

Project Supervisor; Jed Montayre, jed.montayre@aut.ac.nz, 921 9999 ext 6056.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTC, Kate O'Connor, [ethics@aut.ac.nz](mailto:ethics@aut.ac.nz) , 921 9999 ext 6038.

**Whom do I contact for further information about this research?**

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

**Researcher Contact Details:** Keiko Oda, RN, PG Dip, HSc. [Keiko.ODA@waitematadhb.govt.nz](mailto:Keiko.ODA@waitematadhb.govt.nz)

**Project Supervisor Contact Details:** Jed Montayre, RN, MN, PhD, DipT. [jed.montayre@aut.ac.nz](mailto:jed.montayre@aut.ac.nz)

## **Appendix C Interview questions**

### **Interview questions**

1. Do you have any questions or comments arising from questionnaire?
2. What makes you decide to do oral care for your patients? (care dependent, diagnosis, oral cavity conditions, dysphagia, NBM)
3. Do you have any informal or formal training for oral care? if so, could you please tell me about the training you had.
4. What is the barrier for you to deliver oral care when you are working in the ward?
5. What facilitates you to deliver oral care for care dependent patients?
6. In a typical day, what types of oral care do you deliver for patients? Are there any basic procedures?
7. How confident do you feel providing oral care to patients?
8. What tools are available for you in the ward to deliver oral care?
9. What is patients' response to the oral care you deliver? what effect does it have on the mouth care you perform?
10. What suggestions or ideas do you have to enhance the quality of oral care that patients receive in the ward?

From questionnaire data collection and analysis, I gained consent for interview from 40 participants.

13 interviewees were selected to ensure appropriate representative of participants. 1 RN from ADU, 8 from medical ward (6 RNs that includes 2 RN from stroke ward, and 2 HCAs), 2 RN (AT&R), and 1 RN from surgical ward. I conducted 3 pilot interviews prior to implement to check the appropriateness of questions to obtain the data to identify barriers and facilitators for oral care from another 10 interviewees. As a result of three interviews, I added two more additional questions to encourage interviewees to describe their actual oral care practice as follows;

11. Is there any particular patient who you find difficulty to deliver oral care? Such as comatose, delirium, or palliative patients?
12. Could you please describe how you perform oral care? Procedure. How to brush teeth, any order? How long does it take? Is there any difficulty, uncertainty for your technique?

Interview duration was between 20-40minutes and audiotaped. All participants interviews were transcribed into verbatim. The verbatim was analysed by using thematic analysis technique

## Appendix D

17 July 2017

Jed Montayre  
Faculty of Health and Environmental Sciences

Dear Jed

Re Ethics Application: **17/201 The barriers and facilitators to deliver oral care for older adults in hospital setting**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 17 July 2020.

### Standard Conditions of Approval

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through <http://www.aut.ac.nz/researchethics>.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through <http://www.aut.ac.nz/researchethics>.
3. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form: <http://www.aut.ac.nz/researchethics>.
4. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTEC grants ethical approval only. If you require management approval for access for your research from another institution or organisation then you are responsible for obtaining it. You are reminded that it is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

For any enquiries, please contact [ethics@aut.ac.nz](mailto:ethics@aut.ac.nz)

Yours sincerely,



Kate O'Connor  
Executive Manager  
**Auckland University of Technology Ethics Committee**

Cc: [keiko.oda@waitematadhb.govt.nz](mailto:keiko.oda@waitematadhb.govt.nz)

## Confidentiality Agreement

Personal responsibility to maintain confidentiality, privacy  
and security of WDHB information



**Contract Code:** CON31313  
**Project Code:** RM13722  
**Title:** What are the barriers and facilitators among registered nurses in delivering oral care for older adults in hospital?  
**WDHB Contact:** Keiko Oda

**Department:** Anawhata Ward **Type:** Observational research

- ➡ I understand that at all times I must maintain the confidentiality of information that I become aware of during the course of my role as researcher/research assistant. Information about Waitemata District Health Board (DHB), its patients and employees must not be disclosed to persons not entitled to know.
- I will comply at all times with the Privacy Act, Health Information Privacy Code, privacy policy and procedures of Waitemata DHB plus any policies or procedures I must adhere to as part of a professional body. (The Privacy act and Code can be viewed at [www.privacy.org.nz](http://www.privacy.org.nz)). I am aware that an inappropriate use or disclosure of information could result in disciplinary action, referral to a professional body or complaint to the Privacy Commissioner.
- I will participate fully in any complaint process or investigation that may arise during the currency of the research protocol or thereafter.
- \_\_\_\_\_ Initial
- ➡ I understand that I must only access health information directly related to the research protocol specified. I will not use my authorised access inappropriately. I may be called upon to account for my access to information when its justification is not immediately apparent.
- \_\_\_\_\_ Initial
- ➡ Where I have approved access to a security password or other identifier I am personally responsible to not disclose this. i.e. I am responsible for the electronic identity and signature.
- \_\_\_\_\_ Initial
- ➡ I will take all reasonable actions to:
- Make sure that confidential information is not accessible to unauthorised people, i.e. no discussion of information in a public place; papers and records will be kept secure and not able to be accessed by the public; careful faxing and emailing of information; transporting information securely using formal processes; turning screens away from public viewing and using screen lock-out; not discussing patient information in public places
  - Check the identification of anyone i.) accessing confidential information or ii.) present in areas where they do not have approved access
  - Immediately report any breach or compromise, verbally and in writing.
- \_\_\_\_\_ Initial
- ➡ I acknowledge that:
- Upon completion of my work for Waitemata DHB, I must return to Waitemata DHB all ID, security access cards, keys, documents and material containing information on patients, services, finances, commercial operations or information systems of Waitemata DHB.
- \_\_\_\_\_ Initial
- ➡ I will adhere to the requirements of the ethics Committee as regards to storage and destruction of research materials and patient information.
- \_\_\_\_\_ Initial

### I have read and understood my responsibilities

**Name (print please)** .....

**Position related to this Project:** .....



# Confidentiality Agreement

## for Interviewees

### Individual Interview Data (Audio-recorded)

Copies of this confidentiality agreement are available in Filipino and English

**Project title:** *Is oral care a forgotten nursing practice? What are the barriers and promoters to deliver oral care for older adults in hospital?*

**Project Supervisor:** *Jed Montayre, AUT lecturer, PhD*

**Researcher:** *Keiko Oda, RN, PG Dip HSc*

☐ I have read and understood the information provided about this research project in the Information Sheet dated \_\_\_\_\_.

☐ I understand that the identity of the participants and the stories and data disclosed during the individual interview, which I have accessed through the audio records are confidential and I agree to keep these information confidential.

Participant signature : .....

Date:

***Approved by the Auckland University of Technology Ethics Committee on 17/07/2017, AUTC Reference number 17/201***

*Note: The Researcher should retain a copy of this form.*

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**Contract Code:** CON31313  
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**Title:** What are the barriers and facilitators among registered nurses in delivering oral care for older adults in hospital?  
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**Department:** Anawhata Ward **Type:** Observational research

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- I will comply at all times with the Privacy Act, Health Information Privacy Code, privacy policy and procedures of Waitemata DHB plus any policies or procedures I must adhere to as part of a professional body. (The Privacy act and Code can be viewed at [www.privacy.org.nz](http://www.privacy.org.nz)). I am aware that an inappropriate use or disclosure of information could result in disciplinary action, referral to a professional body or complaint to the Privacy Commissioner.
- I will participate fully in any complaint process or investigation that may arise during the currency of the research protocol or thereafter.
- \_\_\_\_\_ Initial
- ➡ I understand that I must only access health information directly related to the research protocol specified. I will not use my authorised access inappropriately. I may be called upon to account for my access to information when its justification is not immediately apparent.
- \_\_\_\_\_ Initial
- ➡ Where I have approved access to a security password or other identifier I am personally responsible to not disclose this. i.e. I am responsible for the electronic identity and signature.
- \_\_\_\_\_ Initial
- ➡ I will take all reasonable actions to:
- Make sure that confidential information is not accessible to unauthorised people, i.e. no discussion of information in a public place; papers and records will be kept secure and not able to be accessed by the public; careful faxing and emailing of information; transporting information securely using formal processes; turning screens away from public viewing and using screen lock-out; not discussing patient information in public places
  - Check the identification of anyone i.) accessing confidential information or ii.) present in areas where they do not have approved access
  - Immediately report any breach or compromise, verbally and in writing.
- \_\_\_\_\_ Initial
- ➡ I acknowledge that:
- Upon completion of my work for Waitemata DHB, I must return to Waitemata DHB all ID, security access cards, keys, documents and material containing information on patients, services, finances, commercial operations or information systems of Waitemata DHB.
- \_\_\_\_\_ Initial
- ➡ I will adhere to the requirements of the ethics Committee as regards to storage and destruction of research materials and patient information.
- \_\_\_\_\_ Initial

### I have read and understood my responsibilities

**Name (print please)** .....

**Position related to this Project:** .....



