Implementation of effective health promotion by dental practitioners in the public health sector

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Thesis presented for the degree of
Doctor of Philosophy
Charles Sturt University
August 2014
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American Dental Education Association (ADEA) Scholarship Recipient 2014
Funded attendance at ADEA 2014 Conference, Barcelona Spain; abstract and PhD findings accepted to be presented at this conference. Requested article for submission to ADEA Journal attached in Appendix, page 197.
Certificate of Authorship

I hereby declare that this submission is my own work and to the best of my knowledge and belief, understand that it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at Charles Sturt University or any other educational institution, except where due acknowledgement is made in the thesis. Any contribution made to the research by colleagues with whom I have worked at Charles Sturt University or elsewhere during my candidature is fully acknowledged. I agree that this thesis be accessible for the purpose of study and research in accordance with normal conditions established by the Executive Director, Library Services, Charles Sturt University or nominee, for the care, loan and reproduction of thesis, subject to confidentiality provisions as approved by the University.

Name: Helen Rose Tane

Date: August 2014

Signature
Acknowledgements

I would like to firstly acknowledge Professor Anne Bonner who guided the beginning of the thesis from the commencement of my candidature before her departure from CSU. Professor Bonner’s experience of research, higher degree writing skills and especially the wealth of knowledge embedded in qualitative research methods, were a significant advantage in the early phases of this research.

Over the course of the entire thesis and for many years prior to the commencement of my candidature, Professor’s Clive Wright and John F Smith have provided ongoing guidance and support. Their constant encouragement, academic knowledge and writing skills have provided rigorous direction at innumerable times, especially when most needed. Professor Patrick Ball picked up when Professor Bonner left CSU, agreeing to work with me even after he had also departed from CSU. I acknowledge that without the support from these four professors, this thesis would not have been completed.

I consider I am fortunate that I have had a life-time of exposure to public health ideologies by being born into a family dominated by stalwart nurses who worked in public health, starting with my grandmother who was appointed during the infancy of New Zealand’s public health sector in the early 1900’s. I also acknowledge the learning opportunities provided to me by patients in my care, I have been challenged and provoked to learn more by the partnerships we formed in endeavouring to improve their oral health, eventually leading me to write this thesis.

Lastly I must acknowledge the life-long support from Kiri. It is his unfailing belief in me that continues to matter the most.
Journal article, accepted conference abstracts and published government report arising from this thesis.


Tane, H R. (2012) Is oral health improved by the way therapists provide care in a clinical setting? Capital Ideas in Health, ADOHTA Conference Canberra 18 – 20 August


*A condition of being the recipient of the 2014 ADEA scholarship to attend and present the major findings of this thesis at the 2014 ADEA conference, was to submit an article to the ADEA Journal to be peer reviewed for publication. The draft of this article is inserted in the appendix page 197.

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ABSTRACT

Background
The oral health therapist has evolved today to be part of a primary oral health team. The oral health therapist has skills in early diagnosis, and core dental treatments with an emphasis on the prevention of oral diseases and timely referrals for specialist care when necessary. Oral health therapists are named dental practitioners when they gain entry to practice. The current Australian and New Zealand registering bodies which regulate the oral health therapy profession, requires that therapists promote and improve health of individuals and the community by understanding and applying principles of primary health care, health promotion and disease prevention. Skills in detection, prevention and protection from disease form an essential function in the public health sector, but the significance of this role within the public oral health sector has not received noticeable consideration, despite a long history of identifying this is an essential part of oral health care. The oral health therapy profession has the capacity to improve health outcomes at an individual and wider community level. How oral health therapists go about implementing their approaches to oral health promotion is central to this thesis. The main research questions of this thesis were; do oral health therapists undertake oral health promotion practise in their routine day-to-day practice; do they consider they hold competency in this scope of practise; do they have knowledge about the most up-to-date methods in oral health promotion.

Methods
In this research, a cohort of 78 oral health therapy professionals were surveyed; 57 responded giving a 73% response rate. Information regarding issues and practises related to oral health promotion was further sourced from 48 participants attending an international oral health therapy conference workshop, resulting in 100% response rate from this cohort. Both sets of
questions for these participants were self-designed by the researcher. Considering the simple design of the questionnaire and small potential pool of study participants, the questionnaire was pilot tested on one practicing oral health therapist of equivalent standing to the potential study participants. This therapist’s responses were not included in the study, but her comments were used in the final development of the questionnaires.

To analyse the data, a mixed method approach was used. A statistical test of independence using a Fisher’s exact test was applied to questions one to nine in the postal questionnaire, and a qualitative interpretation was applied to questions ten to fourteen. A pure phenomenology approach was utilised in parts of the questionnaire and conference proceedings question design, and hermeneutic phenomenology utilised in both data interpretation as well as questionnaire and conference proceedings question design.

**Results**

A significant finding in this thesis was that a high number of oral health therapists considered that oral health promotion is not their practising role definition, neither was it supported by management in most public health settings. Whilst there is significant interest in the scope of practice and levels of competence in clinical tasks, very little interest has been paid to competency and capability in health promotion. The most significant finding was that the “place of work” had an impact on the currency of health promotion knowledge of the oral health therapists as well as their health promotion level of activity. Published literature has highlighted some areas where health promotion capacity building has occurred, and study participants from these areas indeed did show a higher level of engagement in oral health promotion and they had been supported by management to participate in courses to update their skills.
Conclusions

The findings of this study can be used to guide practice, to better utilise the health promotion role of the oral health therapist, and to inform curriculum development on strengthening capacity building within undergraduate and continuing professional development courses. These include the exploration of individual approaches to improve health in dental settings and how ‘entry to practice’ oral health therapists can better utilise levels of health promotion competencies gained in their undergraduate degree courses, in the current understaffed public oral health system.
1. Introduction

1.1 My professional journey

My professional journey leading to writing this thesis has been informed in the main, by over twenty five years of clinical practice in public health settings, working in rural and regional, low socioeconomic communities over-represented by the prevalence of oral disease. Over these decades I was constantly challenged with my inability to improve health outcomes for most of the families I provided oral health care to, even though I received recognition for the high standards of clinical care I did provide. I recognised early on in my clinical career, that the level of oral disease would represent again, even after I had completed each episode of dental treatment, and would also be an ongoing presence within some families.

Regardless of my own indigenous background and understanding of an indigenous health belief model, I found my skills as a health professional to be deficient in my ability to really make a difference for indigenous patients in my care. The socio-cultural, environmental, and psychological determinants of health I learned about from patients informed me that routine dental health messages were neither appropriate nor effective, for communities where the greatest need existed. Through questioning my own practice, I learned more about applying effective preventive approaches in the clinical settings where I worked, but I was always challenged by incorporating different health belief models into daily practice, within the rapidity of a busy public health clinic; it was an expected norm to treat teeth presenting with dental decay and move on to the next patient, then the next clinic.

In the last fifteen years, I have held an academic position where I am responsible for educating oral health therapists and I have been determined to include a level of educational competence in oral health promotion in the three degree courses I have lead. In recognition that this is a beginning in the capacity in this area, I have named this thesis an exploratory
study. Improving oral health by implementing quality oral health promotion must be an integral part of a responsive public health system, and become a core competency for oral health therapists.

1.2 Background

The oral health therapy professions in dental therapy and dental hygiene were originally introduced with defined roles to prevent oral disease, having their beginnings fully embedded in a preventive role, many years ago (Brooking, 1980; Milling, 2010). Over more recent decades, the modern-day discipline of health promotion has been introduced and significantly developed. This expansion of health promoting knowledge has been embedded into oral health therapy degree courses (Satur & Moffat, 2010). This thesis offers a new interpretation and investigates the significance of health promotion within the role of the oral health therapy professions, specifically in Australian and New Zealand public health clinical settings. The discussion in the thesis explores and accesses the past health promoting experiences of oral health practitioners and questions if the preventive role within the public health sector has been effectively implemented or under-utilised. The discussion further seeks to delve into and expand rather than simplify the importance of the role of oral health promotion. The knowledge to prevent oral disease has developed significantly and to a level where the current and continuing level of financial cost, pain and suffering is unacceptable (New South Wales Ministry of Health, 2012), particularly as the evidence shows there are disproportionate distributions of disease patterns. A conclusive body of evidence shows that

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1 The collective title ‘oral health practitioner’ is a recent title (since 2000) given to dual qualified oral health therapists (therapy/hygiene) as well as single scope practitioners in dental therapy and dental hygiene who are registered to practice in Australia (Health Workforce Australia, 2013) and New Zealand (Dental Council of New Zealand, 2010a). Although courses to qualify as single scope dental therapists no longer exist in these countries, it is still possible to qualify as single scope dental hygienists in Australia but not in New Zealand.
people living in regional and rural communities, and communities especially where a higher population of indigenous people reside, have a much higher prevalence of oral disease (Centre for Oral Health Strategy, 2009; Christian, 2012; Kruger, 2010; Parker et al., 2010; Peiris, Brown, & Cass, 2008; Shukla, 2008). Further evidence has identified the marginalised groups who are most likely to suffer a higher prevalence of oral disease across all community settings (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2003, 2004; Centre for Oral Health Strategy NSW, 2013; Fairhall et al., 2009): specifically those who are new immigrants, from low income homes (Do, Spencer, Slade, Ha, Roberts-Thompson, Lui, 2010), the elderly (Philip, Rogers, Kruger, & Tennant, 2012) and people with a physical or mental disability (Pradhan, Slade, & Spencer, 2009). These studies show clear evidence that poor levels of oral health are higher for these vulnerable people. Further government reporting shows hospitalisation due to preventable dental conditions is in fact increasing (NSW Government, 2012; Centre for Oral Health Strategy, 2009), and accessibility to appropriate care for many, remains a significant issue across Australia (Health Workforce Australia, 2013). The concluding information in this thesis makes recommendations for a way forward, to better utilise the function of the oral health therapist, by identifying where the essential health promoting role must be exemplified and expanded which would be more likely to enable communities to have improved health outcomes. The thesis is also written as a response in part to the ambitious challenge made to the dental profession that oral health therapists are a vital primary oral health profession with developed skills to improve individual and community health, and are complimentary, not competitive to the role of the dentist. While the study and its’ findings revisit essential health promotion ideology, it also reveals new fields of preventive inquiry which should be implemented and utilised in the oral health practice setting. There has been no doubt that both the dental
therapy and dental hygiene vocations originated to perform prevention and health promotion within the dental setting (Brooking, 1980; Milling, 2010; The Editor, 1917). Largely due to the scientific knowledge at the time these occupations were instigated, the preventive roles were to provide dental treatment and simple prevention (Ericson, Kidd, McComb, Mjör, & Noack, 2003; Nash, Friedman, & Mathu-Muju, 2012). At the time of their early inception in New Zealand in 1921, the school dental nurse was to extract, remove decay and restore children’s teeth, in Department of Health clinics (Brooking, 1980). This model of care, along with instruction to brush teeth and eat fruit, was supported by scientific knowledge of the day believing that these practices would prevent dental disease spreading into adult teeth. The role differed significantly from the “dental dressers” introduced in Britain in 1917, who had the distinct role to extract teeth and fill cavities (which had already been drilled by a dentist), (Rowbotham, Godson, Williams, Csikar, & Bradley, 2009). This role was clearly introduced as an advanced dental assisting role so the overworked British dentists could more efficiently be utilised. The New Zealand dental profession were very clear that the dental nursing scheme introduced in 1921 was a preventive role; the New Zealand Dental Journal editorial of the time stated:

“To cure disease scientifically is a high attainment of the human art, and wins for the medical profession the well-deserved meed of public praise. To forestall disease, and thus obviate the necessity of cure, is nobler still. It is high ground of prevention that the dental profession is now called upon to occupy” (The Editor, 1917, p. 34).

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2 Renamed Community Dental Therapist in 1990 in New Zealand and then Oral Health Therapist in 1995, when the dental hygiene and dental therapy scopes of practise were integrated into the undergraduate Bachelor of Oral Health courses for the first time in Australia.

3 School dental nurse was the very first name given to this dental auxiliary vocation, before it evolved into the professions of dental therapy then oral health therapist. As noted previously, the collective professional title is currently oral health practitioner.
The preventive role for dental hygienists introduced in America in the late 1880’s (Milling, 2010) at this time, was to clean and scale teeth in the dentist’s private practice setting, and both therapists and hygienists were to instruct patients and families about brushing teeth and healthy diets.

In New Zealand, where dental therapy began as the school dental nursing scheme in 1921 and over the ensuing decades, well over ninety five percent of all children have been and continue to be enrolled in this publically funded dental service (Foster Page & Thomson, 2011; Nash, 2004; Thomson, Ayers, & Broughton, 2003). Along with providing dental care to a high number of New Zealand children, an extremely efficient public health recording system was introduced which measured the number of decayed, missing and filled teeth and kept tallies on the number of dental nurses and dentists employed in the public health sector. However, a national survey conducted in 1976 fifty years after the scheme began, found alarmingly that New Zealand people had one of the highest rates of drilled and filled teeth in the western world (Brown & Eden, 2000; Hume, 2003). So although New Zealand could boast about the high level of dental care provided to nearly all of the child population and the excellent public recording system, the level of dental disease remained higher than Australia, Wales and the United Kingdom (Ministry of Health New Zealand, 2006). Despite these findings, at the time of the New Zealand National survey in 1976, Australia was introducing a national school dental scheme modelled on New Zealand (Carr, 1975). Fortunately by 1988 when the second national oral health survey was conducted in New Zealand, and following a more preventive model of care instigated by the school dental service, a result of an increase in caries-free children across middle to high income families was evident (Thomson, 2012). However, despite the long history of the professional groups instigated to have a preventive role working in New Zealand and Australia, their ability to prevent oral disease needs to be
carefully looked at, especially as the studies continue to show a higher prevalence of dental disease for regional, rural and communities where a higher population of indigenous people reside (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2006; Brennan, Roberts-Thomson, & Spencer, 2007; Jamieson, Armfield, & Roberts-Thomson, 2006; Thomson et al., 2003). For these communities, and the marginalised people who live across rural and urban areas mentioned previously, the increase of oral disease and the pain both physically and financially continues to escalate (Australian Institute of Health and Welfare Dental Statistics and Research Unit, 2008; Centre for Oral Health Strategy, 2009; Gee, Walsemann, & Brondolo, 2012; Peiris, et al., 2008; Slack-Smith et al., 2011).

How effectively have health promotion ideologies been implemented by the dental therapy and dental professions in the public health sector? The central hypothesis of this thesis is to question whether the preventive role within the public health sector has been effectively implemented or under-utilised. One of the foremost and initial data collecting tools used in this study to investigate the hypothesis was to find out firstly if health promotion was part of the current role of oral health practitioners in public health clinics. The second part of collecting the data was to ascertain the level of self perceived competency in oral health promotion within the current oral health practitioners employed in the public health sector. To collect data for both of these questions, a postal questionnaire was sent to oral health practitioners working in two areas with similar demographics, which are explained in more detail in the methodology section. Participants who attended an international conference for oral health therapists also consented to be participants in this study, and again their inclusion is described in more detail in the methodology section. However, before the research tool to collect this data was implemented for this study, a thorough review of health
promotion and oral health promotion literature was undertaken and is presented in the following chapters.

2. LITERATURE REVIEW

Contemporary health promotion disciplines have existed for over forty years in Western countries and today it is an essential part of health services, having significant value in public health settings. Health promotion literature (Bennett, Perry, & Lawrence, 2009; Fawkes, 1997; Gracey & King, 2009; Hasnain-Wynia & Wolf, 2010; King, Smith, & Gracey, 2009; O'Sullivan, Gilbert, & Ward, 2006; Whitehead, 2005) informs that providing healthcare is no longer reserved to the narrow field of treating disease, and promoting and improving health must be a fundamental component of modern-day healthcare practice.

Collection of data for this study is restricted to New Zealand and Australia, where oral health therapists’ employment in the public sector has been well established. The literature reviewed has a wider scope and includes research from Australia, New Zealand, the United States of America, Canada, the United Kingdom and most countries in Europe. The literature review is ordered into titled paragraphs, starting with an overview of health promotion, and includes literature that has influenced health promotion and consequently oral health promotion in Australia and New Zealand. The second part of the literature review relates to oral health promotion.

2.1. Overview of Health Promotion

Initially an in-depth overview of the health promotion literature is presented to gain an understanding of how health promotion came into being. Literature that describes some of the key factors that significantly influenced the shaping and development of health promotion
is included in these chapters. It is essential to include this literature, as Australia and New Zealand were still developing countries when very early health promotion activity started, so developing health systems and their imposing beliefs about models of health, were influenced by systems already developed in other Western countries. This activity was later to have an influence and significant impact upon the development of Australian health promotion policies. There is knowledge and published literature of the historical origins of the basic concepts of health promotion and education within Greek antiquity, where health was defined as “a state of dynamic equilibrium between the external and internal environment” (Tountas, 2009, p. 185). However, the review in this study is restricted to literature that has had a more recent impact upon the development of contemporary health promotion within modern-day Western society. It is difficult to determine a specific period when health promotion became visible in government policies from a global perspective, and although initially health promotion had a very broad concept, since the 1990’s it has been specifically ordered directly into ‘settings approaches’, with such themes as ‘Health Promoting Schools’, ‘Health in the Workplace’, and ‘Healthy Cities’ (Petersen, 2003). Western countries do however, acknowledge critical phases in the literature which shaped and developed the discipline of health promotion (Terris, 1996).

It must be noted that from an indigenous perspective, there is strong evidence that health promotion practises which are still considered essential for maintaining health in today’s indigenous communities, occurred in much day-to-day life many centuries ago (Broughton, 2000; Gracey & King, 2009; King, et al., 2009; Stephens, Nettleton, Porter, Willis, & Clark, 2005). A further chapter provides an overview of the literature in more depth on promoting health in the indigenous community. Many of these traditional practises are still being adhered to in contemporary indigenous society for promoting health, but have
not been considered in academic writing until more recent years. It is the author’s intention that a body of indigenous health promotion knowledge is included in this study as it provides significant importance to improving health in high-risk indigenous communities. In both Australia and New Zealand, indigenous communities still carry a greater burden of dental disease compared to any other ethnic group in these countries (Jamieson, et al., 2006; King, et al., 2009; Thomson, Ayers, et al., 2003), so it is imperative more understanding about improving health outcome, is given to these vulnerable groups.

2.1.1. From 1850’s – 1950’s

The seminal events that are often cited as major contributors to the development of promoting health in contemporary society occurred initially in the United Kingdom. It has been stated that ‘the 1848 Public Health Act was the first step on the road to improved public health” (Chadwick, 1848). This legislation was introduced in recognition of the link poverty and poor living conditions, especially poor sanitation, had on morbidity and increased mortality at this time. With the introduction of this social reform, the focus was initiated for the need for cleaner living conditions and a healthy environment. The findings of the 1855 Snow Report (Koch & Denike, 2004; Newsom, 2006; Terris, 1996) and more recently the 1982 Black Report (Smith, Bartley & Blane, 1990; Bambra, Smith, Garthwaite, Joyce, & Hunter, 2011; Irvine, Elliott, Wallace, & Crombie, 2006; O'Reilly, 2008) are two well documented examples of previous health promotion strategies that had significant impact on the wider Western world. Findings from the Snow Report provided sufficient evidence that contaminated water was responsible for the spread of cholera, and systems to eliminate the spread of disease via contaminated water were implemented throughout communities across Britain. More recently, the Black Report recorded the direct effect poor housing conditions
had on the health especially of poorer communities, recognising that living in certain environments would significantly increase morbidity and advance mortality. Literature (Keleher & MacDougall, 2011; Koch & Denike, 2004; Newsom, 2006; O'Reilly, 2008; Rosen, 1993; Terris, 1996; Weber et al., 1994) have cited these two reports, along with many others over the last century, as responsible for the starting point for ongoing legislative changes and health reforms within the public health sector for the United Kingdom and other Western countries such as Australia, New Zealand, United States of America and Canada. But despite the earlier identification of the need to have healthy home and workplace environments, it wasn’t until 1945 when the term ‘health promotion’ was first used by a medical historian Henry Sigerist who defined the four major tasks of medicine as; “(1) the promotion of health, (2) the prevention of illness, (3) the restoration of the sick, and (4) rehabilitation” (Terris, 1996, p. 36).

2.1.2. From 1950’s – 1970’s

Following World War II, societies in Western countries underwent significant changes and how health was viewed and regulated was transformed at this time (de Leeuw & Clavier, 2011). Such concepts as ‘femocrats’ mirrored the new responsibility community women’s movements had on influencing and developing health regulations. The traditional model that medicine held the power to regulate all aspects of health was now very much being questioned. During the 1960s and early 1970s, more evidence emerged that was in-line with the indigenous health philosophy, that “health is made outside the health sector” (de Leeuw & Clavier, 2011, p. ii237). The health-care sector was now being looked upon as in fact being sometimes more detrimental to health, a concept shown to be also evident in the
oral health sector (Stuart, Gilmour, Broadbent, & Robson, 2011). The ongoing debate that public health policy should develop regulations that encompass the ‘social model of health’ as opposed to the ‘bio-medical model of health’ were being fully contended within the 1970s and were pivotal to the ideology that all government departments must be included in health policy (Milio, 1976).

In 1974, the concept of the “upstream, downstream” approach to healthcare delivery and health promotion (McKinlay, 1993) and the retelling of the Irving Zola story about the heavy burden of sickness in relation to preventing illness is still often retold today (McKinlay, 1993; McKinlay & Marceau, 1999; Satcher, 2006). Irving Zola describes this concept of treatment focused care as one where ill people are drowning due to their burden of disease, as it is too great for the health systems to effectively cope with (McKinlay, 1993). Zola’s ‘river analogy’ demands a refocus on the concentration of funding towards an upstream model where effective prevention can bring about a reduction of illness and therefore, a reduction in the need for highly priced treatment. The ‘upstream, downstream’ model highlighted a more ethical and financially acceptable approach to health care. This concept made a significant challenge to health authorities showing that it was unacceptable to fund expensive secondary and tertiary care when funding primary and preventive care to a larger population could prevent much pain and suffering as well as spread scarce public funding wider, and as well, develop improved conditions for living and working in society.

The next influential contribution to the development of today’s contemporary discipline of health promotion was made by the Canadian La Londe Report (Government of Canada, 1977). As the Minister of Health, La Londe expanded on the health promotion ideology, publishing a strategy for health promotion in 1975. The contribution to health promotion development from Canada starting with La Londe, in particular the inclusion of
the concept of improving health from a broader population perspective, marked a significant cornerstone in promoting health. For the first time consideration was given to a framework for better understanding the influences the provision of healthcare had on a population’s health, identifying two broad objectives; 1, to reduce health hazards and 2, to improve accessibility to health care. Further to this, La Londe suggested five strategies to achieve these objectives; health promotion, regulation, research, health-care efficiency and goal-setting. One of the major contributions of the La Londe Report was the creation of the concept of health fields; human biology, environmental health, lifestyle health, and health-care organisation (Terris, 1996). The Report recognised the importance of a multifaceted approach to health promotion, with the focus of doing as much as possible with scarce public health funds, embedding health promotion activities within community settings. La Londe’s philosophy proposed that the most appropriate people to promote health were those who lived in the community, had an in-depth knowledge of the functioning of the community, and worked alongside the health profession in health promotion interventions. This shifted the focus of ‘targeting’ at risk communities, to a focus of ‘working with’ a community, and the need to listen and embody the values and norms of the community into all health promotion and health provider activities. La Londe proposed that health promotion interventions must include promoting healthy behaviours that targeted good diet, the impact tobacco, drugs and alcohol had on health, and practising safe sex. The Report advanced awareness of the major causative factors contributing to good health which became known as health determinants, and La Londe incorporated these into public health promotion policy for the wider Canadian population.

As a result, promoting health in modern-day public settings had its beginnings from retrospective analyse and the understandings of scientific knowledge of the day. It wasn’t
until the introduction of the body of knowledge within La Londe’s health promotion strategy that the connection between improving a population’s overall health outcome, with (1) the way people lived their lives; and (2) the way health services were provided, became prominent. The emphasis was now on both the accountability of the health professions and health settings where care was provided. La Londe’s Report showed: “There are two approaches which can be taken to assess the influence of various factors on the general level of illness. One is by analysing the past and determining the extent to which various influences have contributed over the years, to changes in the nature and incidence of sickness and death. A second approach is to take present statistics on illness and death and to ascertain their underlying causes” (Government of Canada, 1977, p. 13). This Report became a significant influence in health promotion literature (Adda, Chandola, & Marmot, 2003; Hancock, 1986, 1999; Irvine, Elliot, Wallace & Cronbie, 2006; Marmot, 2005), particularly as it had introduced for the first time concepts such as ‘social determinants’ of health, and promoting health in health settings. La Londe emphasised that many of the determinants of health are outside individual control, and this issue is still being contended with today (de Leeuw, 2009). A more recent example “determinants are not single contributing factors that operate in a silo and linear fashion….they are parts of a system of complexity that are interconnected and impacting on each other on all levels of life” (Tu’itahi, 2011, p. 8). This has significant importance for oral health promotion, not only as more recent science (Emami, De Grandmont, Pierre, & Feine, 2011; Sfeatcu, Dumitrache, Dumitrascu, Lambescu, Funieru, Lupusoru, 2011) shows oral health is one of the “fundamental steps to general health, well being and a determinant factor for the quality of life” (Sfeatcu, et al., 2011, p. 1), but social determinants such as poor housing can adversely affect health outcomes (Keall, Baker, Howden-Chapman, Cunningham, & Ormandy, 2010) including oral health.
A year after the La Londe Report was published, the Declaration of Alma-Ata was adopted at the International Conference on Primary Health Care, Alma-Ata, Kazakhstan 1978 (Banerji, 2008). This declaration had a strong emphasis on the importance of promoting and improving health from within a primary healthcare setting, identifying how people with higher health needs could improve their health outcome by more readily accessing healthcare in primary healthcare settings based in their communities. The need to introduce other allied health professionals occurred soon after this time, for example physiotherapy and podiatry, although the primary oral healthcare workers, dental hygienists and dental therapists preceded the Alma-Ata Declaration and La Londe Report by many decades. Primary healthcare emphasizes early diagnosis and early treatment with a focus on prevention and improving health outcome, reducing or eliminating the need for more expensive secondary and tertiary interventions (Helen Rose. Tane, 2004). However, it must be empathically noted that although the initial roles for dental hygienists and dental therapists were intended to be ones of primary healthcare, the emphasis to treat dental disease (removing decay, restoring teeth and extracting teeth for dental therapists, extensive cleaning and scaling for hygienists) became their main tasks, and prevention and oral health promotion became an insignificant undertaking if it was carried out at all (Coates, Kardos, Moffat, & Kardos, 2009; Gladstone & Garcia, 2007; Nash, 2004; Tane, 2009).

In the same decade of the La Londe Report and the Alma –Ata Declaration, the concept of preventive dentistry was developing an overwhelming body of conclusive evidence, showing dental disease could in the main, be prevented (Evans, Pakdaman, Dennison, & Howe, 2008). But despite the overwhelming evidence, operative care (removing decay, restoring teeth and extracting teeth) remained the central management
strategy for caries control (Evans, et al., 2008). The Alma-Ata Declaration clearly defined the importance of primary healthcare especially in a preventive model of care. But within the field of dentistry, the need for secondary and tertiary care provided from expensive clinical settings continued to be the focus despite the evidence showing a significantly more advanced preventive approach to manage and care for oral disease could be implemented. At this time (1970’s), dental hygienists and dental therapists continued in similar roles to those at the time when their roles were initially implemented, so maintaining their earlier model of treatment focused care (Tane, 2004). In retrospect it now seems obvious that these professions could have become the delegated primary care providers in dentistry from the 1970’s when the body of science supported the significance and value of the primary care approach, and if dentistry had been responsive to the new science of prevention.

2.1.3. From 1970’s – 2000

A recent appraisal of the Alma-Ata Declaration (Baum, 2007) identified five principles which still have great significance in how public health and health development should be viewed today “(1) equitable distribution of resources; (2) community involvement; (3) emphasis on prevention; (4) use of appropriate technology; (5) an approach that involves a range of sectors (such as housing, agriculture, water supply)” (Baum, 2007, pp. 588-589). Although the redistribution of wealth, community resources and reorientation of health service delivery to accomplish these principles have since been described as “clearly idealistic” (Green, 2008, p. 155) for this time, the Alma-Ata Declaration was an historical turning point as it focused on the importance of primary health care, where accessible, affordable and appropriate services could better improve health outcome.
The importance of the development of the individual approach to health promotion must be considered within the primary healthcare setting, as people with high health needs access care from these settings at an increased number (Lucarelli, 2008), and often as spasmodic attendees. Appraisals in this research about the success or failure of individual health promotion approaches show some limitations for success in these settings, as many high-risk individuals failed their follow-on visits once immediate care and relief of pain had been provided. In 1977 the same year as the La Londe Report was published, Becker (Rosenstock, Strecher, & Becker, 1988) introduced an individual level approach to assist in improving overall health outcome. This theory named the ‘social learning theory’ was based on the theory previously introduced by Bandura, recommending that behaviours associated with improving health are learned and unlearned over the course of a lifetime. This study showed that family, community, work and media messages significantly influence the success or failure of changed behaviour. Central to success in this approach was self-efficacy and a locus of control. A decade later, Becker revised an earlier individual approach to improve health, naming this the ‘health belief model’ (Rosenstock, et al., 1988) stating that the ability to access the motivational capacity of a person was central to making health issues relevant. These two theories were considered at the time to provide a more powerful approach to understanding and influencing health-related behaviour at an individual level, even though the shift away from an individual and biomedical approach had already been evident within the La Londe Report.

Another individual approach in the 1980s titled ‘theory of reasoned action’ (Fishbein & Ajzen, 2005) further developed the concept that behaviour is governed by an individual’s intentions and attitudes, which in turn are governed by social normative factors which the individual identifies with. In 1980, Prochaska and DiClemente (Prochaska & DiClemente,
1992; Sporakowski, 1986) progressed these concepts of ‘reasoned action’ to the five ‘stages of change model’. The authors stated that change is a gradual process involving; pre-contemplation, contemplation, preparation for change with action, regression, and if successful, maintenance of a changed behaviour.

By 1992, Tones (Baum, 2007; Tones, 1992) added to the individual behavioural health promotion approaches with a ‘health action model’ identifying that a level of individual self-esteem, knowledge and set of skills had to be evident but more essentially, supported by a favourable environment. Tones suggested that there was a strong association between motivation and a developed belief system, and an intention to act was dependent upon the strength of motivation and self-belief. Key to this theory’s success was the reaction of ‘significant others’ and success in achieving goals had to be relevant to the individual and accepted by the social group. These approaches have been applied to the dental setting (Tillis, Stach, Cross-Poline, Annan, Astroth, Wolfe, 2003) with reported levels of success, but the time taken to implement the individual approaches and ‘short-term’ gain especially for individuals with high-health needs must be considered (Green, 2008). More recent research in this area has again shown that these approaches really do have success in dental settings (Asimakopoulou & Daly, 2009; Jönsson, Öhrn, Lindberg, & Oscarson, 2010; Jönsson, Öhrn, Oscarson, & Lindberg, 2009; Newton, 2010). The study conducted by Jönsson et al (2009) was an evaluation of the impact an individually tailored oral health educational program had on improving periodontal health for patients in a clinical setting. The findings showed significant differences between patients who had treatment only, treatment and generic dental health messages, and those with individually tailored messages specific to their oral pathology, which were embedded within motivational interviewing and behaviour change models. The oral health improvements in the latter group of study
participants far exceeded those in the other groups. Moreover, the patient group who received treatment only showed very little if no improvement at the time of the next treatment recall.

Failure for oral health professionals to utilise health promotion strategies within today’s public oral health-service delivery is central to this thesis. It is planned to have a data collection tool which investigates this phenomena, namely to investigate whether oral health therapists undertake oral health promotion practise in their routine day-to-day practice; do they consider they hold competency in this scope of practise and; do they have knowledge about and apply the most up-to-date methods in oral health promotion.

The next and arguably the most important seminal event in the development of contemporary health promotion occurred again in Canada in 1986, when many countries from around the world sent participants to participate in the first World Health International (WHO) health promotion convention in Ottawa, in a call for urgent action to improve health. The Ottawa Charter written from that convention stated: “The responsibility for health promotion in health services is shared among individuals, community groups, health professionals, health service institutions and governments” (World Health Organisation, 1986a, p. 2) still exemplifying La Londe’s earlier ideology that improving and promoting health requires a multifaceted approach. The five tenants of the Ottawa Charter namely; build healthy public policy; create supportive environments; strengthen community actions; develop personal skills; and reorient health services, have since become embodied in the health promotion discipline. These five tenants continue to be used when implementing health promotion strategies in the public health sector today (Aarts, Nordstorm, Koskinen, Juhansoo, Mitchell, Marquis, Chass, Critchley, Campbell, Hemingway, 2009; Bacigalupe,
Esnaola, Martín, & Zuazagoitia, 2010; Chapitreau, 2010; Lee, Kim, Ahn, Ko, & Cho, 2009), as do the findings from further studies which identify the impact social determinants have on health (Friel, 2009; Marmot, 2005; Petersen, 2003). The evidence in the research on the determinants of health clearly shows the link poverty has to health, where health is “shaped by the distribution of money, power and resources at global, national and local levels, which are themselves influenced by policy choices” (Petersen, 2003, p. 7). Responding to increasing concern about these persisting and widening inequities, WHO established the Commission on Social Determinants of Health (CSDH) in 2005 to provide advice on how to reduce the socio-economic gaps (Petersen, 2005).

Further to the impact low socio-economic status has on health, additional evidence (Brough, Bond, Hunt, Jenkins, Shannon, Schubert, 2006; Mechanic, 2000; Mendes & Falvo, 2007; Mohajer & Earnest, 2010) has shown the complexity and strong association, particularly obvious in high-risk indigenous communities that low socio-economic status and culture have on poor health outcome. The importance for all healthcare systems to work together was embodied in the 1986 Ottawa Charter, repeating La Londe’s objectives in 1977 that health systems have an urgent need to move away from merely treating disease, and to collaboratively focus on promoting health with the way healthcare is delivered. This theme has been recurring for many, many decades throughout Western countries, and the complexity for inclusion of indigenous world views including a different view on health is discussed in a later chapter.

Further developments in health promotion internationally have been ongoing and the impetus following the 1986 Ottawa Charter has seen many initiatives around the world such as ‘health promoting schools’, ‘health promoting hospitals’, ‘health promoting cities’,

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‘healthy islands’ (Petersen, 2005). These are examples of the earlier mandate from the Ottawa Charter (World Health Organisation, 1986a, p. 2): “Health promotion is the process of enabling people to increase control over and to improve their health”. Since the 1980s, health promotion has changed from a focus on behaviour change to creating conditions in which health and well-being prosper (Baum, 2008).

There are other instances where national governments have developed programs which have then been duplicated in other countries, for example ‘worksite health promotion’ (Downey, 2007) and ‘ecosystems as settings for promoting health and sustainability’ (Parkes & Horowitz, 2009), conditions in which health and well-being are more likely to prosper. These were initiatives developed again in Canada, but similar strategies have now been implemented in other countries also, and are sound examples of the broader perspectives contemporary health promotion has become. These initiatives embody the tenants of the Ottawa Charter and also initiatives from more recent WHO international health promotion conferences such as the second conference which specifically focused on public health policy held in Adelaide 1988, and the third in Sundsvall 1991 focusing on supportive environments. The political involvement within health policy by early 1990 had gathered significant momentum, and a key goal from the second international conference on health promotion in Adelaide stated the need ‘to move health high on the political agenda’ (Kickbusch, 2010), recognizing the importance health has on the prosperity of a nation.

2.1.4. From 2000 – to 2010

More recently, The Bangkok Charter in 2005 has been added as setting another international framework for health promotion. However, in recognition of the inability for
the many previous international policies to be utilized fully and the inability for them to make a real difference in improving health outcomes, the mandate from the Bangkok conference stated “the participants of this Bangkok Conference forcefully call on member states of the World Health Organization to close this implementation gap and move to policies and partnerships for action” (Petersen, 2005).

The World Health Organization established the Commission on the Social Determinants of Health in 2005 which has since been described as having the potential to reinvent health promotion for this century (Baum, 2008), now that promoting and improving health outcomes has moved to a higher level on the political agenda (Ministry of Health New Zealand, 2006; National Advisory Committee on Oral Health, 2004). Another recent phenomena to drive improvement of health outcomes, has been the formation of the “knowledge networks”, a global initiative by health researchers to organize knowledge which informs public policy and health sectors with a strength to significantly address the social determinants of health (Baum, 2008). This global network have justified criticism of the slow and ineffective approaches WHO have had in recent years, with their un-shifting focus on the biomedical model of health care, and inadequate inclusion of promotion of population health approaches, which depend on attention to the broad determinants of health.

Despite public health policy development and initiatives highlighted in the La Londe Report over forty years ago, the development of the Ottawa Charter, the Bangkok Charter and the establishment of the Commission on the Social Determinants of Health, the effectiveness that public health policy has to improve health on its own remains questionable (Baum, 2008; de Leeuw, 2009; Groene, 2005; Smith & Cusack, 2006 ; Tengland, 2010; Whitehead, 2005). It appears these developments within today's health settings continue to be implemented with
a focus towards treating disease from a biomedical approach to health care, and still don’t encompass promoting health and disease prevention. These studies and others (Broughton, 1984; Parker, et al., 2010; Stephens, et al., 2005; Tane, 2010; Thomson, Ayers, et al., 2003) strongly argue that in a public health setting, much attention is still focussed on the provision of a service that treats disease and sickness rather than a ‘health promoting continuity of care’ where health promotion is incorporated into routine functioning of the health setting.

Over recent decades, the literature (Berg & Sarvimaki, 2003; Coen & Wills, 2007; Heward, Hutchins, & Keleher, 2007; Howat et al., 2003; Scott-Samuel & Springett, 2007; Terris, 1996) discusses the notion that health promotion was identified as a separate health discipline within the field of medicine for over sixty years, but it is only in recent years that the complexity of promoting and improving health has been more fully recognized within the delivery of primary health care, and moved to an influential place where improved health outcome is more likely to occur (Baum, 2008).

2.2. Health Promotion Today

Since the international conferences which included those in Ottawa 1985, Sundsvall 1991, Adelaide 1998 and Bangkok 2005, a clear framework supported by evidence (Battel-Kirk, Barry, Taub, & Lysoby, 2009; Marmot, 2005; Nutbeam, 2008; Petersen, 2003) has been available to assist and guide health professionals in the quest to improve individual, community and population health. Further to this, ongoing development of the independent discipline of health promotion which emerged in the 1980s (Coen & Wills, 2007), now provides a well defined body of knowledge forming the basis for health promotion practice.
which can be acquired through university study and at educational levels concurrent with
degree qualifications. The minimum of a 3-year undergraduate degree, followed by
postgraduate study with many universities offering master and doctorate degrees in health
promotion, have further shaped the discipline in recent years. Western countries such as
Australia, New Zealand, Canada, the United States of America and the United Kingdom have
formally qualified health promotion graduates in the health workforce. Degree courses in
health promotion and public health include subject matter such as ‘the stages of change
model’, ‘the health belief model’, ‘the theory of planned behaviour’ and ‘motivational
interviewing’. The studies that looked at health promotion activities which have incorporated
these approaches show good success in improving health outcome (Hollister & Anema, 2004;
Kelly, 2008; Langlois & Hallam, 2010). In the area of oral health promotion further studies
have shown improvements when incorporating these approaches in oral health as well
(Jönsson, et al., 2010; Watt, 2010; Watt & Marinho, 2005; Williams, 2009 ; Williams, Parker

The majority of Australian and New Zealand health promotion graduates have
employment in the public health sector, tasked with conducting health promotion projects to
improve health outcome (Centre for Oral Health Strategy, 2006; Lovell & Egan, 2014). Recent
international literature shows the progression of developing more highly advanced
skills in health promotion further, focusing on improving ‘competencies’ to promote health
within the health promotion discipline (Shilton, Howat, James, Hutchins, & Burke, 2008).
Added to this, the international literature review by Battel-Kirk (2009) found that developed
health promotion aptitudes are carefully scrutinised by accrediting boards in Western
countries which are tasked to accredit health degrees, further adding to competent standards
in health promotion skills of these graduates.
Battel-Kirk’s (2009) recent review of global health promotion literature identifies many common themes from country to country, and concludes that skills in health promotion in most Western countries have developed to a level where a global approach could now be possible, with the exception of the United States of America. The authors found that American health promotion had been underdeveloped over the decades, and this country was substandard to other countries in improving health outcomes. The study results revealed a focus has been more on health education, an individual approach which often shows poor results for improving health, especially so for low socio-economic people with high and complicated health needs. This finding was previously supported by others (Coburn, 2004; Goetzel & Anderson, 1998; Huckabee, 2006; Shilton, Howat, James, Hutchins, Burke, 2008) who investigated the economics of health, where results show treatment of disease receives the most financial support in the United States, far more than any other country in the world. On the other hand, health promotion, prevention of disease and primary health services receive a significantly decreased amount of funding. Further evidence on the economics of health promotion (Borghi & Jan, 2008; Mason, Hill, Myers, & Street, 2008; Rasmussen et al., 2007) has clearly shown that long term benefits and significant long-term financial savings are evident when effective health promotion is implemented. In comparison to the United States, both Australia and New Zealand show a higher investment in prevention and primary healthcare in the international literature reviewed (Battel-Kirk, et al., 2009). The authors state that for a global approach to health promotion to be effective in its development, the approach needs to be broad enough to be relevant to a wide-ranging audience while being robust and meaningful, without diluting concepts of health promotion held by individual populations. This is of particular importance when rich cultural beliefs determine the health of the community and individual. The objective to develop a collaborative global approach
to health promotion is well supported by WHO (Roth & Fee, 2010), and has become the focus of their most recent international conferences.

American literature shows there is a change towards encompassing health promotion ideology (Allan, Stanley, Crabtree, Werner, & Swenson, 2005). This insightful study led by a section of the American medical profession investigated health promotion skills within the education of health professions. The findings from this research demanded restructuring of the health curricula to include a focus on health promotion theory for degrees in ‘allopathic’ and ‘osteopathic’ medicine, nursing and nurse practitioners, dentistry, pharmacy, and physician assistants. In addressing the current “inadequacy of disease-based, episodic, acute care intervention” (Allan, et al., 2005, p. 471) the medical profession convened a ‘Healthy People Curriculum Task Force’ to address a long-term goal to increase the proportion of health promotion taught in schools of medicine, schools of nursing and health professional training schools so that the basic curriculum for healthcare providers includes the core skills required in health promotion and disease prevention. The task force represented all seven professional groups mentioned (including dentistry), and looked at areas to “integrate clinical prevention and population health into clinical practise” and this approach also “assumes the need for effective inter-professional communications and collaboration” (Allan, et al., 2005, p. 472). At a time when a ‘team approach’ to providing healthcare is showing increasing benefits, this work highlights the added benefit that students studying in the health professions need to have an integrated approach to learning health promotion competencies. This approach also emphasises the evolving theory and science that supports today’s health promotion. While the tenants of the Ottawa Charter continue to guide health promotion practice, profound social and economic changes in Western countries have demanded
adaptations to established health promotion strategies and the development of new strategies acknowledging the complex nature of promoting health (Nutbeam, 2008).

Today, public health systems in many Western countries still grapple with the tensions of funding health policies which are closely aligned to improving the social determinants of health and delivery of primary health care, which the Ottawa Charter, the Alma-Ata Declaration and the La Londe Report strongly recommended nearly forty years ago (de Leeuw, 2009). The cost of dental care adds significant burden to delivery of care in the public health sector and cost is recognised as the of the greatest barriers for people to be able to access care (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2003). In 2009, Albertine wrote “the work of public health has but one goal; to diminish human suffering. A pragmatic field of inquiry and endeavour, public health organizes ideas and ideals about human health and wellbeing through action for the world. The field is fundamentally concerned with human and environmental interdependence and thus with sustainability” (Albertine, 2009, p. 3). This recent definition of public health resonates from the epitome of public health provided by Winslow nearly one hundred years ago. In 1920, when the fledgling concepts of public health were being developed in the United Kingdom, Winslow stated that public health is “the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals” (Winslow, 1920, p. 23).

Preceding the introduction of the health promotion discipline within the field of medicine, an identified need had already been made of the significance oral health plays in improving overall health. From a global perspective, the important impact oral health has on general health and well-being has gained significant recognition (Department of Health &
Aging, 2008; Kumar Ramagoni, Buddiga, Kumar, Snehalatha, & Kuruganti, 2012; Sheiham et al., 2011; Thomson, Poulton, et al., 2003). However, some recent policy initiatives such as the chronic disease dental scheme introduced in Australia (Department of Health, 2012) received poor appraisals. Despite the sound scientific principles this initiative was based on, evaluations showed that this scheme failed to improve health for high-risk individuals largely due to poor implementation (Stephens, et al., 2005). Several attempts were made to abolish this scheme altogether, and in 2013 the scheme was discontinued. The following chapters discuss the emerging and significant literature about the need for promoting oral health in the quest to improve overall health.

2.3. Overview of Oral Health Promotion

2.3.1. From 1880 - 1920

Dental literature shows that preventing oral disease in Western countries was of great concern to the dental fraternity as early as the 1880s (Daly, Watt, Batchelor, & Treasure, 2002; Gladstone & Garcia, 2007; McCombs, Gadbury-Amyot, Wilder, Skaff, & Green, 2007; Milling, 2010). The association that good oral health had on general health was recognized, although scientific knowledge of improving health and oral health were not conversant with the knowledge we know today. Scientific knowledge of the 1880s focused on an approach of instructing an individual on the benefits of having a clean mouth and healthy diet, with the belief that teaching and instructing these practices could be implemented at home and oral health would be improved. This approach did not consider the belief system of the
individual, their level of understanding and the impact of their socio-economic background. This instructional approach to improve oral health remained unchanged for nearly one hundred years, and it wasn’t until the advances in health promotion which have been discussed previously, that an awareness for changing the approach for oral health promotion forced a more insightful and educated approach. Today’s literature discusses the limited, and sometimes harmful effect the past approaches have had on improving oral health, especially for high-risk individuals (Bacigalupe, Esnaola, MartAn, Zuazagoitia, 2010; Goel, Sehgal, & Mittal, 2005; Vanobbergen, Declerk, Mwalili, & Martens, 2004; Wise, Harris, Harris-Roxas, & Harris, 2009). Other studies show the harmful effect of inappropriate oral health promotion which can be amplified in the indigenous community, which has shown to often result in increasing the non-compliance rate for dental visits (Broughton, 1984, 2000; Durie, 2004b).

The focus in the 1880s on individual prevention initiated the introduction of the American dental hygienist and the first formal group were trained in 1914 (McLearan, 2007). Within several decades, many American dental practices also employed a dental hygienist specifically for dental health education and promoting oral health (Gladstone & Garcia, 2007). The dental hygienist was tasked to promote oral hygiene, and similarly the New Zealand School Dental Nurse⁴ introduced in 1921 tasked specifically to prevent oral disease. The science of the day initiated this approach (removing decay, placing fillings and extracting teeth) as it was understood that if decay was eliminated from deciduous teeth, people would mature into adulthood with little or no dental disease, so children were enrolled to be the patients which the public health sector funded. "It is to be expected that the treatment of

⁴ Renamed Community Dental Therapist in 1990 and then Oral Health Therapist in 2009, when the dental hygiene and dental therapy scopes of practice were included in one undergraduate Bachelor of Oral Health qualification.
necessity will diminish and become more and more simple, and that the early decay of the permanent teeth will practically cease to be a problem" (The Editor, 1917, p. 180). There were many debates in the dental fraternity about the new auxiliary, and introducing dental nurses was contested by many practising dentists of the day; "we must emphatically protest against this latest attempt to cajole or coerce our legislators into a course of action which, if followed, would bring contumely on themselves and ridicule on the dental profession of this Dominion" (The Editor, 1917, p. 4). Despite some strong opposition, the New Zealand government of the day supported the auxiliary initiative. Within thirty years, there were dental clinics with full-time school dental nurses in every state school in New Zealand. The Dean of New Zealand’s School of Dentistry at this time wrote “if during the past one hundred years, half as much time, money and brain power had been spent on the prevention of dental caries as had been spent on the perfecting of ways and means of replacing artificially tissue lost by disease there can be no doubt that the present condition of affairs would not have come about” (Daly, Watt, Batchelor, Treasure, 2002, pg v). Within several decades, many American dental practices also employed a dental hygienist specifically for dental health education and promoting oral health (Gladstone & Garcia, 2007).
2.3.2. From 1920 – to present day

Since its inception in New Zealand, well over ninety-five percent of children have been enrolled in the public oral health system, and the success of this scheme has been recognised internationally (Nash & Nagel, 2006) and now duplicated in nearly all Western countries. These countries (for example the United Kingdom, Canada, Southern Africa, Malaysia) modelled the New Zealand scheme and Australia sent young women to New Zealand training programs in early 1970 (Satur & Moffat in Tsang; 2010), continuing until training schools were set up in various Australian states. The most recent country to introduce the scheme was the United States of America in 2009, and although the introduction was greatly supported by the American Public Health Association, there was extremely strong opposition from factions within the American Dental Association (Tane, 2004), many of the opposing expressions repeating parallel themes to the dentists who opposed the original New Zealand scheme in 1921.

But whether oral health was improved by the introduction of these professional groups is questionable. An investigation (Tane, 2004) into the role of the New Zealand dental therapist provided evidence that although the role was extremely valued amongst the general public and within New Zealand’s public health sector, there is doubt that the role had been utilised most effectively (Tane, 2009). The main objective when the concept was introduced was that of prevention. It is now nearly one hundred years since the forward thinking dentists introduced the scheme, but there is little evidence that health promotion ideology was effectively implemented over the ensuing years since initiation. Furthermore, much criticism (Ericson, et al., 2003) has been given to the emphasis on the secondary and
sometimes tertiary reparative work undertaken at this time in dentistry dental nurses. One of the major findings of New Zealand's first national oral health survey (Hunter, Kirk & de Liefde, 1992) was that the public oral health sector was largely responsible for New Zealanders’ unacceptably high number of heavily filled or missing teeth, and although dental health education was included, it wasn’t until more recent years that health promotion was included in the undergraduate qualification (Coates, Kardos, Moffat, Kardos, 2009; Satur & Moffat in Tsang, 2010; Tane, 2009). Similar evidence (Monajem, 2009; Sharon, Connolly, & Murphree, 2005) shows the under-utilisation of the American hygienist in the role of oral health promotion since its inception, finding that this role has also been inappropriately over-utilised in providing treatment for infected soft tissues of the mouth, and the role of promoting oral health was extremely limited if it existed at all.

Knowledge that dental decay was a transmissible disease was not published until the mid 1990s (Seow, 1998), which now made the health professions acutely aware of the impact maternal oral health had on infant oral health. Fortunately there has been an increase in community oral health promotion activity focussing on improving maternal oral health at this time (Akpabio, Klausner, & Inglehart, 2008; Lucey & Spencer, 2008; Meyer, Geurtsen, & Günay, 2010; Plutzer & Spencer, 2008). However, other studies (Brown et al., 2006; Brough, et al., 2006; Jenkins & Geurink, 2006; Macintosh et al., 2010; Mendes & Falvo, 2007) have questioned the current effectiveness of oral health promotion within high-risk communities, finding it continues to have severe limitations, stating that complex issues specifically those which impact on maternal and infant oral health require a much more thoughtful, skilled and multi-faceted approach across the health disciplines including dental disciplines.
Added to the requirement to develop a more skilled approach to promoting oral health in high-risk communities, a recent study (Proctor, Turner, Pirozzo, & Wood, 2003) showed that despite the inclusion of advanced health promotion knowledge and assessment in undergraduate dental degrees, dental practitioners do not feel ‘comfortable’ in practising health promoting skills on a regular basis. This study found that maintaining clinical and dental treatment skills takes far more precedence over health promotion skills for the dental practitioner students. It could be reasoned that the dental degree discourages developing competency in oral health promotion and holistic skills in dental care, and focuses on development of technical skills.

A more recent study (Dyer & Robinson, 2006) investigated the ability dental professionals had with health promotion skills, finding that their study revealed their ability was very limited in this skill. This study found that of the seven government interventions health professionals were promoting health in, all other health professional groups were more effective in oral health promotion than the dental professionals who were involved in the study. Despite the strength of knowledge and development of the oral health promotion field over many decades, it is not evident that dental practitioners have practised or been successful in health promoting skills particularly within high-risk communities. In particular the evidence is lacking which shows that the oral health therapy professions who were intentionally introduced to have a strong role in prevention and health promotion, actually do have this role at all.

Other literature published in 2006 and 2007 showed that regardless of considerable advances in the level of the science on prevention and understanding about health, health promotion, human development, and oral disease since 1921, dental therapists continue to be
the main providers of oral health promotion in New Zealand, and dental hygienists in the United States of America (Nash & Nagel, 2006; Gladstone & Garcia, 2007). This practise continued until more recent years when the discipline of health promotion influenced the introduction of individual oral health promoters as separate identities as previously discussed. However, the preparation and skills of some oral health promoters was found questionable, when often the practise dental assistant takes on this role (Hill, 2008; Pitt, 2008), having supposedly learned to undertake health promotion skills from a short polytechnic training course, or direct on-site training from the employing dentist. This finding is problematic and doubt about their skill-set is justified when so much more knowledge of health promotion is known today and included in degree courses (Ball, 2011).

Despite a well developed public oral health system in Australia and New Zealand, people across the life-span, particularly people living in regional and rural communities, and communities especially where a higher population of indigenous people reside have a much higher prevalence of oral disease (Centre for Oral Health Strategy, 2009; Christian, 2012; Kruger, 2010; Parker, et al., 2010; Peiris, et al., 2008; Shukla, 2008). Further evidence has identified the marginalised groups who are most likely to suffer a higher prevalence of oral disease across all community settings (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2003, 2004; Centre for Oral Health Strategy NSW, 2013; Fairhall, et al., 2009); specifically those who are new immigrants, from low income homes (Do, Spencer, Slade, Ha, Roberts-Thompson, Lui, 2010), the elderly (Philip, et al., 2012) and people with a physical or mental disability (Pradhan, et al., 2009). These studies show clear evidence that poor levels of oral health are higher for these vulnerable people, and further government reporting shows hospitalisation due to preventable dental conditions is increasing (Centre for Oral Health Strategy, 2009; Government., 2012), and accessibility to appropriate
care for many, remains a significant issue across Australia (Health Workforce Australia, 2013).

In a recent review article published in Denmark (Fejerskov, Escobar, Jøssing, & Baelum, 2013), researchers asked the question that if individuals were expected to have a ‘functional natural dentition for all, and for life’ what sort of dental practitioner would be required? The title of the review, also included their findings; “The oral healthcare system needs revision” (Fejerskov, et al., 2013, p. 1). This review discussed the ineffective current provision of dental care which continues to be based on patterns of disease and treatment modalities that have existed and continued to be offered from by-gone days, an approach to dentistry which demands high cost diagnosis and treatment therapies which the author’s state is totally unacceptable today. The authors make an extremely valid case that scientific knowledge of today, better supports the implementation of an oral healthcare provider who is a “highly skilled professional specialised in the diagnosis and control of oral diseases and with a profound understanding of oral health as part of general health” (Fejerskov, et al., 2013, p. 1). The emphasis on “control” cannot be considered without considering a health promoting approach to care, an approach focussing on early diagnosis and early treatment, a primary care model oral health therapists are particularly skilled at and one that their undergraduate degree prepares them for. Post graduate study would enhance the oral health therapist’s role to a level similar to the practice nurse model now used in medicine. The high-end need in dentistry that is outside the scope of the oral health therapists practicing skills, would necessitate an integrated approach closely aligned with medicine, that provided by an oral clinical specialist “whose role is the provision of advanced oral rehabilitation, able also to treat people with complex chronic diseases and multiple medications” (Fejerskov, et al., 2013, p. 1). Early stages of this phenomena are starting to develop as oral
health therapists graduate and work alongside specialists where therapists perform routine restorative care and prevention for people of all ages in these settings (Satur, Gussy, Mariño, & Martini, 2009). Some university courses for oral health therapists have removed the once historic age restriction for their restorative scope of practice, allowing wider access for care from all age groups (Calache & Hopcraft, 2011). A recent government enquiry (Commonwealth of Australia, 2013b) supports this concept, recognising that barriers will diminish if oral health therapy workforce numbers increase and a wider patient group can access routine care, especially one with a focus on prevention, provided by oral health therapists. Without a wider access to the preventive approach to care which oral health therapists are particularly trained for, a large portion of mostly adult patients have been denied this preventive approach to primary oral healthcare (Yevlahova & Satur, 2009).

2.4. TRANSFORMATIONAL CHANGE NEEDED

“The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking.”

Albert Einstein

The literature reviewed in this thesis provides a periodic overview of health promotion over the decades, both locally, nationally and internationally with an inclusion of literature from an indigenous perspective on health promotion in a further chapter. The evidence presented shows that the discipline of dentistry had identified very early on that a
preventive approach was needed to improve oral health, and the naissance of dental hygiene in the 1880s and dental therapy in 1921 were initiated, tasked with a specific role of prevention. At the time of the inception of a preventive approach to dental care, there was very little known about the contrivances that are now available as routine approaches to maintain oral health and prevent dental disease.

Preventive biomedical approaches used today in dentistry had their beginnings at the time of the dental hygienists inception and one of the world’s pioneering dentists G.V. Black stated in 1896 “the day is surely coming when we will be engaged in practicing preventative rather than reparative dentistry” (Lamacki, 2009, p. 32). A decade later Black was invited to be part of the world’s first research investigating the effects of fluoride, which initiated ground breaking evidence into the preventive effects of fluoride. Research into the effects of fluoride have been ongoing over the last hundred years and in 1999, the American Centres for Disease Control listed fluoridation as one of ten great public health achievements in the 20th century (Lamacki, 2009, p. 32). Fluoride is now safely added to town water supplies at an optimum level and added to toothpastes, mouth-rinses, tooth mousse, tooth gels and tooth varnishes to strengthen tooth enamel (Chief Health Officer, 2014). Ironically, G.V. Black also developed a technique for removing tooth tissue which gave him international notoriety (Mount, 2008). G.V. Black became synonymous with cavity design, and for well over fifty years his skill in removing tooth tissue has been a focus in dental courses, and little of his research work about the benefits of fluoride has been aligned with his name. Other preventive strategies for example saliva and plaque testing, have been recognised as sound preventive interventions to improve oral health. The depth of knowledge about the bacteria that cause periodontal disease and dental decay has developed significantly. The mal-distribution of oral disease is now well documented (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2003, 2006, 2007, 2008, 2009; Australian Institute of Health and Welfare,
2011; Australian Institute of Health and Welfare Dental Statistics and Research Unit, 2008; Australian Research Centre for Population Oral Health, 2005; Centre for Oral Health Strategy, 2009; Government., 2012; New South Wales Ministry of Health, 2012) which allows planning for at risk communities to be targeted where the greatest burden of disease is evident. If you are born into a family where the main care-giver has active harmful oral bacteria, it has been shown that these bacteria will colonise the mouth of the newborn (Seow, 1998). More recent studies have shown that colonization in young children is also associated with gender, tooth enamel hypoplasia, low birth weight, frequent consumption of sweets and poor oral hygiene (Zhou et al., 2013). This evidence can be utilised in preventive programs in the public health sector, showing how prudent it is to treat and prevent oral disease for women of childbearing age.

While there have been other significant developments in the biomedical management in managing and treating dental disease which often require a clinician to administer, the multi-factorial nature of maintaining good oral health demands a much more comprehensive and multi-factorial approach when applied at an individual and/ or community level. The ‘social learning theory’ (Rosenstock, et al., 1988) supported La Londe’s key points (Government of Canada, 1977) that health is made away from clinical settings, where family, community, work and media messages significantly influence the success or failure for changed behaviour.

The very early psychoanalytic work which later went on to influence these models of behaviour change were initiated by psychoanalysts such as Piaget, Erickson and others in the early part of the 1920s (Goldhaber, 1978), and these concepts were further developed and influenced approaches within the education and health sectors at this time, within the western world. However, these approaches had not yet influenced strategies in preventive dentistry at
the time when dental hygiene and dental therapy were initiated. Much more recent developments in this field include the ‘health action process approach’ and ‘transtheoretical model of behaviour change’ which show an increasing success in the highly addictive habit of smoking (Tsoh, McClure, Skaar, & Wetter, 1997). It is these models and others which form parts of the new health promotion philosophy now covered in teaching oral health promotion competency in oral health degree courses in Australia and New Zealand (Satur & Moffat, 2010; Yevlahova & Satur, 2009).

The models used in the highly addictive habit of smoking show robust evidence of how successful norms can be strongly influenced resulting in an increasing number of people giving up smoking (National Cancer Institute, 2005). Such models have a depth of years of research and strong supporting theories and must be included in a model for oral health promotion. In this publication characteristics of a useful theory “makes assumptions about a behaviour, health problem, target population, or environment that are: logical; consistent with everyday observations; similar to those used in previous successful programs; and supported by past research in the same area or related ideas” (National Cancer Institute, 2005, p. 7). The following table illustrates the key concepts of a multilevel intervention theory:
This model encompasses both health promotion and behaviour change interventions, treating them both as essential components with equal importance in a successful intervention. Further explanation in the report discusses the ‘ecological level’ which incorporates preventive strategies and preventive medicaments at an individual, interpersonal and community level, resulting in the greatest benefit; for smoking cessation these include smoking patches, counselling and media campaigns. Further to this, evidence from this report shows that a strategy for change based on individual-level theory will most likely indirectly lead to changes in the environment and wider community, for example changing the culture of smoking in the workplace. Conversely, a change strategy based on community-level theory will most likely directly lead to improved individual health behaviours.

Identifying the success of a multilevel intervention, similar strategies to those illustrated in the above table were advocated at a recent international dental conference (Ismail et al., 2013). The dental conference was attended by cariologists, dentists, and representatives of dental organizations, manufacturers, and ‘third party players’ from several

### Using theory to plan multilevel interventions

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<td>• Interactive kiosks</td>
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<td>Change the environment</td>
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<td>• Advocating changes to company policy</td>
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(National Cancer Institute, 2005, p. 46)
countries. When applying a multilevel intervention to improve oral health, the following was written: “engage patients with activities focused on understanding the caries disease process and creating caries preventive and behavioural norms at home.

- Advocate and support efforts to reduce the promotion and sale of sugar-containing products like high-fructose corn syrups (HFCS) in drinks, snacks, and foods.
- Focus on supporting and reimbursing clinical primary (initiation) and secondary (arrest or reverse) preventive approaches.
- Follow the principles of minimally invasive surgical techniques.
- Develop and implement incentives to enhance the adoption of appropriate care of dental caries. (Ismail, et al., 2013, p. e15). Along with the four essential evidence-based strategies encompassing health promotion ideology, was the overriding principal from this conference of the importance of ‘changing the norms at home’.

Identifying which member of the dental team is most effective at implementing a comprehensive preventive approach is important (Fejerskov, et al., 2013). Professional competency in health promotion has been identified as an important component in public health, and employing delegated oral health promoters is now increasing. Parts of the ‘change strategy initiatives’ could be implemented by a trained dental assistant, especially if the dental assistant is an accepted member of the community, who has familiarity with the social norms of the community. This factor is particularly important when culture and determinants of oral health practices need to be considered, and a question carefully considered when conducting this research. Therefore, a decision was made to ask the participants who completed the postal questionnaire in this study, who is best qualified for this role. Did dental practitioners in the public health sectors see their role as one of
clinician, which included preventive approaches encompassing health promotion ideology in their clinical setting; or should this role be for someone else to do?

A further finding highlighted in some of the literature, (de Leeuw, 2009; de Leeuw & Clavier, 2011) is the common occurrence that high need patients often attend easy to access care for episodic visits, often to have only painful conditions treated. Due to their level of poor health literacy, there is an inability to understand the significance of ongoing appointments when preventive strategies would otherwise be implemented. Therefore, if the immediate clinician who attends these patients is unable to apply an effective preventive approach which instigates individually tailored models for change, care is provided with a focus on treatment only and the inevitable reoccurrence and escalation of the disease is the end result. This appears to be the case as hospitalisation for preventable oral conditions continues to escalate (NSW Government, 2012). The critical issue is that without including effective behaviour change approaches for patients who present with the end result of oral disease, the current approach of treating the lesions of the disease will continue without addressing the causative factors; oral lesions of the soft and hard tissues created from poor diet, poor hygiene and smoking in the main. With the accumulated years of success with preventive strategies applied in other examples such as ‘Sun Smart’ and ‘Smoking Cessation’ health promotion programs, the evidence about how these strategies work must be acknowledged and careful thought to how they can be incorporated into dental care. The theories noted under the ‘useful theories’ column in the previous table have a depth of research to support how and why they are most likely to be successful, some of this research has been undertaken more recently in the dental environment (Yeung, 2010; Yevlahova & Satur, 2009). Research in this study (Yeung, 2010) also highlighted a study done in Finland which incorporated similar but less developed components of these strategies, comparing the
end results within school populations. Oral health outcome was measured in one school where treatment only approaches were implemented, another school had treatment and a home-care plan implemented; the third school had both of these initiatives and classroom dental health lessons implemented (Tolvanen et al., 2009). The school which had three interventions showed the greatest improvement in oral health outcome. It appears in the write-up of this study that despite that only a limited approach to behaviour change was incorporated, a positive and marked outcome was still achieved.

Added to the importance of the science of prevention is the now developing research linking oral disease with most other chronic diseases of the body (Atherton Pickett, 2012). An accumulation of recent studies is showing a clear link with poor oral health and diabetes, cardiovascular diseases, and obesity (Linden, Lyons, & Scannapieco, 2013). More recent studies show some associations with cancer, chronic kidney disease, cognitive impairment, metabolic syndrome, obesity, periodontitis, pneumonia, respiratory disease, and rheumatoid arthritis (Fearing Tornwall & Chow, 2012). Emerging evidence is also associating low birth weight and infant morbidity and mortality to poor oral health (Ide & Papapanou, 2013). Today there is no doubt of the significant impact good oral health has to overall good health, and having high counts of bacteria which cause dental decay and periodontitis which enter the blood stream, is now known to have a detrimental effect on the physiology and general functioning of the human body, with an increasing body of evidence linking the presence of these oral bacteria to an outcome of poor general health. This current evidence (Fearing Tornwall & Chow, 2012; Ide & Papapanou, 2013) shows that individuals who suffer from poor oral health are therefore either more likely or most likely to suffer from the afflictions of many chronic diseases, which increases costs of health care along with shortening the life-span for these individuals.
How have health promotion ideologies been implemented by the dental therapy and dental professions in the public health sector in Australia and New Zealand? The central hypothesis of this thesis is to investigate whether the preventive role and up-to-date knowledge about health promotion has been effectively implemented, or whether it has been under-utilised within the public health sector. So where are Australian oral health professionals in relation to international developments in health promotion practise?

2.5. **Overview of Oral Health Promotion in Australia**

2.5.1. From 1980’s – to present day

From 1986 to the present day, Australia has published a significant number of studies on oral health promotion practises from a national level (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2004; Dixon & Welch, 2000; Sanders & Spencer, 2004; ; Sanders, Spencer & Slade, 2006; ; Santhanam, McEwan, Bainbridge, Hunter, & Haswell, 2010; Schwarz, 2006), numerous AIHW reports (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2003, 2004, 2006, 2007, 2008, 2009), as well as publications from individual researchers (Baum, 1990, 1995, 1999, 2000, 2007, 2008). Despite the substantial level of activity, chronic oral diseases continue to be a considerable burden to the Australian public (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2009; Kruger, et al., 2010). This questions the effectiveness and inclusion of effective oral health promotion within the healthcare system, particularly when most of these chronic oral diseases are known to be completely preventable, and dental decay
and periodontal disease are very good examples of these preventable diseases. A government report (Morris, 2007) found that “dental decay is the most prevalent oral health problem in Australia, and second most costly diet-related disease, with an economic impact comparable with that of heart disease and diabetes” (Morris, 2007, p. 1). More recent data reveals that poor oral health increases significantly within certain population groups (Kruger, Smith, Atkinson & Tennant; 2008; Pesce, 2009), with the distribution of disease showing highest for children in remote areas, where the “average number of decayed teeth increases with the increasing geographic remoteness” and showing dental disease to be a chronic disease which is actually increasing within vulnerable communities (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2009). The need for health services to be provided in a manner that is appropriate, accessible and affordable with an inclusion of health promoting ideology to people who have a higher prevalence of chronic diseases is clear (de Leeuw, 2009; Kruger et al., 2010; ; Robertson & Neville, 2008). Disappointingly, despite clear evidence of the significance that barriers of cost and access to oral healthcare for rural and high health need Australians, a recent AIHW 2003 research report states “demand for dental care reflects people’s want or desire for dental care and willingness to pay at market prices” (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2003, p. 1). This encapsulates the restricted, outdated and inappropriate approach of the biomedical model of health which continues to embody the ideology that health outcome as an individual’s sole responsibility. The need to represent health at a higher political level must include representation of the hardship and burden of poor health for high-risk populations, which is discussed in the research conducted in more recent Australian studies (de Leeuw, 2009; E Kruger, et al., 2010). The nature of dental disease is such that in its chronic form it is often symptomless, and it is not until its more advanced and sometimes irreversible stages that the person is aware it exists. This is also the stage when it is most costly to treat, usually
requiring secondary and tertiary treatment and well beyond the financial ability of low income earners. The link between economic status and oral health outcome has been well established and well reported (Castañeda, Carrion, Kline, & Tyson, 2010; Jamieson, Armfield, & Roberts-Thomson, 2007; Marmot, 2005; Petersen, 2003; Vann, Lee, Baker, & Divaris, 2010). The prevalence and increase of oral disease in vulnerable community groups is testimony to inappropriate and ineffective health promotion practices and public health policy that does not address the socio-economic determinants of health, and further reflects there is still much to be identified, developed and implemented in the public oral health system (Baum, 1990, 2000, 2007).

There is expansion in recent oral health promotion literature (Gherunpong, Tsakos, & Sheiham, 2006; Watt, 2005; Yevlahova & Satur, 2009) which investigates more detailed models of intervention from an individual and more specific community oral health promotion approach. Community empowerment was a tenant from the 1986 Ottawa Charter, and Watt (2005) discusses an oral health promotion approach that includes both a high-risk and directed population approach, which is specific to the vulnerable community. The ‘socio-dental approach’ (Gherunpong, et al., 2006) investigated the assessment of health need comparing the ‘new’ assessment approach with the traditional normative method and concludes that the new approach shows improved oral health outcome for high-risk children in the study. Yevlahova & Satur (2009) conducted a systematic review of the models for individual oral health promotion and their effectiveness, showing motivational interviewing, in particular the trans-theoretical model of behaviour change, to be a useful framework for health promotion in the clinical setting. The models used in the highly addictive habit of smoking discussed previously show robust evidence of how successful norms can be strongly influenced resulting in an increasing number of people ceasing from smoking (National
Cancer Institute, 2005). While research (Gherunpong, et al., 2006; Watt, 2005; Yevlahova & Satur, 2009) shows that these models have all the signs of greatly assisting with improving oral health behaviours, the evidence showing they are regularly used in the Australian public health sector is not apparent. There is evidence emerging from other countries however, (Tolvanen, Lahti, Poutanen, Seppa, Pohjola, Hausen, 2009; Van Der Poel, 2006) showing very good results in improving oral health behaviours, by utilising the skills of the oral health therapist. The study in the Netherlands (Van Der Poel, 2006), where dental hygienists (who are now dual trained in dental therapy and dental hygiene) implemented a planned prevention and oral health promotion intervention with adolescents, showing marked improvements in oral health outcome. However, while the study recorded marked improvements in all communities, these were most evident in the middle to higher socio-economic community, where children who had already been reported with 62% having a ‘perfect score teeth’ had an increased rating to 69% of ‘perfect scored teeth.

The need to emphasize that improving and maintaining a good level of health and wellness happens in the main away from clinical settings had been developed since the La Londe Report (Government of Canada, 1977), and emphasis for dental professionals to provide care which is more likely to illicit this ethos had also been made at this time (Burt, 1978). So while the need to provide preventive approaches to care for Australians who suffer from dental disease was identified well over forty years ago, the operative approach to remove decay, restore teeth extract, clean and scale teeth has not only continued, but for high risk communities this practice has increased often resulting in high-end, expensive tertiary levels of care (NSW Government, 2012). The data in this report, measures an increase in potentially preventable hospitalisations by condition in 2011, rating dental conditions fourth for NSW residents. The report also shows that a total of 15,774 in this year were admitted to
hospital for dental related conditions which were identified as potentially preventable. This
government reporting body also shows that the burden of disease continues to have mal-
distribution, where communities in remote and rural areas have a higher burden, along with
communities with higher numbers of Aboriginal and Torres Strait Islanders. The most recent
government enquiry (Commonwealth of Australia, 2013b) was precipitated by the inability of
successive Australian governments over the last forty years to reduce waiting lists at hospitals
for people with acute dental conditions and also to address increasing amounts of millions
and often billions of dollars of public health funds used to treat these conditions. The
resulting report from this enquiry identified thirteen recommendations, which includes a
significant emphasis on the need to extend the current oral health therapy professions so they
can be better utilised and able to provide a preventive model of care to all Australians across
their life-span, and this care should be accessible in every Australian community. An
executive summary of these recommendations are presented in the appendices of this thesis.

Ongoing inequalities in NSW and recent reporting that these inequalities are
increasing in the vulnerable groups of these communities shows implementing effective
prevention and oral health promotion practises are very much needed with some urgency
(Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2006, 2007,

**2.5.2. Oral Health Promotion in NSW**

The NSW Child Dental Health Survey 2007 (Centre for Oral Health Strategy, 2009) is a
recent survey providing extremely valuable oral health data showing very clearly where the
levels of oral disease are more prevalent, and also which community groups carry the burden
of dental disease. The four key conclusions in the executive summary state; “(1) the importance of evidence based preventive and early intervention; (2) the need for accessible dental services, particularly for children with high oral health need; (3) the importance for the public oral health sector to work with Aboriginal communities to better assist with their specific needs; and (4) the use of water fluoridation and promoting the use of topical fluorides, with a focus on smaller communities with populations of less than 1,000” (Centre for Oral Health Strategy, 2009, p. vi). These key points embody health promoting ideology and if they are effectively implemented with ongoing sound health promotion evaluation processes, they have great potential in making significant changes in the oral health status of high-risk community groups in NSW.

The importance of evaluating the effectiveness of health promotion interventions has in recent years been identified as often being overlooked (Plutzer & Spencer, 2008; Robertson & Neville, 2008). Recently the need to use a recursive phased approach that incorporates qualitative and quantitative methodology that can lead to improving intervention design, execution and generalisability has been identified (Campbell et al., 2000). Without a sound evaluation method, there is evidence that some health promotion interventions have actually done harm (Bacigalupe, et al., 2010; Broughton, 2000; Davies & Sherriff, 2006; Hawe, 2005; Watt, Fuller, Harnett, Treasure, & Stillman-Lowe, 2001). Along with including a robust evaluation framework for an effective intervention, the inclusion of the communities perceptions and culture, from the planning stage through to the evaluation stage, is also very important and further discussed in this literature chapter and the methodology chapter. Although the statistics included in the NSW Child Dental Health Survey (Centre for Oral Health Strategy, 2009) show that oral health inequalities exist across the state, they are
certainly more prominent in rural NSW, and in all Australian indigenous communities (Jamieson, et al., 2006).

In reminiscence of the 2005 Health Promotion Bangkok Charter calling for resolute action, the NSW Department of Health has published the “NSW Department of Oral Health Promotion: Framework for Action 2010” which is a strategic framework for action pertaining to oral health promotion for communities in NSW (Centre for Oral Health Strategy, 2006). This strategy incorporates the five tenants of the Ottawa Charter, and identifies key oral health specific objectives. More recently, the NSW Department of Health has published the “NSW Department of Health Early Childhood Oral Health Program Evaluation” (Centre for Oral Health Strategy, 2010). This document evaluates the most recent NSW oral health promotion interventions for pre-school children. These publications show marked oral health inequalities between rural and urban communities, and highlight the current strategies that have been implemented to reduce the disparities.

A study in recent years (Heward, Hutchins & Keleher, 2007) highlighted the need for capacity building to ensure quality health promotion practices are embedded in health services, and focussed on developments in NSW. The authors stated “NSW Health have been instrumental in building the case for the role of building capacity of health and other sectors to ensure quality, effective health promotion practice” (Heward, et al., 2007, p. 172). Key factors were noted as ‘readiness for change’; ‘decreasing the resisting forces were possible”; and “understanding the organizational culture, internal politics and group norms” which could either be used as helpful strategies to build on, or identified as key resisting factors. So although this study found a strong focus on health promotion organizational capacity building within NSW, other reporting government data (Centre for Oral Health Strategy, 2009;
Government., 2012) shows that improved health outcome has not yet resulted from health promoting capacity building.

An escalating number of studies in Australia (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2006; Brennan, et al., 2007; Jamieson, et al., 2006; Jamieson, Do, Bailie, Sayers, & Turrell, 2013; NSW Ministry of Health, 2013; Williams, et al., 2010) show significant mal-distributions of the level of health outcome, and there is no doubt that regional and rural communities, and in particular indigenous communities continue to carry the highest burden of poor oral health. Alarmingly, these studies include evidence that the levels of poor oral health for individuals in these communities is increasing, not decreasing, demanding the Australian Government to hold a formal enquiry to seek solutions (Commonwealth of Australia, 2013b). The findings of this enquiry highlighted the need for the preventive role of the oral health therapists to be considerably increased with improved processes, such as enabling therapists to have their own provider numbers, which would allow for wider access to the preventive model of care oral health therapists are particularly competent in, especially as it is a requirement in which they are rigorously assessed and deemed have met competency, upon gaining their initial dental practitioner qualification. However the Oral Health 2020 strategic framework specific for NSW discusses the dental workforce in relation to health improvements necessary for rural and regional communities states the need to “encourage dentists in particular to relocate to rural areas” (NSW Ministry of Health, 2013, p. 15). This strategy focuses on the need to include a greater number of dentists in high-risk communities, which raises the question about whether this approach centres more around the provision of expensive dental treatment modalities, as opposed to a significant focus on prevention and primary health care. While, “improve the oral health of the NSW population through primary prevention” (NSW Ministry of Health,
2013, p. 9) is a stand-alone goal, the workforce specifically instigated to conduct this approach to care, is not mentioned in this document at all.

In a recent response to the Australian Dental Board’s scope of practice document (Dental Board of Australia 2013), the dental hygiene association have again questioned the need for dentists to continually be the identified provider when planning improvements in oral healthcare (The Dental Hygienists’ Association of Australia Inc, 2013). This has been an ongoing theme identified as the model of care in dentistry for nearly one hundred years (The Editor; 1917) even though irrefutable evidence shows treating disease merely provides short term relief (Evans, et al., 2008) and without preventing the causative factors, oral diseases will be ongoing, even after an expensive dental treatment intervention (Ismail, et al., 2013). This thesis will investigate whether fully utilising oral health therapists in their primary oral healthcare role is occurring, and will delve into whether there is an ongoing critical error with the approach the public health sector delivers dental services in regional Australia and New Zealand settings. If there is a clear identified barrier to a better approach to an advanced system of care, recommendations will be made to rectify this inadequacy. Apart from the serious omission of not identifying the oral health therapy workforce as the essential workforce delegated to perform a preventive role in high risk communities, the Oral Health 2020 NSW document (NSW Ministry of Health, 2013) does highlight extremely important key aspects including the identification of most at risk communities along with the changing demographics which will acutely impact on service delivery and the predicted impact these will have on oral health outcome.

Having such a high percentage of its inhabitants living in rural or remote communities, is a challenge for health promotion in NSW. The demographics of NSW
show that approximately 38,000 of its residents live in remote or very remote areas, and less than one quarter of the population is Aboriginal, of which one-third living in very remote areas. Mortality and morbidity is unevenly distributed amongst the state and regional communities in NSW, and these people can expect to live about 5 fewer years or less in more ‘remote’ areas and 7 fewer years or less in ‘very remote’ areas. People from remote or very remote communities are more likely to die prematurely, and from causes classified as ‘potentially avoidable’, and report greater difficulties in getting healthcare when they need it. They are also more likely to be hospitalised for conditions for which hospitalisation can be avoided through prevention and early management, and are more likely to be overweight and obese if female, more likely to die in motor vehicle crashes, and are more likely to commit suicide. Further studies (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2006; Jamison, Armfield, Roberts-Thompson, 2006; Jamieson, Armfield, Roberts-Thompson, 2007) show that indigenous children are twice as likely to be hospitalised for oral conditions needing a general anaesthetic for treatment than non-indigenous children, and oral disease in childhood not only predicts poor oral health for adulthood, but also poor childhood oral health predicts poor general health for the entire life-span (Thomson, Ayers, Broughton, 2003). Indigenous communities are very highly over-represented in all areas of morbidity and early mortality, so it is important to look more carefully at the causative factors of poor indigenous health outcome.
2.6. Indigenous health promotion

Despite the introduction of the La Londe Report, the Ottawa Charter and various other theoretical frameworks which considered the need for a more comprehensive approach to health promotion, the inability to implement preventive approaches which incorporate the determinants of health has continued (de Leeuw, 2009). Systematic research over the years (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2004, 2006, 2007; Morgan & Allen, 1998; Ollapallil, Benny, & Jacob, 2008; Peiris, et al., 2008; Sorensen, Fowler, Nash, & Bacon, 2010) shows that Aborigine and Torres Strait Island people continue to suffer from poor health outcomes with increased incidences of morbidity and premature mortality. Furthermore, recent data show significant increases in rates of preventable, chronic diseases such as dental and periodontal disease within lower socioeconomic and Aboriginal and Torres Strait Island in Australia and Māori communities in New Zealand (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2007; Brennan, et al., 2007; Centre for Oral Health Strategy, 2009; H R Tane, 2010). This is despite evidence (Broughton, 2000; ; Durie, 2004b; Pickerill & Champtaloup, 1914; Reade, 1965) showing dental disease was not a significant health affliction amongst indigenous communities prior to European settlement.

Very early documented evidence of the oral health of Māori was published in the New Zealand Dental Journal (Pickerill & Champtaloup, 1914). Pickerill travelled to remote areas in New Zealand in an attempt to find out why the pandemic of dental disease apparent in colonial settlers at the time, appeared not to be evident in Māori at all. Pickerill hypothesised that Māori could have a natural immunity to the bacteria that caused dental decay. "The mouths, including the tongues, were in all cases beautifully clean, the teeth regular, and the arches wide" (Pickerill & Champtaloup, 1914, p. 182). Despite his meticulous methodology
and planning, Pickerill's findings were inconclusive, although he was able to document his difficulty in detecting decayed lesions. The only evidence that Māori had any dental disease affecting tooth tissue at this time was found in a very small number of children who had a minimal amount of early decay in deciduous teeth. Pickerill noted that: "European flour, tea and sugar they are very anxious to obtain, and when it is obtained consume in considerable quantities until the stock is exhausted" (Pickerill & Champtaloup, 1914, p. 171). This could explain the initial presence of dental decay in the child population at this time. However, that the sugar was apparently consumed quite quickly "until the stock was exhausted", is understood today as a sound preventive strategy, and probably prevented the disease from spreading as fast as it could have if the sugar was consumed over a longer period of time. From the early part of last century these studies and others (Brennan, et al., 2007; Jamieson, Roberts-Thomson, & Sayers, 2010; Johnston & Milroy, 2004) show Australian Indigenous communities with little or no European contact enjoyed a better level of health than the new arriving settlers, and chronic diseases such as dental caries, while rampant in the immigrating populations, were not reported as highly prevalent in indigenous communities until the mid to late 1970s. Added to this, there is a long history of health promotion practices unique to indigenous peoples which are still practiced today within the indigenous world, and evidence shows that these unique practices have often not been considered and included in mainstream health promotion and delivery of health services (Broughton, 2000; Durie & North, 2001; Marlor, 2010; Tane, 2010). Further evidence has demonstrated an important factor that the differences in indigenous concepts of health and well-being have been too different to the concepts held by the majority of the population, and usually not considered as being important in healthcare settings and health promotion practises (Brough, Bond, Hunt, Jenkins, Shannon, Schubert, 2006; Durie, 2005; Mendes & Falvo, 2007). Other studies have shown that indigenous people are disenfranchised from the delivery of health services (Berry}
et al., 2010; Broughton, 2010; Christian, 2012; Cunningham, 2010; Durie, 2005; Hayman, 2010) and more likely to be faced with problems of access to appropriate and affordable health services (Broughton, 2000; Christian, 2012; Isaacs, Pyett, Oakley-Browne, Gruis, & Waples-Crowe, 2010). This highlights a critical need to develop strategies to promote health and so prevent the early onset of chronic disease, particularly the higher prevalence within the vulnerable indigenous populations (Gracey & King, 2009). Research (Broughton, 2000; Durie, 2004a; Tane, 2010) looking at indigenous communities in New Zealand, discusses health promotion unique to indigenous Māori based on concepts of “tapu” (forbidden, sacred, prohibited) and “noa” (an absence of limitations; having substance of this world) where mental health, physical health, spiritual health and family health hold equal importance to health and wellbeing. These practises have been in place for centuries, and although there have been modifications to fit into contemporary living, the four vital components to promote health and wellbeing known as “tapa wha”, are still acknowledged as being vital for promoting health and wellbeing for Māori (Broughton, 2010; Durie, 1999, 2004a; Tane, 2010).

Very similar health beliefs and practises to the “tapa wha” model for promoting health in Māori communities are evident in other countries, for example Australia (Heil & Macdonald, 2008; Jamieson, Parker, & Richards, 2008; Jamieson, Roberts-Thomson, Sayers, 2010; McDonald, 2006; Parker & Jamieson, 2010), Canada (Richmond, Ross, & Egeland, 2007) and Alaska (Bjerregaard, Young, Dewailly, & Ebbesson, 2004). The indigenous approach to promoting health differs from the approach adopted by Western countries in that it has an all encompassing approach. An example is that a sick family member will influence the health of the entire family, and wellness for that family will not be restored until the individual’s health is restored (Durie, 2005). It can be clearly observed that the development
of both the health promotion discipline and delivery of health services within the public health sector in the Western countries have historically paid little attention to the indigenous world view and their approach to sustain health and well being (Christian, 2012; Durie, 1999; Gracey & King, 2009; Tane, 2010; Young, 2003). There have been further studies which show an unacceptable standard in the provision of health care, an example is a recent study conducted in an urban New Zealand community, which showed little or no dental preventive tasks were conducted for Māori school children, while non-Māori school children received a very good level of preventive dental procedures (Stuart, Gilmour, Broadbent, Robson, 2011).

It has not been until very recent years that a growing awareness and understanding of different world views in health promotion has been considered (Gracey & King, 2009; King, Smith, Gracey, 2009; Mechanic, 2000), with increased regard given to indigenous communities when planning and evaluating health promotion. This is important as in recent decades indigenous people have not only suffered a higher prevalence of all chronic diseases (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2003, 2006, 2007, 2009; Berry, et al., 2010; Jamieson, et al., 2006; Jamieson, et al., 2007; Parker et al., 2010), but significant increases in the prevalence of these chronic diseases such as dental caries is still continuing to increase in indigenous communities (Christian, 2012; Slack-Smith, et al., 2011). These studies show the significant impact the levels of chronic diseases have on all aspects of life for an indigenous individual and community, such as the inability to be employed, the suffering from such things as increased morbidity and mortality across the life-span, starting the life-course with higher prevalence of premature birth. Given that increased suffering occurs on an individual level, indigenous communities are impacted further, as their cultural beliefs hold collective views of health as mentioned previously. A very recent study (Broughton, Person, Maipi, Cooper-Te Koi, Smith-Wilinson, Tiakiwai,
Kilgour, Berryman, Morgaine, Jamieson, Lawrence, Thomson (2014) emphasised the need for an all-inclusive whole family approach to promote health. This approach must empower the mother who has the significant role as nurturer of future family members, and be able to relate to the oral health beliefs and oral health behaviours held by the family.

Recent research (Cunningham, 2010; Tane, 2010; Young, 2003) questions the responsibilities health professions have when providing care within indigenous communities, stating the importance of developing a deep knowledge and appreciation of the cultural skill set. These authors question whether it is possible for a non-indigenous health professionals to develop the knowledge at a deep enough level, particularly as inclusion of indigenous people’s belief systems are instrumental for an improved health outcome. Further research undertaken by indigenous researchers (Broughton, 2000; ; Durie, 2004b; Turia, 2003) questions the inappropriateness of non-indigenous health promoters to be effective in promoting indigenous health, suggesting that health promotion within indigenous communities should only be done by indigenous health promoters who hold an immediate recognition of the indigenous health belief model.

The inclusion of ‘competency’ in promoting health in indigenous communities was considered in the international literature review conducted by Battel-Kirk et. al. (Battel-Kirk, Barry, Taub, Lysoby, 2009). This review of health promotion literature discussed the requirement for health professionals to meet ‘competency’ standards in order to be registered to practise, and identified the ‘competencies’ needed to improve health outcome which are now embedded in scopes of practise for registered health professionals in Western countries. This literature defines ‘health promotion competency’ as “a combination of attributes which enable an individual to perform a set of tasks to an appropriate standard....being made up of
attributes such as knowledge, abilities, skills and attitudes” where they are “often referred to as ‘know-how’ and ‘show-how’ skills (Battel-Kirk, et al., 2009, p. 13). A similar development to health promotion competency was found throughout the international literature reviewed by Battel-Kirk, citing Australia, Canada and New Zealand to have well developed health promotion frameworks where competencies are entrenched in health promotion practise. Acknowledging the over-representation of ethnic groups in poor health statistics, these countries do include ‘cultural competencies’ in health promotion frameworks. The authors of this literature review also found that where Australia was yet to link cultural competencies to the practise of professional groups, New Zealand did show a comprehensive inclusion of Māori and Pacific Islanders’ views, and stated “the ethical and cultural dimensions highlighted...make it of particular value in developing competencies for a diverse global audience” (Battel-Kirk, et al., 2009, p. 14).

An excellent example where ‘cultural competency’ is mandatory for the New Zealand professions is the requirement for all dental practitioners applying for registration with the New Zealand Dental Council. The Dental Council has approved two statements on ‘cultural competence’ with an objective for improving oral health outcome for indigenous people (Dental Council of New Zealand, 2010b). Close consultation with the New Zealand Māori Dental Association Te Ao Marama, resulted in the outcome of this competency. The first clause is an overarching statement outlining the attitudes, knowledge and skills expected of oral health practitioners in their dealings with all patients, irrespective of their cultural background. The second is specifically tailored to practitioners who provide care within Māori communities and outlines the attitudes, knowledge and skills relevant for oral health practitioners when providing advice to and care for, in the first instance, Māori patients and their whānau (families), but also recognises the need to be responsive to the increasing
diverse cultural profile within at risk communities. The inclusion of this skill-set has been developed to enable practitioners to integrate ‘cultural competency’ within their clinical practice and is aimed at achieving better health outcomes for the most vulnerable in communities they provide care for. Although these competencies are centred around indigenous New Zealanders, the transfer of an approach to health care which encompasses individual health belief models can also be applied to all other cultures.

2.7. Conclusion of literature review

The literature presented provides an overview of the development of both health and oral health promotion from a global perspective to the rural region of New South Wales, and includes a section presenting important literature on indigenous health promotion. The literature has been presented in a chronological sequence, discussing key issues and events which influenced knowledge and the application of health promotion within the United States of America, Canada, the United Kingdom, most countries in Europe, with a focus on Australia and New Zealand. The literature discusses key developmental phases of health and oral health promotion, initially starting with a focus on early public health policy in the United Kingdom in 1848 (Chadwick, 1848).

The development of contemporary knowledge within the field of promoting health has had significant influences from Canada (Government of Canada, 1977; World Health Organisation, 1986b). The La Londe Report advanced awareness of the major causative factors contributing to good health which became known as health determinants. More recently New Zealand has recognised the significance culture has on determining health
outcome, creating the demand for legislation to respond to this need, an example presented is the requirement for cultural competency to gain registration as a dental practitioner (Dental Council of New Zealand, 2010b). Multi-faceted health promotion approaches which include models of behaviour change at an individual and community level have been briefly discussed in the literature review (National Cancer Institute, 2005), and are discussed in more detail in the ‘transformational change’ chapter. Multi-faceted oral health promotion approaches have also shown success in improving oral health in European countries (Anttila et al., 2012), but there is no clear evidence that these approaches are incorporated in the New Zealand and Australian public oral health sector, with the exception of the inclusion of cultural competency.

Identifying the need for a preventive approach in the dental setting, the dental hygienist was established in America in the 1880’s (Milling, 2010) and forty years later, the school dental nurse in New Zealand 1921 (Brooking, 1980). The literature presented in this study discusses the development of these occupations and approaches to delivering oral care over the last century initially in New Zealand in 1921, and since introduction in the 1970’s in Australia. Findings in the literature (de Leeuw & Clavier, 2011) show that world events had an impact on the approach to health care for example, the traditional model that medicine held the power to regulate all aspects of health before World War II, but this was transformed over the ensuing years. Several decades later the health philosophy, that “health is made outside the health sector” (de Leeuw & Clavier, 2011, p. ii237) identified the importance of the determinants of health. How health services were being delivered were being scrutinised at this time and evidence (de Leeuw & Clavier, 2011) is presented that sometimes the approach was more detrimental to health, a concept shown to be also evident in the oral health sector (Stuart, et al., 2011). The ongoing debate that public health policy should
develop regulations that encompass the ‘social model of health’ as opposed to the ‘bio-
medical model of health’ were being fully contended within the 1970s and were pivotal to the
ideology that all government departments must be included in health policy (Milio, 1976).

Clear evidence is presented in the literature review that ongoing government reporting
shows Australian regional and rural communities and identified individuals across all
Australian community settings who continue to suffer from poor oral health. At a time when
so much is known about the science of prevention and skills of health promotion, it is
important to investigate and find clear solutions for how the public oral health sector can be
more responsive to high-risk communities so health gains are imminent. Given the strong
link that oral health has on overall health, it is clear that there needs to be sound research to
inform evidenced-based practice in promoting and improving oral health, specifically
working with the communities and individuals who are most likely to access dental care
within the public health sector.

The research which discusses the importance of including effective health promotion
competencies for dental and allied health professions has been discussed (Proctor, et al.,
2003), finding health promotion should have collaboration amongst student health
professionals studying health promotion in the respective degree courses. Further literature
(Dyer & Robinson, 2006) showed graduates from a dentistry degree course favour oral health
promotion the most, and are least likely to include this scope in practice after graduation.

A finding from the literature presented was that despite the long establishment of the oral
health therapy professional groups tasked to provide a preventive role, there is a significant
gap in the literature on oral health promotion conducted by the oral health therapy profession,
and therefore uncertainty about whether effective oral health promotion is undertaken at any level by this professional group. This is an important issue as the oral health therapy professions\(^5\) were established to have a significant focus on oral health promotion, early prevention, early diagnosis and timely treatment of uncomplicated dental procedures. A noteworthy body of literature that provides comprehensive evidence of effective oral health promotion activities performed by oral health therapists in oral health community settings could not be found. Part of this outcome could be attributed to inactivity of all research by this profession, but this is of significant concern particularly as oral health therapists are the major providers of oral healthcare within the public oral health system in Australia, New Zealand and other Western countries where considerable health inequalities exist. This is a significant issue and one that demands investigation.

How effectively have health promotion ideologies been implemented by the dental therapy and dental professions in the public health sector?

The main aims of this study were to investigate whether dental practitioners employed in the selected public health clinics 1; undertake oral health promotion practise in their routine day-to-day practice 2; they consider they hold competency in this scope of practise and 3; they have knowledge about and apply the most up-to-date methods in oral health promotion.

\(^{5}\) The collective oral health therapy profession named over the years as the dental hygienist, the school dental nurse, the community dental therapist, oral health therapist; each having some variation in clinical skills but all with a focus on prevention and protection.
METHODOLOGY

2.8. Introduction

Central to the approach to the methodology of this thesis were the main aims of this study, which were to investigate whether dental practitioners employed in the selected public health clinics 1; undertake oral health promotion practice in their routine day-to-day practice 2; they consider they hold competency in this scope of practice and 3; they have knowledge about and apply the most up-to-date methods in oral health promotion. One of the foremost objectives was to investigate the emphasis the role of oral health promotion has in the current function of dental practitioners in public health clinics. An additional objective was to investigate the level of self-perceived oral health promotion competency held amongst current dental practitioners.

The literature presented in the previous chapters of this thesis clearly shows that the level of oral disease exists at an increased level in rural and regional areas, so it was decided to gather data from a selection of public health dental clinics situated in rural and regional Australia and New Zealand. In recognition of the low number of oral health practitioners in the workforce, a second study sample was drawn from participants attending an international oral health therapy conference.

Consideration was given to whether the information could be elicited from a pure qualitative approach, as this would provide the ability to capture what practitioners thought
about how they went about their health promotion practice, their perception of their level of competency and what impacted upon the extent activities could be undertaken. Capturing data using a sole qualitative approach can follow a variety of strategies (Creswell, 2009). An ethnographic approach would allow capturing and interpreting data from an “intact cultural group in a natural setting over a prolonged period of time” (Creswell 2009 pg 14). Creswell further defines the ethnographic process as being flexible which typically evolves contextuality in response to gathering data about the realities encountered in the field. For the present study, this strategy is fully utilised when data were collected and interpreted from study participants who attended an international conference workshop. It was also implemented in the method used to frame and interpret the last section of questions in the postal questionnaire.

Another strategy to capture and analyse data is embedded within the grounded theory approach (Creswell, 2009). This approach is derived from a general abstract theory of process, action or interaction solicited from the grounded views of the participants. Strauss and Corbin (Liampittong, 2013) define grounded theory as a ‘set of well developed categories that are systematically interrelated through statements of relationship’ (Liampittong, 2013, p. 111). Taking into consideration that the approach to oral health promotion has changed significantly over the years, and that the study participants have learnt about and conducted activities in health promotion, it is important to capture and analyse the processes, actions or interactions solicited from the grounded views of the participants. It could be expected that older study participants would have a grounded health promotion approach directly relating to the concept to “dental health education”, which was the expected way of improving health outcomes up until the late 1970’s. However, study participants who learned about health promotion from the mid 1980’s and later, would have been exposed
to concepts such as the Ottawa Charter, determinants of health, health promotion evaluation and cultural competence, resulting in a much stronger body and more developed knowledge in this field. Study participants who have gained their dental practitioner qualification more recently, would have gained health promotion competency which included individually tailored phases of prevention, with concepts such as motivational interviewing and behaviour change techniques embedded in the curricula of their course. From their time of initial qualification to the time respondents participated in this study, the important issue of engaging in on-going educational updates in health promotion since time of graduation also had to be considered along with the possibility of this becoming a confounding variable in the study. Confounding factors such as access to continuing professional development, where further competencies could have been gained along with the level of support given by public health managers and therefore increasing the ability to implement a health promotion role, also needed to be considered. To manage this, the sequence of questions were carefully considered so that they were systematically interrelated through statements of relationship, for example “place of gaining qualification”; “date of most recent health promotion training”; and “what do you consider is the most comprehensive health promotion training you have undertaken”, therefore each variable could be individually analysed, eliminating potential confounders. To capture this information, the strategies of phenomenological and narrative research were considered and incorporated in the formatting of both the postal questionnaire and questions implemented at the conference workshop. Thought was also given in the study design so that both narrative data and phenomenological approaches could be utilized. In particular, the last question in the postal questionnaire allowed participants to write in their own words any other important points that should be considered in this topic, so this section fully utilised the narrative approach to elicit information. The narrative and
phenomenological approaches were the underpinning methods used in gathering data in the group discussions at the conference workshop.

The other three strategies Creswell (2009) discusses in relation to qualitative methodology is the use of case reports, phenomenological and narrative research. The case report method was not used in this study to collect data, although a case study approach could be utilized to interpret the results if the participants were looked upon as one entity. This approach was discarded by the researcher as the case report method would not capture the full breadth of data that could be apparent and compared between the practitioners, due in large to changes in health promotion philosophy incorporated in their formal and ongoing professional education, and also differences in their place and country of practicing as oral health professionals.

**3.1.2. Research Design**

The data collected for this study came from 105 participants in total. Firstly, a cross-sectional descriptive questionnaire design was used. Due to the small number of oral health therapists employed in the public health sector, a problem was identified when it came time to pilot test the effectiveness of the postal questionnaire. By using a wider test group the reliability of the research tool could have been strengthened, but withdrawing those who tested the questionnaire from the potential pool of participants would be reduced, or if included, a bias would have been introduced. It was decided therefore, that the simple design of the questionnaire could be tested on one potential participant with equivalent standing to the study participants, who would then be eliminated from participating in the study, leaving a higher number of potential participants, without introducing a bias.
Data were collected via postal questionnaires distributed to all oral health therapists working in the Riverina regional area of NSW Australia and in Whanganui and Northland, two rural North Island regions in New Zealand. A further set of questions were used to collect face to face responses from oral health therapists attending a workshop as part of an International Australian Dental and Oral Therapists Conference held in Canberra.

3.3. Participants

1. The Postal Questionnaire Participants

The participants invited to respond to the postal questionnaires for this study came from 3 rural areas within New South Wales & New Zealand. The geographical area of the Riverina in NSW is comparable to a combination of the small farming towns of the Whanganui region and the Northland region of New Zealand, all having a similar population size, very similar socio-demographics including the percentage of indigenous communities, and semi-rural dispositions with identified access problems to dental and health services (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2003, 2006; Marino et al., 2006). The indigenous communities in the Northland area are known collectively as Ngā Puhi, the Whanganui area are known collectively as Ngāti Awa, and the Riverina Aborigine peoples are known as the Wiradjuri. The poorer oral health outcomes of these indigenous communities have also been well recorded (NSW Centre for Oral Health Strategy, 2009; Ministry of Health New Zealand, 2006; Thomson, et al., 2003). At pre-school age indigenous children in these communities are 3 times less likely to have dental visits, and have 3 times more decayed and missing teeth to non-indigenous children (Jamieson, et al., 2013). These statistics follow through into adulthood where indigenous adults are more likely to have teeth
removed by aged 25, rather than have teeth restored with fillings (Sanders & Spencer, 2004; Jamieson, et al., 2013)

The numbers of dental practitioners employed in these areas were also similar at the time the questionnaire was distributed, that is 21 in Whanganui New Zealand, 29 in Northland New Zealand and 28 in the Riverina area, NSW. The three dental managers employed in these areas agreed to post the questionnaires to the total of 78 oral health therapists employed in these areas.

It was decided that including participants from these three areas in the study not only provided a wider and therefore more valid group to elicit a deeper level of information about oral health promotion activity and competency, but also provides an element of “comparativeness”. The importance of comparative analysis in qualitative research methodology has been found to be of significant importance (Rihoux & Ragin, 2009). It provides depth in the data where a ‘broader sweep’ of results can be measured, compared and reasoned. Further to this, oral health data (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2004; Parker, et al., 2010; Thomson, Poulton, et al., 2003) continues to show that chronic and life-style diseases including oral diseases, are significantly more prevalent in rural and small town areas compared to urban areas, which further validates the importance of drawing data from the areas of the chosen study participants in the postal questionnaire. Further studies questioning the effectiveness of the public oral health workforce in regional and remote areas (Jacobs, Kruger, Tennant; 2010) have also implemented a similar approach to gather data by including similar study participants.

2. The Conference Workshop Participants
Further to the planned postal questionnaires, an opportunity arose when the researcher was invited to present at an international oral health conference during the research design phase of this study. From the conference delegates of several hundred, 48 had registered to attend the conference workshop presented by the researcher titled “How important are the roles of prevention & primary healthcare for oral health therapists”. All participants were dental professionals with employment in the public health sector, three dentists and 45 either oral health therapists or dental therapists, and all gave written consent to have their responses to questions posed in the workshop used for this study. Incorporating data from opportunities such as this has been described as ‘opportunistic sampling’ (Rice & Ezzy, 1999). These authors acknowledge that using data collected in this manner, particularly for qualitative research is very worthwhile and valid as it acknowledges that important information is still developing over the time the study is being conducted so merits inclusion. It was also considered that the conference participants were paying participants, some paying a significant fee to travel from all around Australia and New Zealand to attend the conference. Awareness that this group of participants could be more likely to be self motivated and informed leaders, more likely to be knowledgeable about levels of oral health promotion competency, was also considered. However, overriding consideration was given to the rich data this group would most likely bring to this investigation.

3.4. Research Instruments

1. The postal questionnaire

Previous investigations (Edwards, 2010; Gillham, 2008; Landsheer & Boeije, 2010; Rattray & Jones, 2007) looking at questionnaire design, showed that questionnaires providing
a good response rate when trialled could be categorised into three main headings, those based on fact, those based on beliefs, judgments, opinions, and those based on behaviour, that is, what people do. The questionnaire designed for this study by the researcher, took into account that behaviour could be classified as what a clinician does for their health promotion practise, while beliefs, judgements and opinions would have their origins based on an individual’s knowledge, beginning with their initial learning in health promotion. Gillham (2008), Rattray and Jones’s work (2007) showed that questionnaires following these categories, that is, starting with a need to enter a factual response, then leading through to end responses which require more reflection and exploration to answer; for example a behaviour adopted to be an effective oral health promoter, is more likely to follow a logical sequence and have a deeper and more meaningful understanding for the survey participant. It is also believed that this approach assists the participant to respond in a consequential way, and provides an opportunity for one question to lead onto the next. Gillham (2008), Rattray and Jones’s work (2007) agreed that this is a more satisfactory approach which has also shown to result in a higher response rate, eliciting more data from the qualitative instrument. All of these points are supported by other research (Rodenberg, 2009) and were further validated by a ‘test’ with one of the potential study participants.

A simple questionnaire (see Appendix II) was initially tested to ensure that sufficient information was being solicited, with the intention of using this as a postal questionnaire sent to a wider study group. Interpretation, analysis and presentation of the questionnaire results were also considered at this time, and the need to include a quantitative and qualitative approach became evident. Quantitative research has been classified as “an approach to research that emphasizes the collection of numerical data and the statistical analysis of hypotheses proposed” (Polgar & Thomas, 2008, p. 297). It was important for this study to
quantify various responses to oral health promotion activity and level of competency, and also be able to make comparisons, particularly as the questionnaire was sent to different geographical areas. Using both quantitative and qualitative approaches has been discussed as a research tool to have the most power (Creswell, 2003, 2009; Creswell & Plano Clark, 2007; Polgar & Thomas, 2008) and considered to provide a depth of rigour (Creswell & Plano Clark, 2007; Kearney, 2007; Plano Clark & Creswell, 2008; Tan, Wilson, & Olver, 2009) to test an hypothesis. The postal questionnaire used a quantitative approach to elicit information in questions one to nine, eleven and twelve. A qualitative approach was utilised for questions ten and fourteen, where questionnaire participants could describe and comment about this topic. For example, the tenth question asked respondents to describe what their knowledge of promoting oral health is, and the responses were ordered into three categories. A comprehensive description about how the process of categorising each response into a specific category is included in the discussion section, but in brief the categories were chosen by determining whether the responses were centred on: 1. Describing oral health promotion away from the dental setting, in that it should occur in a community setting: 2. Describing oral health promotion as a dental health education approach, which teaches and provides instructional information: 3. Describing oral health promotion as individually tailored change behaviour approaches for improving oral health, which can occur in both a clinical and community setting. The literature reviewed in previous chapters shows this latter approach is well supported by a depth of recent evidence and examples showing marked improvements in health outcome.

A test of the questionnaire was undertaken by asking a volunteer dental practitioner of equal standing to the potential study participants employed in the regional Riverina public oral health area to answer all questions and rate the wording of each question for
appropriateness and ease of understanding. The volunteer dental practitioner agreed that the questionnaire served the purpose of gaining valid information about her health promotion practise and competency. Further validation was gained when the volunteer dental practitioner gave over-all judgment of the questionnaire stating it asked interesting questions which should entice most participants to reply. Therefore, none of the wording was changed from the original test questionnaire, and to eliminate bias from the questionnaire results, this person was instructed not to complete the questionnaire when it was posted to all public oral health dental practitioners in the Riverina area nor discuss the impending distribution of the questionnaire to dental practitioners in her area. A follow-up conversation with this person ensured this actually did occur when the questionnaires were posted in the area. On completion of this investigative process, it was decided that the questionnaire was ready to be posted to the three identified areas, a potential study group of seventy eight participants.

2. The international conference workshop questionnaire

Based on the literature reviewed in this study, a group of four questions were devised for eliciting data from this group. These were centred around more recent research (de Leeuw, 2009) about the health promotion role embedded in the primary practitioner role. A similar process to the postal questionnaire was followed, so that questions were devised to channel questions from a broader concept to a more delineated and personal approach. However, due to the workshop environment, the opportunity to discuss in a group (post questioning) and further refining of the postal survey questions used, the questions for the conference participants were revised to:

1. What does “primary oral health care” entail, and mean to you as a clinician?
2. Do you believe OHT’s are “primary oral healthcare providers”?

3. What are you doing in your role as a primary oral healthcare provider?

4. How do you measure your competency, know you are competent in these skills?

This set of questions were used to collect face-to-face information from 48 oral health therapists attending a workshop at an International Australian Dental and Oral Therapists Conference held in Canberra, Australia. All 48 responded to all questions, a response rate of 100%.

3.5. Data Collection

1. Postal Questionnaires

The questionnaires and information sheets were placed into stamped envelopes and divided into the numbers required for each area. Each dental manager of the three areas was asked, and they agreed, to assist with distribution of the questionnaires. The managers verified the numbers of dental practitioners employed in their respective areas. One large envelope containing 28 stamped and sealed smaller envelopes complete with the questionnaires and information sheet was sent to the dental manager in the Riverina area of NSW. A second large envelope containing 21 stamped and sealed smaller envelopes with the same contents were sent to the dental manager in the Whanganui area of New Zealand. A third large envelope containing 29 stamped and sealed smaller envelopes with the same contents were sent to the dental manager in the Northland area of New Zealand. The dental
managers in each of the three areas distributed 78 individually sealed envelopes to each
dental practitioner employed in their respective areas.

As all of the proposed participants for this questionnaire practised in rural and
regional areas, the sealed envelopes were sent by post, as access to computers at the time of
the study were not fully available for all clinicians practicing in rural settings, and this was an
important factor to consider in regard to obtaining the highest response rate as possible.
Accompanying the questionnaire was an instruction letter including information about the
study and a statement about giving consent to be a participant (see Appendix II).

The initial return rate was 62% from the two New Zealand regions, and 66% from the
NSW area, received within the specified one month from date of receipt, which was
requested in the instruction letter posted to the participants with the questionnaire. To gain
higher response rates, dental practitioners in the three areas were reminded several times with
prompts from requests sent to their dental managers. The final response rate increased to
70% from regional, rural New Zealand and 75% from the rural, regional NSW Riverina area,
an overall response rate of 73% for the postal questionnaires.

2. Conference Questions

From the several hundred conference attendees, there were 48 participants who had
registered to attend the workshop run by the researcher. Participants sat in 6 self-selected
tables with 8 persons seated at each table. Consent to have responses taken and used for this
study was given at the beginning of the workshop on a separate sheet of paper, where
participants signed underneath a statement “we the undersigned agree that our anonymous
comments can be incorporated in Helen Tane’s study”. Although not instructed to, all
participants wrote their name beside their signature on this sheet of paper, however, as this was completely separate to the written responses from each participant, there could not be any link back to who entered which response as they were entered separately on completely different sheets of paper during discussion time. Questions were placed at the beginning of the workshop, so that information in the follow-on presentation could not bias or influence participants’ responses. Large pieces of paper, pens and pencils were placed on each table to gather answers to each question. Participants at each table were asked to nominate a scribe and requested to each give a considered response to every question which was recorded on the large sheet of paper. The researcher moved around the tables to ensure everyone was having equal opportunity to have their response considered and recorded, and it was seen that all attendees did voice responses to the questions posed and these were noted correctly by the scribes. All written entries from the large pieces of paper were transcribed word verbatim into the following chapters in this work.

3.6. Data Analysis

The postal questionnaires were coded by an independent source, so that the initial findings could be looked at blind by the researcher. Therefore, knowledge of where the dental practitioners worked was not known when the initial analysis was done, avoiding a potential bias.

The possible strategies to use when interpreting data were explored before the phase of collecting data was undertaken, and thought was given to capturing a depth of responses including how practitioners thought what they did as they went about their health promotion practise, their perception of their level of competency and what impacted upon the activities undertaken.
There are various forms of phenomenological strategies which can be applied to analyse qualitative research methodology. Ricoeur’s theory has been associated most strongly with interpretation of qualitative data (Kearney, 2007) and was developed from earlier phenomenological approaches developed by Hiedegger and Gadamer (Tan, et al., 2009). This previous work (Kearney, 2007) developed the concept of hermeneutic phenomenology, which more recently was described as phenomenology research being specific for uncovering meanings (Bäckström, Asplund, & Sundin, 2010), as opposed to hermeneutic research which interprets the meaning. Applying this interpretation in this study, the pure phenomenology approach was utilised in the questionnaire and conference proceedings question design, and hermeneutic phenomenology utilised in both data interpretation as well as questionnaire and conference proceedings question design. The dual utilisation of hermeneutic phenomenology was described by Croft (1998) as “a theoretical perspective and a methodology, a strategy or plan that lies behind methods employed in a particular study method” (Tan, et al., 2009, p. 2). However, justification of utilising these approaches have much older beginnings, being described as methods to decipher biblical readings many centuries ago (Stewart, 1981), but the emphasis to scrutinise these methods became more significant when scientific writing demanded proof that results were true, had rigour of study design and interpretation, and not anecdotally concocted by the researcher.

To increase rigour in collection and interpretation of data in this study, application of the various strategies were considered for all four methodological stages. The four stages were implemented in the postal questionnaire and interpretation of the results, and also the collection of data from the international conference proceedings and interpretation of the results. Following the questionnaire design and ‘transformational change’ reflection to elicit the most meaningful data by applying a mixed methods approach, the same methodology was
also applied when interpreting the findings for the postal questionnaire and the conference workshop proceedings. This fully incorporated a mixed method approach of analysis; the postal questionnaire data underwent a quantitative statistical analysis, by consulting a professional statistician at CSU Quantitative Consultancy Unit. Initially, all of the analyses were conducted in R (Development Core Team R, 2010), and all the binary variables were analysed using the binomial generalised linear model. This model contains a single predictor variable for ‘area of employment’ to determine if this has any influence on the response variable. The continuous variables, for example ‘months since recent oral health promotion training’, were analysed using a generalised linear model with a Poisson distribution. A sample of how such a graph can display the data is:-

![Sample histogram showing linear model of a Poisson distribution](image)

**Figure 1. Sample histogram showing linear model of a Poisson distribution**

This is typical of a Poisson distribution, which is often used in the analysis of count data. Again, the model contains a single predictor variable for ‘area of employment’ to determine if this has any influence on ‘the number of months since recent oral health promotion training’. The final response has three (ordered) levels, which were analysed using ordinal logistic regression. This is another specific form of the generalised linear model. The model contains a single predictor variable for ‘area of employment’ to determine if this has any influence on the ‘importance of oral health promotion’ in relation to other tasks and therefore limited to what statistical tests can be applied.
Another quantitative approach to analyse the data would be to determine the significance by calculating Chi-Square analysis for nominal data and t test for continuous data. The Pearson Chi Square ($\chi^2$) test could have been employed for categorical data with normal distribution and the Likelihood Ratio Chi-Square ($G^2$) test for categorical data without normal distribution. A test of independence using a Fisher’s exact test was used and all relationships were found to be independent ($P > 0.05$). Fisher's exact test is a test used to analyse contingency tables, most often used when sample sizes are small, but it is also valid for all sample sizes. It is classified as an exact test because the significance of the deviation from a null hypothesis can be calculated exactly (Lu, Scholkopf, & Zhao, 2011). A $P$ value less than 0.05 would then be considered significant. The test of independence using a Fisher’s exact test was applied to questions one to nine, and a qualitative interpretation was applied to questions ten to fourteen.

A qualitative interpretation was used for all of the responses from the conference workshop proceedings. In order to apply a qualitative interpretation with rigour, it was important for the researcher conducting this study to have a deep understanding about the role of the therapist, the purpose of a public health system and importance of oral health promotion before the questions were administered for this study, so that the most meaningful information could be elicited. The researcher’s background is also important so that a deeper and informed critiquing and synthesizing of the data as accurately as possible could occur. Rice and Ezzy (1999) discuss this deeper approach to analysing data in terms of a ‘plot structure’, where three rudimentary plot types are able to be recognized if the researcher has this deeper understanding of the subject area. The first to be identified is a stable plot, where the narrative links events that are told in such a way that the topic investigated remains unchanged. The second and third plots that can be deciphered are regressive and progressive plots that respectively link, decline or reflect improvements in the topic of investigation.
Questions ten to fourteen in the study questionnaire demanded a narrative and contextual interpretation with consideration to the real ‘work lives’ and the public systems with which the respondents work in. All of the questions in the conference workshop proceedings demanded a narrative and conceptual interpretation. This ideology is described in educational literature as ‘social construction’ (Zeeman, Poggenpoel, Myburgh, & Van Der Linde, 2002) where people “interact with one another to construct modify and maintain what their society holds to be true, real and meaningful” (Zeeman, et al., 2002, p. 98). Issues relating to this phenomenon are further considered and explored in the discussion chapter, and due to the researcher’s depth of knowledge about the profession, public health settings and health promotion, a ‘poststructuralist’ approach can also be applied in interpreting the qualitative data. More recently, the importance of incorporating very thoughtful approaches of qualitative study design to the processes of interpreting qualitative findings has been described as eliciting well balanced and prudent data, providing the writer the ability to communicate clearer messages about research (Sandelowski & Leeman, 2012).
3.7. Ethical Review

Ethical approval was obtained from the CSU Ethics Committee (number 414201103 & 414/2011/03) for inclusion of the Australian participants; and the New Zealand Health and Disability Ethics Committee (reference MEC/11/EXP/046) for the inclusion of the participants from the Whanganui and Northland regions of New Zealand.
4. Results

4.1. Presenting the results from the postal questionnaires

The first question asked participants to enter ‘year dental therapy / oral health therapy qualification obtained’. All 57 respondents answered this question and the results are presented in Table 1.

<table>
<thead>
<tr>
<th>Qualification Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960 - 1969</td>
<td>6</td>
</tr>
<tr>
<td>1970 - 1979</td>
<td>19</td>
</tr>
<tr>
<td>1980 - 1989</td>
<td>21</td>
</tr>
<tr>
<td>1990 - 1999</td>
<td>4</td>
</tr>
<tr>
<td>2000 - 2009</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Qualification Place</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>20</td>
</tr>
<tr>
<td>Fiji</td>
<td>1</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
</tr>
</tbody>
</table>

All combined: 57

The second question asked participants to enter ‘place of gaining qualification’. The results showed that 35 (64%) of the respondents did train in New Zealand, 22 (34%) in Australia, and 1 (2%) in the School of Dentistry in Fiji and the results are also presented in Table 1.

The third question asked respondents to state the ‘date of their most recent health promotion training’. All 57 respondents answered this question, showing 100% had undertaken some form of health promotion training since their initial time of qualification, but some more than 10 years ago, and the responses are presented in Table 2.
Table 2 Date of most recent health promotion training.

<table>
<thead>
<tr>
<th>Place of Employment</th>
<th>NZ</th>
<th>37</th>
<th>32%</th>
<th>68%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Riverina</td>
<td>20</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>All combined</td>
<td>57</td>
<td>73%</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>

One respondent entered the time since their most recent health promotion training was in excess of 45 years. However, most of the respondents entered that recent training had occurred within 5 months from when the data was collected, even for the oldest respondent who trained in 1963.

The fourth question asked the participants to answer “what do you consider is the most comprehensive health promotion training you have undertaken?” All 57 respondents (100%) answered this question inserting various titles of community oral health promotion initiatives as their most recent health promotion training.

Question five asked the respondents ‘how do you personally rate the importance of health promotion’ by circling ‘not important at all’; ‘important’; ‘very important’. Nearly 78% rated this question as ‘very important’ and 26% answered this as ‘important. All 57 respondents answered this question, and the results are presented in Table 3.

Table 3. How do you personally rate the importance of health promotion?
<table>
<thead>
<tr>
<th>Qualification Year</th>
<th>Number</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960 - 1969</td>
<td>6</td>
<td>3 (50%)</td>
<td>3 (50%)</td>
</tr>
<tr>
<td>1970 - 1979</td>
<td>19</td>
<td>5 (26.3%)</td>
<td>14 (73.7%)</td>
</tr>
<tr>
<td>1980 - 1989</td>
<td>21</td>
<td>5 (23.8%)</td>
<td>16 (76.2%)</td>
</tr>
<tr>
<td>1990 - 1999</td>
<td>4</td>
<td>1 (25%)</td>
<td>3 (75%)</td>
</tr>
<tr>
<td>2000 - 2009</td>
<td>7</td>
<td>1 (14.3%)</td>
<td>6 (85.7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Qualification Place</th>
<th>Number</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>20</td>
<td>5 (25%)</td>
<td>15 (75%)</td>
</tr>
<tr>
<td>Fiji</td>
<td>1</td>
<td>0 (0%)</td>
<td>1 (100%)</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
<td>10 (27.8%)</td>
<td>26 (72.2%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Promotion during Training</th>
<th>Number</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>43</td>
<td>13 (30.2%)</td>
<td>30 (69.8%)</td>
</tr>
<tr>
<td>yes</td>
<td>14</td>
<td>2 (14.3%)</td>
<td>12 (85.7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Health Promotion Training</th>
<th>Number</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>32</td>
<td>10 (31.3%)</td>
<td>22 (68.8%)</td>
</tr>
<tr>
<td>yes</td>
<td>25</td>
<td>5 (20%)</td>
<td>20 (80%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Place of Employment</th>
<th>Number</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ</td>
<td>37</td>
<td>9 (24.3%)</td>
<td>28 (75.7%)</td>
</tr>
<tr>
<td>Riverina</td>
<td>20</td>
<td>6 (30%)</td>
<td>14 (70%)</td>
</tr>
</tbody>
</table>

All combined: 57 | 15 (26.3%) | 42 (73.7%)

Note: A test of independence using a Fisher’s Exact test was used and all relationships were found to be independent (P>0.05)

The sixth question asked ‘does your current role include undertaking oral health promotion in your regular contact with your patients’? Participants circled either ‘yes’ or ‘no’. Ninety eight percent (98%) of respondents answered “yes” and one respondent (2%) answered “no”.

83
Table 4 Does part of your current role include undertaking oral health promotion in your regular contact with your patients?

<table>
<thead>
<tr>
<th>Qualification Year</th>
<th>Number</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960 - 1969</td>
<td>6</td>
<td>0 (0%)</td>
<td>6 (100%)</td>
</tr>
<tr>
<td>1970 - 1979</td>
<td>19</td>
<td>0 (0%)</td>
<td>19 (100%)</td>
</tr>
<tr>
<td>1980 - 1989</td>
<td>21</td>
<td>1 (4.8%)</td>
<td>20 (95.2%)</td>
</tr>
<tr>
<td>1990 - 1999</td>
<td>4</td>
<td>0 (0%)</td>
<td>4 (100%)</td>
</tr>
<tr>
<td>2000 - 2009</td>
<td>7</td>
<td>0 (0%)</td>
<td>7 (100%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Qualification Place</th>
<th>Number</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>20</td>
<td>1 (5%)</td>
<td>19 (95%)</td>
</tr>
<tr>
<td>Fiji</td>
<td>1</td>
<td>0 (0%)</td>
<td>1 (100%)</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
<td>0 (0%)</td>
<td>36 (100%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Promotion during Training</th>
<th>Number</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>43</td>
<td>1 (2.3%)</td>
<td>42 (97.7%)</td>
</tr>
<tr>
<td>yes</td>
<td>14</td>
<td>0 (0%)</td>
<td>14 (100%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Health Promotion Training</th>
<th>Number</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>32</td>
<td>0 (0%)</td>
<td>32 (100%)</td>
</tr>
<tr>
<td>yes</td>
<td>25</td>
<td>1 (4%)</td>
<td>24 (96%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Place of Employment</th>
<th>Number</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ</td>
<td>37</td>
<td>0 (0%)</td>
<td>37 (100%)</td>
</tr>
<tr>
<td>Riverina</td>
<td>20</td>
<td>1 (5%)</td>
<td>19 (95%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All combined</th>
<th>Number</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>57</td>
<td>1 (1.8%)</td>
<td>56 (98.2%)</td>
</tr>
</tbody>
</table>

Note: A test of independence using a Fisher’s Exact test was used and all relationships were found to be independent (P>0.05).

The seventh question asked participants ‘in your opinion, who should provide oral health promotion to individual patients within a clinical healthcare setting’? All respondents answered this question, and the results are presented in Table 5.
Table 5 In your opinion, who should provide oral health promotion to individual patients within a clinical health care setting?

<table>
<thead>
<tr>
<th>Qualification Year&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Number</th>
<th>Anyone/c</th>
<th>Clinician/c</th>
<th>Clinician/HP/c</th>
<th>DA/nc</th>
<th>No Response</th>
<th>Parents/Teachers/nc</th>
<th>Teachers/nc</th>
<th>Team/c</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960 - 1969</td>
<td>19</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (16.7%)</td>
<td>1 (16.7%)</td>
<td>1 (16.7%)</td>
<td>3 (50%)</td>
</tr>
<tr>
<td>1970 - 1979</td>
<td>19</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>12 (63.2%)</td>
</tr>
<tr>
<td>1980 - 1989</td>
<td>21</td>
<td>0 (0%)</td>
<td>6 (28.6%)</td>
<td>1 (4.8%)</td>
<td>1 (4.8%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>13 (61.9%)</td>
</tr>
<tr>
<td>1990 - 1999</td>
<td>4</td>
<td>1 (25%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>3 (75%)</td>
</tr>
<tr>
<td>2000 - 2009</td>
<td>7</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>7 (100%)</td>
</tr>
<tr>
<td>Qualification Place</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AU</td>
<td>20</td>
<td>0 (0%)</td>
<td>3 (15%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>17 (85%)</td>
</tr>
<tr>
<td>Fiji</td>
<td>1</td>
<td>0 (0%)</td>
<td>1 (100%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
<td>1 (2.8%)</td>
<td>9 (25%)</td>
<td>1 (2.8%)</td>
<td>1 (2.8%)</td>
<td>1 (2.8%)</td>
<td>1 (2.8%)</td>
<td>1 (2.8%)</td>
<td>21 (58.3%)</td>
</tr>
<tr>
<td>Health Promotion during Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>43</td>
<td>0 (0%)</td>
<td>12 (27.9%)</td>
<td>1 (2.3%)</td>
<td>1 (2.3%)</td>
<td>1 (2.3%)</td>
<td>0 (0%)</td>
<td>1 (2.3%)</td>
<td>27 (62.8%)</td>
</tr>
<tr>
<td>yes</td>
<td>14</td>
<td>1 (7.1%)</td>
<td>1 (7.1%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (7.1%)</td>
<td>0 (0%)</td>
<td>11 (78.6%)</td>
</tr>
<tr>
<td>Additional Health Promotion Training</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>32</td>
<td>1 (3.1%)</td>
<td>10 (31.3%)</td>
<td>1 (3.1%)</td>
<td>0 (0%)</td>
<td>1 (3.1%)</td>
<td>1 (3.1%)</td>
<td>0 (0%)</td>
<td>18 (56.3%)</td>
</tr>
<tr>
<td>yes</td>
<td>25</td>
<td>0 (0%)</td>
<td>3 (12%)</td>
<td>0 (0%)</td>
<td>1 (4%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (4%)</td>
<td>20 (80%)</td>
</tr>
<tr>
<td>Place of Employment</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NZ</td>
<td>37</td>
<td>11 (29.7%)</td>
<td>1 (2.7%)</td>
<td>1 (2.7%)</td>
<td>1 (2.7%)</td>
<td>1 (2.7%)</td>
<td>1 (2.7%)</td>
<td>20 (54.1%)</td>
<td>11 (29.7%)</td>
</tr>
<tr>
<td>Riverina</td>
<td>20</td>
<td>2 (10%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>18 (80%)</td>
<td>2 (10%)</td>
<td></td>
</tr>
<tr>
<td>All combined</td>
<td>57</td>
<td>1 (1.8%)</td>
<td>13 (22.8%)</td>
<td>1 (1.8%)</td>
<td>1 (1.8%)</td>
<td>1 (1.8%)</td>
<td>1 (1.8%)</td>
<td>1 (1.8%)</td>
<td>38 (66.7%)</td>
</tr>
</tbody>
</table>

<sup>a</sup> P<0.05  

**Note:** A test of independence using a Fisher’s Exact test was used and unless indicated otherwise the relationships were found to be independent (P>0.05).

**c =** current. Respondents whose answers aligned with contemporary oral health promotion knowledge, as specified in the literature review.

**nc =** not current. Respondents whose answers identified out of date concepts of improving health e.g. instructional knowledge told to a patient.

Use and categorising of ‘c’ and ‘nc’ are discussed further in the discussion section, page 106.
Of the sixty six percent who stated “anyone”, all participants provided the occupation title of the person who they considered should provide oral health promotion in their healthcare setting. Some respondents entered clinician / health practitioner which is entered as HP and dental assistant is entered as DA. The implications of these results and currency in relation to the literature are further discussed in the discussion chapters from page 102. We can see from the statistical analysis that currency of health promotion knowledge is not affected by year of qualification having a p-value < 0.05.

Question eight asked ‘do you work with people who promote oral health for your patient group in the healthcare setting where you work”? All respondents answered this question, and the results are presented in Table 6. We can see from the statistical analysis that currency of health promotion knowledge is not affected by qualification place and time having a p-value < 0.001.
Table 6 Do you work with people who promote oral health for your patient group in the health care setting where you work?

<table>
<thead>
<tr>
<th>Qualification Year</th>
<th>Number</th>
<th>No One</th>
<th>No One/nc</th>
<th>Nurses/c</th>
<th>Others</th>
<th>Others/nc</th>
<th>Others/nc</th>
<th>Schools/c</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960 - 1969</td>
<td>6</td>
<td>0 (0%)</td>
<td>2 (33.3%)</td>
<td>0 (0%)</td>
<td>2 (33.3%)</td>
<td>1 (16.7%)</td>
<td>1 (16.7%)</td>
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<tr>
<td>1970 - 1979</td>
<td>19</td>
<td>0 (0%)</td>
<td>5 (26.3%)</td>
<td>2 (10.5%)</td>
<td>1 (5.3%)</td>
<td>8 (42.1%)</td>
<td>3 (15.8%)</td>
<td></td>
</tr>
<tr>
<td>1980 - 1989</td>
<td>21</td>
<td>0 (0%)</td>
<td>3 (14.3%)</td>
<td>0 (0%)</td>
<td>7 (33.3%)</td>
<td>9 (42.9%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>1990 - 1999</td>
<td>4</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (25%)</td>
<td>3 (75%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>2000 - 2009</td>
<td>7</td>
<td>0 (0%)</td>
<td>1 (14.3%)</td>
<td>0 (0%)</td>
<td>4 (57.1%)</td>
<td>2 (28.6%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Qualification Place*</th>
<th>Number</th>
<th>No One</th>
<th>No One/nc</th>
<th>Nurses/c</th>
<th>Others</th>
<th>Others/nc</th>
<th>Others/nc</th>
<th>Schools/c</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>20</td>
<td>1 (5%)</td>
<td>2 (10%)</td>
<td>0 (0%)</td>
<td>2 (10%)</td>
<td>2 (10%)</td>
<td>13 (65%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Fiji</td>
<td>1</td>
<td>0 (0%)</td>
<td>1 (100%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
<td>0 (0%)</td>
<td>8 (22.2%)</td>
<td>2 (5.6%)</td>
<td>0 (0%)</td>
<td>20 (55.6%)</td>
<td>5 (13.9%)</td>
<td>1 (2.8%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Promotion during Training</th>
<th>Number</th>
<th>No One</th>
<th>No One/nc</th>
<th>Nurses/c</th>
<th>Others</th>
<th>Others/nc</th>
<th>Others/nc</th>
<th>Schools/c</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>43</td>
<td>1 (2.3%)</td>
<td>10 (23.3%)</td>
<td>2 (4.7%)</td>
<td>1 (2.3%)</td>
<td>16 (37.2%)</td>
<td>13 (30.2%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>yes</td>
<td>14</td>
<td>0 (0%)</td>
<td>1 (7.1%)</td>
<td>0 (0%)</td>
<td>1 (7.1%)</td>
<td>6 (42.9%)</td>
<td>5 (35.7%)</td>
<td>1 (7.1%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Health Promotion Training</th>
<th>Number</th>
<th>No One</th>
<th>No One/nc</th>
<th>Nurses/c</th>
<th>Others</th>
<th>Others/nc</th>
<th>Others/nc</th>
<th>Schools/c</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>32</td>
<td>1 (3.1%)</td>
<td>7 (21.9%)</td>
<td>2 (6.3%)</td>
<td>0 (0%)</td>
<td>13 (40.6%)</td>
<td>8 (25%)</td>
<td>1 (3.1%)</td>
</tr>
<tr>
<td>yes</td>
<td>25</td>
<td>0 (0%)</td>
<td>4 (16%)</td>
<td>0 (0%)</td>
<td>2 (8%)</td>
<td>9 (36%)</td>
<td>10 (40%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Place of Employment*</th>
<th>Number</th>
<th>No One</th>
<th>No One/nc</th>
<th>Nurses/c</th>
<th>Others</th>
<th>Others/nc</th>
<th>Others/nc</th>
<th>Schools/c</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ</td>
<td>37</td>
<td>0 (0%)</td>
<td>9 (24.3%)</td>
<td>2 (5.4%)</td>
<td>0 (0%)</td>
<td>21 (56.8%)</td>
<td>4 (10.8%)</td>
<td>1 (2.7%)</td>
</tr>
<tr>
<td>Riverina</td>
<td>20</td>
<td>1 (5%)</td>
<td>2 (10%)</td>
<td>0 (0%)</td>
<td>2 (10%)</td>
<td>1 (5%)</td>
<td>14 (70%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

| All combined         | 57     | 1 (1.8%)| 11 (19.3%)| 2 (3.5%) | 2 (3.5%)| 22 (38.6%)| 18 (31.6%)| 1 (1.8%)  |

*p<0.001

**Note:** A test of independence using a Fisher’s Exact test was used and unless indicated otherwise the relationships were found to be independent (P>0.05)

c = current. Respondents whose answers aligned with contemporary oral health promotion knowledge.

nc = not current. Respondents whose answers identified out of date concepts of improving health e.g. instructional knowledge told to a patient.

Use and categorising of ‘c’ and ‘nc’ are discussed further in the discussion section
Question nine asked “does your management team support and encourage you to do oral health promotion”, requiring a “yes” / “no” answer. 91% responded that their management did support them, 7% did not respond and 2% stated their management did not support and encourage them to do oral health promotion. The results are presented in Table 7.

Table 7. Does your management team support and encourage you to do oral health promotion in the health care setting?

<table>
<thead>
<tr>
<th>Qualification Year</th>
<th>Number</th>
<th>No</th>
<th>Yes</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960 - 1969</td>
<td>6</td>
<td>0 (0%)</td>
<td>6 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>1970 - 1979</td>
<td>19</td>
<td>1 (5.3%)</td>
<td>15 (78.9%)</td>
<td>3 (15.8%)</td>
</tr>
<tr>
<td>1980 - 1989</td>
<td>21</td>
<td>0 (0%)</td>
<td>20 (95.2%)</td>
<td>1 (4.8%)</td>
</tr>
<tr>
<td>1990 - 1999</td>
<td>4</td>
<td>0 (0%)</td>
<td>4 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>2000 - 2009</td>
<td>7</td>
<td>0 (0%)</td>
<td>7 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Qualification Place</td>
<td>Number</td>
<td>No</td>
<td>Yes</td>
<td>No Response</td>
</tr>
<tr>
<td>AU</td>
<td>20</td>
<td>0 (0%)</td>
<td>19 (95%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Fiji</td>
<td>1</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (100%)</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
<td>1 (2.8%)</td>
<td>33 (91.7%)</td>
<td>2 (5.6%)</td>
</tr>
<tr>
<td>Health Promotion during Training</td>
<td>Number</td>
<td>No</td>
<td>Yes</td>
<td>No Response</td>
</tr>
<tr>
<td>no</td>
<td>43</td>
<td>1 (2.3%)</td>
<td>38 (88.4%)</td>
<td>4 (9.3%)</td>
</tr>
<tr>
<td>yes</td>
<td>14</td>
<td>0 (0%)</td>
<td>14 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Additional Health Promotion Training</td>
<td>Number</td>
<td>No</td>
<td>Yes</td>
<td>No Response</td>
</tr>
<tr>
<td>no</td>
<td>32</td>
<td>0 (0%)</td>
<td>30 (93.8%)</td>
<td>2 (6.3%)</td>
</tr>
<tr>
<td>yes</td>
<td>25</td>
<td>1 (4%)</td>
<td>22 (88%)</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>Place of Employment</td>
<td>Number</td>
<td>No</td>
<td>Yes</td>
<td>No Response</td>
</tr>
<tr>
<td>NZ</td>
<td>37</td>
<td>1 (2.7%)</td>
<td>33 (89.2%)</td>
<td>3 (8.1%)</td>
</tr>
<tr>
<td>Riverina</td>
<td>20</td>
<td>0 (0%)</td>
<td>19 (95%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>All combined</td>
<td>57</td>
<td>1 (1.8%)</td>
<td>52 (91.2%)</td>
<td>4 (7.0%)</td>
</tr>
</tbody>
</table>

Note: A test of independence using a Fisher's Exact test was used and all relationships were found to be independent (P>0.05)
Nearly all of the respondents answered the tenth question, and the responses were ordered into three categories. A comprehensive description about how the process of categorising the ‘currency’ of each response into a specific category is included in the discussion section, but in brief the categories were based on the literature reviewed and chosen by determining whether the answers were centred on: 1. Describing oral health promotion within a community setting; 2. Describing oral health promotion as dental health education, which teaches and provides instructional information; 3. Describing oral health promotion as individually tailored “behaviour change” messages for improving oral health.

Two of the respondents did not answer this question. The responses written by the participants have been copied in an exact verbatim and presented as sample responses.

1. Promoting oral health within a community setting.

A smaller number of respondents 21% described promoting oral health as a community intervention. A sample of answers were:- “Needs to be in the curriculum for medical students, teachers, early childhood centres and community centres….we need a national TV commercial to promote oral health”: “using population health approach and delivering evidence based programs. Implementing public policy (e.g. advocating for fluoride), working towards collaborate partnerships, as well as focusing on specific groups who experience higher levels of oral disease. Also increasing access to preventive oral health services, and improving people’s knowledge about the importance of oral health”: “ability to use contemporary approaches e.g. population approaches, common risk factor approaches for community health development”. One respondent wrote “I tend to get confused with oral health promotion and oral health education. Promotion seems to be broader including public health population initiatives like water fluoridation etc.”
2. Describing oral health promotion as dental health education, which teaches and provides instructional information.

The majority of respondents, 71% believed that oral health promotion was still a form of dental health education. A sample of answers are: “Informing clients, caregivers....with up-to-date oral care especially at home”: “Giving simple messages to individuals and the families to improve their skills.... improve their overall health and spread the message to others”: “The promotion of health in the context of general health, specific to the age and needs of each individual client”: “Education both by example and reading material aimed at individuals and broader groups to achieve their goals”: “Education and providing services available to all in the community”: “Getting our message out healthy lifestyle/diet for a health life”: “Providing people with the information that they need to make informed choices regarding their health”: “Giving patients information to improve their oral health understanding and importance”.

3. Individually tailored behaviour change messages for improving oral health.

A smaller number of respondents 16%, entered answers that were categorised into a more individual approach that incorporated aspects of motivating and encouraging a patient to improve their oral health. A sample of the responses are: “talking individually to patient and parent together, describing specific treatment needs and resolving, encouraging healthy lifestyle choices through positive and simple strategies e.g. encouraging water bottles”: “providing information and knowledge to improve oral health behaviour and increase patient’s comprehension of autonomous oral health choices”: “motivating people to understand what they do affects the oral health of their and their families...finding simple, concise messages that make a difference, helping families identify their own positives and negatives to oral health and supporting change/improvement and praising the positives”:
“Influencing behaviour change in patients/parents towards achieving healthy lifestyle habits.

I am really interested in learning more about motivation interviewing approaches where you create a climate that helps patients make a change – listening rather than telling. This can be done quite effectively in the time we have during appointments, over time”: “Providing information, skills and tools to allow individuals, families and communities to improve their health”

Question eleven asked “is it important for you to have a level of competency in oral health promotion”. All respondents answered this question and nearly 88% answering “yes” it was important and nearly 9% answering “no” it wasn’t important. The results are presented in Table 8

Table 8 Do you believe it is important for you to have a level of competency in oral health promotion?

<table>
<thead>
<tr>
<th>Qualification Year</th>
<th>Number</th>
<th>No</th>
<th>Yes</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960 - 1969</td>
<td>6</td>
<td>1 (16.7%)</td>
<td>5 (83.3%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>1970 - 1979</td>
<td>19</td>
<td>2 (10.5%)</td>
<td>15 (78.9%)</td>
<td>2 (10.5%)</td>
</tr>
<tr>
<td>1980 - 1989</td>
<td>21</td>
<td>1 (4.8%)</td>
<td>20 (95.2%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>1990 - 1999</td>
<td>4</td>
<td>0 (0%)</td>
<td>4 (100%)</td>
<td>0 (0%)</td>
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<tr>
<td>2000 - 2009</td>
<td>7</td>
<td>1 (14.3%)</td>
<td>6 (85.7%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Qualification Place</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AU</td>
<td>20</td>
<td>0 (0%)</td>
<td>19 (95%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Fiji</td>
<td>1</td>
<td>0 (0%)</td>
<td>1 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
<td>5 (13.9%)</td>
<td>30 (83.3%)</td>
<td>1 (2.8%)</td>
</tr>
<tr>
<td>Health Promotion during Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>43</td>
<td>3 (7%)</td>
<td>38 (88.4%)</td>
<td>2 (4.7%)</td>
</tr>
<tr>
<td>yes</td>
<td>14</td>
<td>2 (14.3%)</td>
<td>12 (85.7%)</td>
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<td>4 (12.5%)</td>
<td>27 (84.4%)</td>
<td>1 (3.1%)</td>
</tr>
<tr>
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<td>25</td>
<td>1 (4%)</td>
<td>23 (92%)</td>
<td>1 (4%)</td>
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<td></td>
</tr>
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<td>5 (13.5%)</td>
<td>31 (83.8%)</td>
<td>1 (2.7%)</td>
</tr>
<tr>
<td>Riverina</td>
<td>20</td>
<td>0 (0%)</td>
<td>19 (95%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>All combined</td>
<td>57</td>
<td>5 (8.8%)</td>
<td>50 (87.7%)</td>
<td>2 (3.5%)</td>
</tr>
</tbody>
</table>

Note: A test of independence using a Fisher’s Exact test was used and all relationships were found to be independent (P>0.05)
Question twelve asked the respondents “how would you rate the importance of promoting oral health in relation to all of the other tasks you do in your daily contact with patients and the community you work in?” Participants were asked to circle “not at all important”, “important”, and “very important”. The majority of the participants stated oral health promotion was either important (40%) or very important (54%). These results are presented in Table 9.
Table 9. How would you rate the importance of promoting oral health in relation to all of the other tasks you do in your daily contact with patients and the community you work in?

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Not Important</th>
<th>Important</th>
<th>Very Important</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualification Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960 - 1969</td>
<td>6</td>
<td>1 (16.7%)</td>
<td>3 (50%)</td>
<td>2 (33.3%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>1970 - 1979</td>
<td>19</td>
<td>0 (0%)</td>
<td>7 (36.8%)</td>
<td>11 (57.9%)</td>
<td>1 (5.3%)</td>
</tr>
<tr>
<td>1980 - 1989</td>
<td>21</td>
<td>0 (0%)</td>
<td>8 (38.1%)</td>
<td>13 (61.9%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>1990 - 1999</td>
<td>4</td>
<td>1 (25%)</td>
<td>2 (50%)</td>
<td>1 (25%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>2000 - 2009</td>
<td>7</td>
<td>0 (0%)</td>
<td>3 (42.9%)</td>
<td>4 (57.1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Qualification Place</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AU</td>
<td>20</td>
<td>0 (0%)</td>
<td>9 (45%)</td>
<td>10 (50%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Fiji</td>
<td>1</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
<td>2 (5.6%)</td>
<td>14 (38.9%)</td>
<td>20 (55.6%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Health Promotion during Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>43</td>
<td>1 (2.3%)</td>
<td>15 (34.9%)</td>
<td>26 (60.5%)</td>
<td>1 (2.3%)</td>
</tr>
<tr>
<td>yes</td>
<td>14</td>
<td>1 (7.1%)</td>
<td>8 (57.1%)</td>
<td>5 (35.7%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Additional Health Promotion Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>32</td>
<td>2 (6.3%)</td>
<td>13 (40.6%)</td>
<td>17 (53.1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>yes</td>
<td>25</td>
<td>0 (0%)</td>
<td>10 (40%)</td>
<td>14 (56%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Place of Employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NZ</td>
<td>37</td>
<td>2 (5.4%)</td>
<td>13 (35.1%)</td>
<td>22 (59.5%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Riverina</td>
<td>20</td>
<td>0 (0%)</td>
<td>10 (50%)</td>
<td>9 (45%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>All combined</td>
<td>57</td>
<td>2 (3.5%)</td>
<td>23 (40.4%)</td>
<td>31 (54.4%)</td>
<td>1 (1.8%)</td>
</tr>
</tbody>
</table>

Note: A test of independence using a Fisher’s Exact test was used and all relationships were found to be independent (P>0.05)
Question thirteen asked participants to circle either “yes” or “no” to this question.

“The skill-set of the new oral health graduates is to have competence in dental therapy, dental hygiene and oral health promotion. Do you think these skills will be utilised equally in the setting you work in? One respondent circled both “yes” and “no”. Four respondents did not answer this question, and of the remaining respondents, 61% believed these skills would be utilized and 30% circled “no” they did not think these skills would be utilized equally in their current workplace. The results are presented in Table 10.
Table 10 The skill-set of new oral health therapy graduates is to have competence in dental therapy, dental hygiene and oral health promotion. Do you think these skills will be utilized equally in the setting you work in?

<table>
<thead>
<tr>
<th>Qualification Year</th>
<th>Number</th>
<th>No</th>
<th>Yes</th>
<th>Yes/No</th>
<th>Unsure</th>
<th>No Response</th>
</tr>
</thead>
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<tr>
<td>1960 - 1969</td>
<td>6</td>
<td>2 (33.3%)</td>
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<td>5 (26.3%)</td>
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<tr>
<td>1980 - 1989</td>
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<td>5 (23.8%)</td>
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<td>0 (0%)</td>
<td>2 (9.5%)</td>
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<tr>
<td>1990 - 1999</td>
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<td>3 (75%)</td>
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<tr>
<td>2000 - 2009</td>
<td>7</td>
<td>2 (28.6%)</td>
<td>5 (71.4%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Qualification Place</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>AU</td>
<td>20</td>
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<td>13 (65%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>Fiji</td>
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<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
<td>11 (30.6%)</td>
<td>21 (58.3%)</td>
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<td>1 (2.8%)</td>
<td>2 (5.6%)</td>
</tr>
<tr>
<td>Health Promotion during Training</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>43</td>
<td>13 (30.2%)</td>
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</tr>
<tr>
<td>yes</td>
<td>14</td>
<td>4 (28.6%)</td>
<td>9 (64.3%)</td>
<td>0 (0%)</td>
<td>1 (7.1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>32</td>
<td>11 (34.4%)</td>
<td>18 (56.3%)</td>
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<td>1 (3.1%)</td>
<td>2 (6.3%)</td>
</tr>
<tr>
<td>yes</td>
<td>25</td>
<td>6 (24%)</td>
<td>16 (64%)</td>
<td>1 (4%)</td>
<td>0 (0%)</td>
<td>2 (8%)</td>
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<td>Place of Employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NZ</td>
<td>37</td>
<td>12 (32.4%)</td>
<td>21 (56.3%)</td>
<td>1 (2.7%)</td>
<td>1 (2.7%)</td>
<td>2 (5.4%)</td>
</tr>
<tr>
<td>Riverina</td>
<td>20</td>
<td>5 (25%)</td>
<td>13 (65%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>All combined</td>
<td>57</td>
<td>17 (29.8%)</td>
<td>34 (59.6%)</td>
<td>1 (1.8%)</td>
<td>1 (1.8%)</td>
<td>4 (7.0%)</td>
</tr>
</tbody>
</table>

**Note:** A test of independence using a Fisher's Exact test was used and all relationships were found to be independent (P>0.05)
The last question of the questionnaire provided an opportunity for respondents to “please add any other comments you would like to make about this topic”. 64% of the respondents wrote comments in this section. Again the process of ordering each response into a specific category is explained in the discussion section, but in brief two categories with clear themes were evident within the responses: 1. Those stating they were satisfied with the current level of health promotion being undertaken within the public health sector where they worked, and 2; those who stated dissatisfaction with the current level of health promotion undertaken. A sample of the results are in the following paragraphs:-

1. Comments from respondents stating they were satisfied with the current level of health promotion being undertaken.

   “We have trained some of our dental assistants to take over some of the health promotion previously done by therapists. Resources such as the ECOH (early childhood oral health teaching resource) training manual are very helpful”: “I have noticed that messages in the waiting room or on clinic walls are well received by patients & parents. Also liaising with Plunket (an organisation specific to NZ providing postnatal support by health qualified nurses), antenatal, kindy groups are beneficial”: “Oral health promotion is the key to good oral health & health in general. If we are successful in our promotion there should be less demand for treatment. In Northland NZ we enrol from birth, giving oral hygiene messages to new mothers, groups such as child care centres, preschool institutions, mothers as first teachers, individual instruction to children and encourage parent participation”.
2. Comments from respondents stating dissatisfaction with the current level of health promotion

“Oral health promotion should highlight the importance of the significant links between oral health and general health. It is now widely recognised that dental restorative treatment alone is not reducing oral disease. A mix of oral health promotion for the population as well as the individual, and creating supportive environment for this to occur is required to reduce our burdening oral disease. I am lucky I work in a clinic where OHP is valued, but this is not the case across the state. A dedicated role of OHP should be encouraged, so as to ensure this important area is not overlooked. Also correct weighting of time taken to deliver OHP should be ensured so that staff members are not penalised for choosing to deliver OHP over restorative treatment numbers”: “Majority of the dental team’s role should be prevention of oral disease & conditions; this also be reflected in the reporting of item numbers & their weighted occasion of service so that staff receive equal reward for prevention compared to restorative/ROP (relief of pain) treatment etc”: 

“Probably a more comprehensive understanding of the topic with regular up-skilling & updating of information would help maintain good oral health promotion within the public sector. CPD (continuing professional development) is usually very clinically focussed”: “I would like to see more training during training. Specifically more than I had. I also feel everyone has different strengths, so even some assistance to be more comfortable in a “teaching” environment would help those not so comfortable doing this. My experience has been that individual one-to-one promotions have been most successful. I have felt though that there has not been enough time for follow-up & support”: “oral health promotion is only as good as the receiver takes on board. Messages need to be simple, basic and related to the person you are talking with at the time i.e. budget restraints. Every visit should leave the patient feeling good about themselves, a positive
reinforcement”: “I feel with today’s pressures & time that this isn’t done often enough as there isn’t the time allowed for this”: “In low decile (a term used in NZ to classify socioeconomic status) areas health promotion even on individual basis does not work. They all want free toothbrush & toothpaste – one week later they haven’t been used. Seems priorities in households do not put personal dental hygiene on the list”: “Unfortunately when there are major staffing shortages and health promotion gets dropped. It is also not measured in our outputs/outcomes”.

There were two respondents who stated dissatisfaction that health promotion should be part of an oral health therapist’s role at all:- “I query the competence of dental therapists with regards to pulpotomies and SSC and treatment of decay upon graduation. Oral health promotion is not a practical/clinical skill set but its effectiveness is only as good as the communication level of the therapist/hygienist. Most important that therapists are trained and invited to attend oral health promotion training. DO NOT want to be deskilled as we have been with hygiene”: “Operative dentistry is becoming deskilled. We trained to treat the disease, but being PC and spending more ‘time’ with clients is becoming more important. The pressure can be great when clients need much time spend on health advice. It can be a waste of time not knowing what the home situation ‘teaches’ and we have big clinic rolls to work through. I enjoy the work I do but draw the line of time involvement with health promotion”.

The independent coding for the questionnaire were viewed by the author at this stage and it was found that the research assistant had coded all envelopes opened from New Zealand clinicians by numbering them 1 to 37, and the remaining questionnaire from the Riverina clinicians were numbered 38 to 57. At this stage it was possible to look again
at the questionnaire to see if there were any significant differences in the findings from country to country. The small group of respondents (16%) who answered health promotion was something that occurred within the clinical setting were all clinicians from New Zealand. The respondents (71%) who thought health promotion was actually a dental health activity were in the main from New Zealand (65%) with a smaller number of respondents from the Riverina (35%) stating this was the case. The smallest number of respondents (14%) who stated health promotion was a community activity were in the main Riverina clinicians (75%), with only one quarter of this group being New Zealand dental practitioners.

4.2. Presenting the results from the international conference workshop

The written responses are transcribed in italics:-

1) What does “primary oral health care” entail, mean to you as a clinician?

   (1) Multidisciplinary approach, addressing causes of causes e.g. policy, SES, environment.

   (2) General health assessment i.e. diet smoking, OH. Motivation of patient “how to do this”. Background information, building rapport, personal interest, communication, understanding, prevention, how to achieve compliance in the patients, with continued motivation.

   (3) “Getting in” before problems become evident, educating “stakeholders”, and building capacity in our communities by networking and educating existing non-dental professionals. Prevention focus, empowering client/families by educating to break cycle of disease.
(4) Prevention of disease, education of target groups e.g. socio-economic deprived patients, minority groups, “lessening the gap”, indigenous Australians.

(5) These are the “first point of call” professionals, not necessarily OHT’s e.g. AHW nurses and nutritionists. Settings approaches in the community. Working side-by-side with allied health professionals, not solo approach. Facilitating focus groups, policy development, research program development, quality control. Need to be opportunistic.

2) Do you believe OHT’s should be “primary oral healthcare providers”?

(1) Prevention is the cure, it’s everyone’s responsibility, and dentists rarely provide OHI due to their inadequate knowledge and focus on income.

(2) Yes, up to us but requires a complete healthcare worker approach, antenatal material, health nurses, doctors, community nurses.

(3) No, this is a secondary skill set. Our skills are for a clinical setting, not community so much.

(4) Yes, but don’t necessarily feel we have the resources, skills or training / older therapists.

(5) Yes, but we should strive for a balance, OHT’s educate other health professions to educate. Need help to do primary healthcare i.e. OHP provider?

(6) No, we’re too specialised.

3) What are you doing in your role as a primary oral healthcare provider?
(1) Outreach & informal information to communities e.g. new Mum’s groups, incorporating OHI in treatment planning, utilising community networks e.g. through local pharmacist, GP’s, counselling services

(2) Trying to achieve the above but restricted by government funding to manage patient group. Health education in schools

(3) OHP & education with community groups e.g. parenting young babies, preschool groups, individual and families.

(4) Educating chair side to families and individuals, groups, classrooms in schools. Implementing programs such as “lift the lip”. Supervising student involvement in OHP projects.

(5) Parent, patient, clinician, OHI, discussion on disease, diet assessment. Tailoring recalls to patient need, in some places risk assessment, community involvement.

(6) Tooth brushing programs, clinical 80 – 90%, so mostly do individual DHE.

4) How do you measure your competency, know you are competent in these skills?

(1) Review patients when they return for treatment.

(2) Results in clinic, feedback from patients & parents, attending CPD opportunities.

(3) Survey feedback, patient compliance and appointment attendance. Review own skills, peer reviews, clinical staff appraisal by senior clinician, self-appraisal, journal reflection.
(4) Community feedback, clinic attendance, governance and board meetings, patients recall “key messages. Locating your posters in other clinics outside dental community.

Due to time constraints, the second set of questions utilised for the conference workshop were answered in the ‘whole-room’ setting of the conference workshop with all 48 (100%) of the participants participating.

The responses were recorded in brief note form and are transcribed in italics below:-

1. How do you distribute your resources equitably

   • For example ensuring that you see highest need patients and they have appropriate care, including prevention.

   *On the whole, our work is dictated by our workforce shortage i.e. we are rostered into a very high-need community for a very short number of days due to the small population, and then told to move on. We barely have time to see every patient, and are expected only to drill and fill, treat the disease and that is considered to be finished. We are told where and when we go to communities. This means our management need to be up-skilled in our role of prevention.*

2. What community and inter-professional involvement do you have?

A variety of responses came from the participants, but in the main fell into two distinct fields.

   i) *I make it my business to know who the community leaders are, who can help me with people keeping appointments, and also what health promotion activity is happening while I’m in the communities. Sometimes this involves a visiting*
dietician, sometimes it depends what’s happening at the local pre-school centre and I include myself with this activity. A small group of participants nodded in agreement to this response.

However, a larger number agreed with this response:-

ii) In reality, there is just no time to do anything apart from our clinical role. The only chance I’ve got is to do a preventive role on my own. If I spent time liaising with other professional groups, I’d be leaving the community without seeing all of the patients that need to see me.

3. How much of your day is used for prevention? How your skills are monitored in your performance appraisals?

Responses for this question were varied, and noted as:-

i) I always talk to my patients while I’m doing the treatment, talk to their caregivers if they’re there. Time only allows me to do a personal approach, but this has usually been in a dental health approach. Most participants agreed with this response. Nearly all participants nodded to this response.

I spend as much time as I can out of the clinic and slot specific community visits in advance once my clinics have been filled. The dental assistants are really good at organising this for me, and as they are locals, they know what’s on and who’s visiting while I’m there. Most of the audience thought this was a very positive outcome, but only 5 agreed they could do this.

ii) No-one else monitors our skills in prevention, apart from the clinical prevention tasks of fissure sealing and applying fluoride. Our oral health promotion skills
are not part of our performance appraisals. All participants agreed with this statement.

4. Can you implement the most appropriate techniques in your practice settings?

Everyone nodded with the one respondent who stated “it appears from what I’ve observed and what has been said here today, that this is still a personal responsibility, if you don’t make time to do this and develop your own techniques, then on-one else notices, apart from the communities we work with which after all are the most important. It’s shame it isn’t driven by our management.

5. Are you able to consider who your patients are, their access to resources (family support, cultural backgrounds, nutrition, hygiene products) when applying your prevention approaches?
   - What CPD do you access to ensure your skills / knowledge are up-to-date?

The first person to respond asked the question:
   i) How do we find this information out? Another respondent answered if you’re going to a community for the first time, you can find out from the internet, such things as population size, percentage of indigenous etc. Eventually you can work this out and the other things such as standard of oral hygiene, what they can buy in the local shops, once you’ve been.

The second part of the question elicited the following response:
   ii) There’s currently nothing to up-date our skills in prevention and oral health promotion; we should push to have this as a topic and up skill ourselves.
5. Discussion of results

5.1. From the postal questionnaires

This section is presented into two parts. Firstly, a general discussion is presented with reference to the results from the questionnaires, and then the second section discusses these results under ordered subheadings. These six subheadings were selected by the researcher as essential issues after reviewing the literature, and explain key issues which are impacting on the ability to undertake health promotion by oral health professionals. The highlighted issues are also discussed in relation to the impact on levels of oral health promotion competencies and possibility of hindering a preventive approach to care. The six subheadings are: 1. ‘The impact of health workforce numbers on health promotion’: 2. ‘Workforce distribution impact on health promotion’: 3. ‘Accessibility and affordability of a preventive model in oral health care’: 4. ‘Responsiveness to prevent, protect and promote health’: 5. ‘Opposition to equitable access to dental services’: 6. ‘Implementing evidenced based health promotion practice’.

From a potential pool of 105 participants, all 48 (100%) of the conference delegates participated in the questionnaire, and 57 (75%) responded to the postal questionnaire. New Zealand health districts are managed by one central Department of Health centralised in Wellington and all dental practitioners declare their competency to practice with one New Zealand dental council. Therefore, the results gathered from the two areas of Northland and Whanganui are amalgamated into one and discussed as the one group.
The results in Table 1 show that 81% of the respondents gained their initial dental qualification before the time the Ottawa Charter was introduced as a formal discipline of study and before health promotion was a formal part of their qualification. A much smaller number of respondents 19%, qualified when health promotion was a formal part of their qualification. The training for the dental therapy qualification in Fiji at that time was directly modelled on the New Zealand curriculum (Satur & Moffat, 2010), so this small percentage (one respondent) is incorporated into the participants from New Zealand when analysing the data. New Zealand was also identified as the respondent’s current place of employment.

It was identified that linking knowledge about health promotion to initial dental qualification would not measure competency or currency of health promotion knowledge, but competency and currency of health promotion knowledge could be measured from the results from the follow-on questions. The results gained from identifying the initial dental qualification did show that indeed the participants are representative of the aging workforce, and a separate chapter discusses the significance of this finding further on.

The third question asked respondents to state the ‘date of their most recent health promotion training’, the responses to this question are presented in Table 2. There are a higher number of respondents working in the Riverina area who stated they have more recent training than respondents in the New Zealand areas surveyed. In fact we can see from the quantitative analysis of the results for this question that the ‘competent’ rating is affected by ‘area of employment’. This is a significant finding, as it shows that the area of employment impacts directly on recency of health promotion training as well as rating of level of competency, shown in the later table. This finding is supported by the literature (Heward, et al., 2007) previously reviewed in this study, which found that New South
Wales has implemented systematic approaches to improve health promotion capacity over recent years. The issue that 99% of respondents inserted the most up-to-date community oral health promotion training is an interesting result, particularly as degree courses now cover competencies in clinical oral health promotion skills as well, but it is pleasing to see that participants are accessing ongoing learning in health promotion.

A large number (73%) of respondents rated health promotion as very important and also stated they had undertaken health promotion training within recent years. Despite some respondents stating health promotion was not part of their role in the previous question, no one selected “not at all important” in response to this question. The statistical significance in this finding also shows that again, where the respondents work has significance to the rating of importance having a p-value of less than 0.05, showing a pattern is emerging when comparing level of competency to area of work. Respondents from the Riverina area were most likely to rate this as very important. It should be noted that all competencies required to register as oral health therapists need to be current (Australian Health Practitioners Regulatory Authority, 2013) oral health therapists must make the declaration that competencies are current when they apply to be registered every year, and health promotion is listed as one of the required areas to be competent in.

5.1.1. Currency of health promotion knowledge

The results from the respondents show that there is a significant variance in knowledge about health promotion, and what respondents believe oral health promotion actually is, as evidenced by current literature. As stated in the review of the literature, the health promotion discipline was formally introduced more widely in health discipline courses from the late 1970’s following the La Londe Report (Government of Canada,
1977) initially in Canadian universities, and instigated as a formal course of study in Australian and New Zealand health disciplines, soon after (Swerissen & Tilgner, 2000). It is important to reiterate that although both dental therapy and dental hygiene were introduced as specific occupational dental groups tasked to prevent disease in the oral cavity (Milling, 2010; Moffat, Coates, & Meldrum, 2009), formal study in health promotion at university level in the study respondent’s dental programs, was not introduced until the later part of the 1990’s in Australia and New Zealand (Satur & Moffat, 2010). Previous to this, knowledge taught in health courses supported an approach that instructing patients about undertaking healthy habits, an approach Terris (1996) later described as not ‘enabling’, until later years when the Ottawa Charter was introduced (Terris, 1996). Also discussed in the literature review, is what we can now measure as the deficiency in scientific knowledge at this time, when compared to the knowledge about prevention of recent years. When the oral health therapy professions were introduced, specifically lacking was effective knowledge about prevention of dental disease within high-risk populations. The concepts pre-1970 focussed on removing decayed lesions and filling children’s teeth, telling patients to give children healthy food and brush teeth twice a day. Theories relating the determinants of health to health outcome were not evident at this time, and the science of vertical transmission where an infant’s mouth is infected by the oral bacteria from the “main carer’s” saliva, did not appear in the research until the later part of last century (Seow, 1998). Previous to 1970, it was reasoned that implementing dental health messages and drilling and filling children’s teeth would prevent dental disease in the adult dentition (Brooking, 1980).

Some respondents explained the belief held from the 1970’s and before implementation of the Ottawa Charter, that health promotion can only occur in a
community setting (Terris, 1996). Their responses indicated that health promotion does not include such concepts as individual health behaviour change models which more up-to-date research shows can be successfully implemented at an individual level in a clinical setting (Bray, 2010; Croffoot, Bray, Black, & Koerber, 2010; de Leeuw, 2009; Freudenthal & Bowen, 2010; Harrison, Benton, Everson-Stewart, & Weinstein, 2007; Williams & Bray 2009). Some of the respondents also demonstrated a lack of currency with their knowledge about the preventive role of the oral health therapist, the strongest comment was “we trained to treat the disease, but being PC and spending more ‘time’ with clients is becoming more important (by management)”.

This inappropriate belief in the lack of prevention and belief that the oral health therapist’s role is merely one of ‘removing decay and restoring teeth’ shows that this one respondent has not been able to update essential knowledge to promote health since gaining their initial dental therapy qualification. It is important to note that some of the respondents, qualified well before health promotion was an identified health discipline (see Table 1), a reflection of an aging workforce.

Other participants stated they still believe that health promotion and health education are the same, also showing their currency of knowledge about the discipline of health promotion is outdated. The results in this study show that although a significant number (73%) of dental practitioners surveyed believe that health promotion is very important, less than 16% were able to provide information about up-to-date health promotion concepts in questions requesting this information, and 84% still hold fast to the belief that health promotion is about implementing dental health messages along with removing decay and restoring children’s teeth.
It was important to ask respondents in the postal questionnaire about the place of initial qualification as some of the older respondents from the Riverina area could be New Zealanders who trained earlier in New Zealand before training courses had started in Australia and then returned to work in Australia, or were New Zealanders who immigrated to Australia. When dental therapy began in Australia in 1970, inclusion of health promotion knowledge in these dental courses was limited to the knowledge of the day that of a dental health education approach (Arpalahti, Järvinen, Suni, & Pienihäkkinen, 2012; Carr, 1975; Milio, 1976; Terris, 1996). A large portion of study participants 64%, did train in New Zealand, 34% in Australia, and one participant in the School of Dentistry in Fiji. However, a question asking about time of most recent formal training in health promotion was also included so that a deeper level of capturing the current level of competency was gained, so eliciting a more accurate result about currency in health promotion knowledge. It is interesting to note that none of the respondents felt that neither population approaches nor individual approaches to health promotion could be applied at an individual level in their public health clinical setting. This result shows that the more recent health behaviour change models which have incorporated broader health promotion approaches, and show not only that they can be very effective, but that health services have a responsibility to include this approach within healthcare services (de Leeuw, 2009). The result also shows that these ideologies have not yet become part of these study participants approach in day-to-day to care for their patients. This is of particular note as evidence-based health promotion approaches at an individual level are showing significant levels of success in public health settings, some since the late 1970’s (Baum, 2007). More recently, substantial health promotion literature (Aarts, et al., 2009; Bray, 2010; Croffoot, et al., 2010; Freudenthal & Bowen, 2010; Harrison, et al., 2007; Satur & Moffat, 2010; Williams, 2009; Yeung, 2010) shows these individual approaches can be extremely effective. The
accepted focus of all oral health degree courses in Australia include oral health promotion as the third scope of practice alongside scopes of clinical skills in dental therapy and dental hygiene (Satur & Moffat 2010). However, the questionnaire results in this study show that only a small number of recent graduates who have these skills actually do have the opportunity to put them into practice in their current place of work in the public health setting where they work. This is an important phenomena to note especially at a time when other health disciplines such as medicine and nursing are being tasked to also include oral health promotion in their set of competency skills (Allan, et al., 2005), in acknowledgement of how essential oral health is to overall health. To reiterate, the skill and expertise required to implement a preventive model of care includes promoting and improving oral health, and are the very reasons for the existence of the oral health therapy professions, even though the ideology for a multifaceted approach from other health professions can also be justified as a much improved and added approach to preventive care (Allan, et al., 2005).

5.1.2. The impact of health workforce numbers on health promotion

The New Zealand and Australian literature on the current oral health workforce (Kruger, Smith & Tennant, 2006; Moffat & Coates, 2011; Schofield & Fletcher, 2007) shows that the respondents in this study are representative of the “aging” workforce where concern is expressed for replacing retiring therapists as they leave the public health workforce. Furthermore, this literature shows this effect will be more pronounced in the regional and rural public health sectors, such as the three areas included in this study. The postal survey conducted in this study fully supports the findings from the previous research, showing that just under half of the respondents (45%), gained their initial
qualification more than forty years ago, the earliest in 1966. When answering question four, the 17% of respondents who stated they haven’t had health promotion training were trained before 1980, and 94% of this group stated they did not think this was a skill they needed to implement for their patient group. Some wrote comments such as “this is not part of my role, I am a clinician”, even though a large group stated health promotion was important or very important, implying that health promotion should be undertaken by someone other than themselves. The majority of the other respondents who stated they have recency in health promotion training stated this was an ongoing skill and currency of health promotion skills were maintained through ‘continuing professional development’ requirements. As previously mentioned, some caution needs to be given to the 73% who responded that they have recent health promotion training, as other responses show that there is a lack of understanding about the most effective approach to health promotion, as defined by the literature from 1986 onwards. However, the results show clearly in the tables presented, that year of qualification and level of competency in health promotion has absolutely no correlation.

A critical shortage in the dental practitioner workforce is not isolated to New South Wales, as the most recent workforce numbers across Australia show (Health Workforce Australia, 2013) that oral health therapists make up just 16.8% of the dental workforce. If the workforce numbers of single scope dental therapists and dental hygienists are added to the number of dual qualified oral health therapists, dentists still make up 75% of the dental workforce. However care needs to be taken when considering the dental therapy and dental hygiene groups together as the formal education of recently dual trained oral health therapists and dental hygienists with a degree qualification is more intensive in health promotion, with the level of education based at level seven of the Australian Quality Framework (Australian Quality Framework Council, Second Edition January 2013).
Health promotion is now an assessed competency required to graduate for these recently qualified practitioners (Satur & Moffat 2010; Yevlahova & Satur, 2009). Further to this, responses in this study show that a significant number of older trained therapists have undertaken updated courses and deem themselves as competent in oral health promotion adding to the inability to look at health promotion skills based on dental practitioner year of qualification definition alone.

Although findings in this study show that there are gaps in health promotion competencies in the areas surveyed in Australia and New Zealand, when compared globally the situation doesn’t appear so grim. In America, apart from dental hygiene care, dental treatment has historically been provided by dentists in private practice settings where holders of health insurance can access care (Huckabee, 2006; Kenny, Ko, & Ormond, 2000). The American system has been described as prejudice against the needy (Iovino, 2008) and in breach of legal, social and political justice. The expenditure in America for providing dental treatment in relation to expenditure on prevention, has further been highlighted as unacceptable, inefficient and poorly performing when compared to other countries (Drury, Garcia, & Adesanya, 1999). Some of the focus to improve the delivery of American oral health care, has been based on the New Zealand and Australian public oral health systems and in particular the preventive role of the oral health therapist (Nash & Willard, 2010; Milgrom, Weinstein, Melnick, Beach, & Spadafora, 1989). So while the existence and implementation of the Australian and New Zealand oral health professional groups has been looked upon as being an improvement to the historical American approach, the impact of insufficient workforce numbers tasked to implement a primary preventive approach must be acknowledged as a significant impingement to the preventive role. Results in this study show that in the main, both sample groups are providing a secondary model of care focussing on treatment, and while
there is significant recognition for the role of health promotion, significant barriers exits for a comprehensive and effective preventive approach.

The increasing costs and prevalence of dental disease within the adult Australian population has been a focus of recent Australian government reporting (Centre for Oral Health Strategy, 2006, 2009; Commonwealth of Australia, 2013b). The most recent of these reports (Commonwealth of Australia, 2013b) identifies the oral health therapy workforce as integral to changing the current level of oral disease, but it is highly questionable this could occur with the current low number of the oral health therapists in the workforce. Further to this, despite years of research into investigating the critical areas needed to improve oral health, (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2003, 2004, 2006, 2007, 2008, 2009; Australian Institute of Health and Welfare, 2011; Australian Institute of Health and Welfare Dental Statistics and Research Unit, 2008; Australian Research Centre for Population Oral Health, 2005) it is evident that the past barriers to dental care for most needy Australians, continues to exist.

5.1.3. Workforce distribution impact on health promotion

Participants in this study stated insufficient time in their clinical sessions as an over-riding barrier for implementing a preventive approach to care. Participants identified they had a group of patients they had to provide dental treatment to in a limited time, which did not allow for added time to implement models of health promotion approaches. The decreasing numbers of oral health therapists employed in the public health sector must be noted (Australian Institute of Health and Welfare, 2011; Brooks & Morgan, 2013; Health Workforce Australia, 2013). In March 2006, 7,900 dental providers were
employed as dental providers in New South Wales, 600 in the public health sector and 420 of those were oral health therapists (Australian Institute of Health and Welfare, 2011). The large number of dentists in New South Wales is illustrated in the following table (Veitch, 2006).

Table 11 NSW Dental Practitioners 2006

<table>
<thead>
<tr>
<th>Provider</th>
<th>Private</th>
<th>Public</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental Specialists</td>
<td>269</td>
<td>33</td>
<td>302</td>
</tr>
<tr>
<td>Dentists</td>
<td>2,688</td>
<td>264</td>
<td>2,952</td>
</tr>
<tr>
<td>Dental Therapists</td>
<td>0</td>
<td>168</td>
<td>168</td>
</tr>
<tr>
<td>Dental Prosthetists</td>
<td>412</td>
<td>11</td>
<td>423</td>
</tr>
<tr>
<td>Dental Hygienists</td>
<td>96</td>
<td>1</td>
<td>97</td>
</tr>
<tr>
<td>Dental Technicians</td>
<td>682</td>
<td>62</td>
<td>744</td>
</tr>
<tr>
<td>Dental Assistants</td>
<td>7,300</td>
<td>600</td>
<td>7,900</td>
</tr>
</tbody>
</table>

These figures show 1; a measurable under-representation of oral health therapists (dental therapists, dental hygienist) compared to dentists in New South Wales, 2; while the majority of dental therapists work in the public health sector, the majority of dentists and dental hygienists work in the private sector, and 3; there are twelve times more dental assistants working in the private sector when compared with the public health sector. This latter aspect further highlights the inability for public sector dental practitioners to implement preventive models of care when much of their time will be used not only to treat dental disease but also to perform the functions of dental assistants, for example sterilisation procedures, restocking instruments and materials etcetera. However, the high number of dental assistants working in the private sector does offer an opportunity to significantly enhance a preventive approach, if dental assistants were skilled in a preventive role. This phenomenon has been occurring in America and Canada for a number of decades (Davies, 2012; Davies, 2009), where dental assistants in these countries
are registered, and hold advanced skills in their roles within the dental team. Given the results from question seven in the postal questionnaire where most dental practitioners surveyed viewed themselves as practicing clinicians with a key role to provide dental treatment, better utilising and improving the skills and knowledge of dental assistants about health promotion, appears to be an approach to consider for improving a preventive model of care. This could only occur if numbers of dental assistants employed in the public health sector were increased.

5.1.4. Accessibility and affordability to preventive oral health care

Ongoing recording (Australian Institute of Health & Welfare Dental Statistics and Research Unit, 2004; Australian Research Centre for Population Oral Health, 2005; Harford, Ellershaw, & Stewart, 2004; Kruger, et al., 2010) continues to highlight the significant issue of access to affordable care. These studies show that affordability continues to be the single highest barrier to dental care and a significant barrier for male patients who show they access dental visits only once every five years (Australian Research Centre for Population Oral Health, 2005).

Emerging international studies (Harris & Sun, 2012; Leisnert, Karlsson, Franklin, Lindh, & Wretlind, 2012; Nash, et al., 2008; Robinson, Dyer, & Teusner, 2012) are showing an opposite phenomena in countries such as Holland, England, Sweden and most recently the United States of America. Here there is a demand to increase the numbers of oral health therapists to enable a primary healthcare model of prevention to be effectively implemented. These studies are highlighting that a developing ‘ethical’ primary healthcare model of care is being implemented in these countries. Added to an increased role of a
preventive approach, an extremely significant aspect evident in these studies is that the care provided by therapists is showing to be much more responsive to a population needs approach through the implementation of this preventive approach. These studies (Harris & Sun, 2012; Leisnert, et al., 2012; Nash et al., 2008; ; Robinson, et al., 2012) also show that oral healthcare is more likely to be more easily accessible and affordable when provided by oral health therapists. As previously discussed that although the early initial intention for therapists was a preventive role, the actual implementation became one of removing decay and filling teeth (Hume, 2003). This finding was also supported by a large number of respondents from the Riverina and New Zealand areas participating in this study. This historical model of treatment focussed care provided by therapists in the public health system has been greatly criticized in other research (Robinson, et al., 2012), and the statement made that; “at present, the use of therapists does not appear to be influenced by the health needs of the population” (Robinson, et al., 2012, p. 16) appears to represent the public health areas included in this study. This unacceptable state of affairs is evident from the findings of this study, manifested in the main by very low oral therapy workforce numbers (Health Workforce Australia, 2013) who struggle to be responsive to a preventive approach to care.

5.1.5. Responsiveness to prevent, protect and promote health

There have been a number of definitions used to define public health and one specific for Australia states “public health is the organised response by society to protect and promote health and to prevent illness, injury and disability” (National Public Health Partnership, 1998). The current provision of dental care in Australia appears to be in direct conflict to the principles of the very existence of a public health system with existing evidence that there is not an appropriate level of detection, prevention and protection from diseases that infect the oral cavity. The findings of this study very sadly show that the responsiveness
of dental therapists and oral health therapists to implement health promotion activity competently and effectively in the public health areas surveyed is indeed in conflict with health promotion ideology.

5.1.6. Opposition to equitable access to dental services

Recent publications (Dharamsi, Pratt, & MacEntee, 2007; Middleton, 2010, 2012) discuss opposing views from members of the dental profession to the goal of equity of access to dental care, stating equal access for all is in fact an objectionable concept. One of these authors states “a universal scheme would turn out to be a disaster for the dental profession” (Middleton, 2012, p. 83) making claim for the need for a capitalistic approach to the provision of dental care. Further claims are made that the government reporting of workforce numbers (referenced in previous chapters) are a “mish-mash” and deliberately understated. Middleton argues that there are in fact 18,902 registered dentists, which include 1448 specialists. Whatever the real number, there still remains the issue that communities are continuing to, and in some areas increasing to, suffer from oral diseases that could be greatly reduced or prevented by implementing a different approach to the provision of care. It is distressing to see that the current workforce by organisation of professions and the split between the private and public sector, is representative of the viewpoint proposed by Middleton and others, and mirrors not only privatisation of access to care in New South Wales, but also across Australia. Although the current provision of care mirrors the capitalist approach purported by Middleton, it is in complete conflict to public health ideology, particularly in relation to inadequate accessibility, affordability, protection and prevention. Middleton further claims that attempts to provide universal access will “end up hurting the very fabric of society”(Middleton, 2012, p. 83), asserting
that in a fair society someone always misses out and this is a very reasonable situation to accept.

A counter claim to Middleton and others who are opposed to universal access for dental care is apparent in the increasing high cost of tertiary dental care (New South Wales Ministry of Health, 2012). In this 2011 – 2012 government report, twenty health conditions were identified as ‘potentially preventable hospitalisations by condition’, and preventable dental conditions rated fourth in the list. The notes accompanying these statistics describe these conditions as those that could be prevented in community primary healthcare settings. It is clear that the relative effect of the dental workforce tasked to implement a preventive approach within the public health sector is not able to, due to a large extent to a significant workforce shortage. It is impossible for the small numbers of dental therapists and oral health therapists to do much more than the immediate tasks of treating disease, leaving the roles of protection and prevention of oral diseases rendered null and void, and this was also a finding from the survey data collected in this study.

5.1.7. Implementing evidenced based health promotion practice

The question needs to be asked why, after all of the sound reporting and substantial evidence across the decades in Australia, do the inadequacies in oral health promotion continue to exist? The study by Rogers (Rogers, 2012) recommends there are five ways to build the links between results from research where data have been collected by indisputable surveillance, research, policy and practice. Roger states “be prepared for chance opportunities to transfer knowledge; undertake policy relevant research; don’t abuse research evidence by making exaggerated claims; and provide timely dissemination
of surveillance and research findings” (Rogers, 2012, p. 82). This research found that there are critical areas which must be applied and are often lost if failure to integrate these principles is not managed well. It appears the inability to integrate evidenced-based principles is manifest in the Australian public oral health sector, and despite conclusive evidence of very sound public health policy, the ability to implement and deliver oral care which encompasses policy informed by valuable research is severely lacking. There have been numerous dental schemes recently implemented in Australia, examples of attempts to deliver improved systems of care using limited public health funding, which have failed or have had very limited success (Australian Research Centre for Population Oral Health, 2011; Lam, Kruger, & Tennant, 2012). The catch-phrase ‘good on policy, poor on delivery’ is apparent in these schemes, and could be argued largely due to an inability to effectively integrate the principles highlighted in the findings in Roger’s study (2012). The evidence to introduce these systems of care was extremely valid, but thought to the implementation process has proven to be extremely poor. Other studies looking at health services and health outcomes, have found poor implementation is more pronounced in rural and regional areas (Tham et al., 2010). The pervading ideology within the dental profession (Dharamsi, et al., 2007; Middleton, 2012) previously discussed could be seen as part responsible for the inability to find a solution to this situation, but so too could the inability to implement otherwise valuable schemes with the inappropriate number of primary healthcare workers employed in the oral health workforce. This last point is further supported in both Roger’s study (2012) as well as the data analysed from both the postal questionnaires and conference participants in this study, which shows both participant groups surveyed clearly acknowledged there is a lack of sufficient dental practitioner numbers in their areas, and the small numbers that do exist are forced to
continue to implement a biomedical and more expensive model of care which focuses on providing relief by dental treatment.
5.2. Interpreting results from the international conference workshop

Forty eight participants were asked questions in the conference workshop and the questions were inserted into the presentation slides. The presentation had been promoted in the conference program to cover a brief historical overview of community and individual approaches to health promotion over recent decades as well as key findings from the postal questionnaires in this study. These presentation slides were presented after the conference participants provided answers to the questions for this study.

The questions were ordered into two phases, with feedback and discussion occurring in the middle. Results of the first question “what does “primary oral health care” entail, mean to you as a clinician” provided good discussion points about what primary oral healthcare is, but the majority of responses stated that the primary oral healthcare person was not necessarily the oral health therapist in the public health system. This finding was also evident from the majority of postal survey participants. However, there was more general discussion about defining this role for oral health therapists when responding to question two, “do you believe OHT’s should be “primary oral healthcare providers”, but still the pervading response was that the primary oral healthcare role is not for the therapist to provide this role, for example the response “we are too specialised”.

In contradiction to the above responses, the third question “what are you doing in your role as a primary oral healthcare provider” elicited responses about some of the valuable work the dental practitioners attending the workshop were conducting in their practice settings for example, outreach programs in communities and chair-side oral health promotion activities. The concluding comments were that government employment
restrictions due to lack of funding, had an overwhelming negative impact on health promotion activity, both at an individual and community level. Participants stated that if employed in the public health sector, practitioners are expected to work 80 to 90 percent in a clinical role focussing on treatment of dental disease. This again was a finding from the postal questionnaire.

The last question in this segment “how do you measure your competency, know you are competent in these skills” questioned how measuring health promotion competency occurred, which elicited some lively discussion. All participants stated it is not measured by their management team but rather an individual measurement they impose on themselves from such things as overall improvement in oral health status at next dental visit, along with community feedback and improved appointment attendance. These results again emphasise the expectation of the treatment role dental practitioners are expected to perform in the public health sector on a routine basis.

Due to conference time constraints, the second set of questions was discussed amongst the entire group of 48 workshop attendees as one identity. When asked the first question in this section “how do you distribute your resources equitably”, the overall response was that they are restricted by the workforce shortage in the public oral health sector. The approach to clinical care due to these shortages demands that practitioners devote their time to treating disease, with little or no time to incorporate health promotion activity. This approach discussed in the literature review was identified many decades ago as maintaining the biomedical approach to healthcare (Government of Canada, 1977) and identified then as the most expensive for a public health sector to maintain. It was also described as an unacceptable approach to healthcare, especially when the ability to apply a preventive approach has been recently shown to have greater success resulting in an
improved health outcome (de Leeuw, 2009; de Leeuw & Clavier, 2011). The cost of a biomedical approach is more exemplified in dentistry due to the extremely high cost of dental materials and equipment. Further to this, the strong association poor oral health has to poor general health is undisputable (Blumenshine, Vann, Gizlice, & Lee, 2008; Department of Health & Aging, 2008; Kumar Ramagoni, et al., 2012; Sfeatcu, et al., 2011; Thomson, Poulton, et al., 2003; Thomson et al., 2004) which further epitomizes the unacceptability of this approach.

A set of two different responses answered the question “what community and inter-professional involvement do you have”. Fifteen of the 48 participants were adamant that community involvement was part of their role; “I make it my business to know who the community leaders are, who can help me”. However, the majority of the workshop participants responded that there was just not enough time to incorporate anything outside of their clinical treatment role. This result is a repetition of the responses to the previous questions, where a focus on clinical treatment takes the majority of dental practitioner’s time and attention.

When asked “how much of your day is used for prevention? How are your skills monitored in your performance appraisals”, the responses were varied, although there was agreement with responses to the second part of the question. All workshop attendees stated no-one monitors dental practitioners’ health promotion and preventive skills although clinical preventive tasks of sealing teeth and applying fluoride were often included in a clinical audit. While it was a positive result that all agreed with the approach that includes up-skilling and better utilising dental assistants in an oral health promotion role, less than three percent thought they could realistically do this. The participants stated that the over-riding barrier was time constraint and no directive or support from public sector management. Dental assistants are nearly always people known in local
communities and with appropriate up-skilling have been shown (Ball, 2011; Nash, et al., 2008) to provide preventive messages in language that is easily understood. With adequate up-skilling, dental assistants and others such as community leaders can have a powerful preventive role in the dental setting and in the wider community, this has been especially shown within indigenous communities (Areai et al., 2011; Broughton, Maipi, Person, Randall, & Thomson, 2012; Harrison, et al., 2007; Roberts-Thomson et al., 2010). However, all workshop participants agreed that a ‘dental health lesson’ approach at chair-side was the only approach time would allow dental practitioners to implement within the current public health settings. The ineffectiveness of this approach to improving health has been significantly refuted in recent years by previous health researchers (de Leeuw, 2009; de Leeuw & Clavier, 2011; Kruger, 2010; Milio, 1976; Robertson & Neville, 2008; Satcher, 2006).

When asked “can you implement the most appropriate techniques in your practice setting” the entire room of workshop attendees nodded, indicating “yes” they could. However, everyone agreed with the respondent who stated that this is seen as a ‘personal responsibility’ by management in the public oral health sector and no one checks this off when they have clinical appraisals.

The workshop participants did not respond initially when asked “do you consider who your patients are before you attend clinical rotations in high-risk communities?” Participants were also asked “do you know about the community’s access to sustainable resources such as food security, family support networks, and hygiene products?” After a few moments to reflect on this question, eventually one respondent questioned “how would you find this information out?” The general consensus was that the practitioners eventually worked this out after visiting a community for the first time, although some of
the younger respondents were aware that a lot of this information could be found on the internet before they visited these communities. It appeared that the majority of the participants had not considered the significance of knowing critical issues which impacted on the health of these community groups when implementing dental health messages, while they were providing treatment within these vulnerable communities. It was certainly not considered to be information required to obtain in preparation of their visits. However, it was pleasing that the general workshop consensus was that this is a set of skills that must be further developed, identifying the need to have this as part of their continuing professional development for the future.

At the conclusion of the workshop a recently graduated Aboriginal dental practitioner (Perry-Mansell, 2012) commented that she was very aware of the treatment focussed roles dental practitioners apply when they visit rural and indigenous high-risk communities. She was hopeful that with more awareness and improved dialogue from the wealth of information within these communities, that an improved “partnership” approach could be acknowledged and implemented by dental practitioners so that an improved health outcome would be more likely achievable, especially in vulnerable community groups such as Aboriginal and Torres Strait Islanders. This comment was a repetition of a comment made to the researcher in a previous study (Rimene, 2003), stating “how long do we have to wait until the health systems can provide a more appropriate standard of care and be able to improve health outcomes for our people?” Studies have shown (Broughton, Maipi, Person, Randall & Thomson, 2012; Durie, 2004b; Parker, et al., 2010; Stuart, et al., 2011) that from a global perspective, the restrictive biomedical approach which provides an individualistic approach to care in indigenous communities more often results
in an increase in levels of disease, due in particular to increasing non-compliance to dental visits resulting in increasing poor health outcomes.

6. Conclusion

The main aims of this study were to investigate whether dental practitioners employed in the selected public health clinics 1; undertake oral health promotion practise in their routine day-to-day practice 2; they consider they hold competency in this scope of practise and 3; they have knowledge about and apply the most up-to-date methods in oral health promotion. A sequence of health promotion literature is reviewed and presented, alongside evidence of the development of the preventive role of dental hygienists, dental therapists and oral health therapists. The literature (Milling, 2010; The Editor, 1917) discussed the importance of establishing a functional dental worker almost one hundred years ago, who could focus on prevention.

“To cure disease scientifically is a high attainment of the human art, and wins for the medical profession the well-deserved meed of public praise. To forestall disease, and thus obviate the necessity of cure, is nobler still. It is high ground of prevention that the dental profession is now called upon to occupy” (The Editor, 1917, p. 34).

These values, initially established in 1880 when the dental hygienist was introduced and then later in 1920 when the school dental nursing scheme was introduced, embodied the ethos of public health within the field of dentistry, one of preventing oral disease and promoting oral health. Over the following decades, the literature reviewed (Coburn, 2004;
de Leeuw, 2009; Hume, 2003; Monajem, 2006, 2009; Proctor, et al., 2003) showed that the field of dentistry had however, maintained a focus on dental treatment, and the ability to include an approach which focused on the causative factors of oral disease continued to be neglected (Ismail, et al., 2013). The focus on treatment has not shown an improvement in oral health for all, and recent Australian Government statistics reviewed in this thesis (Australian Institute of Health and Welfare Dental Statistics and Research Unit, 2008; Commonwealth of Australia, 2013b; Ministry of Health New Zealand, 2006; New South Wales Ministry of Health, 2012; NSW Ministry of Health, 2013) show that financial costs and impact on general health are in fact significantly increasing in some identified communities. The review of these government reports describe clearly the particular determinants of poor oral health and include very sound recommendations to approaches based on up-to-date evidence, of how to improve health. But there is an ongoing total lack of recognition and inclusion of the oral health therapy workforce in these documents and the significant role this dental workforce should have on prevention and primary health care. It is evident from the literature reviewed over the decades since the inception of the dental therapist and dental hygienist, that the effectiveness of utilising the preventive role of the oral health therapy profession has been negligible since the time of initial inception of these professions.

The information obtained from postal questionnaires in this thesis examined oral health promotion activity in rural and regional public health clinics in the Riverina area of New South Wales, the Midland and Northern regions of New Zealand. Clear evidence is presented showing there are significant and unacceptable gaps in the inclusion of a preventive and primary healthcare model in public health dentistry. The results show that although there is a dedicated but small workforce delivering valuable dental care in these
rural and regional communities, the capacity to focus on prevention and health promotion is not achievable and significant gaps in the preventive approach to care is apparent. Less than one third of the entire dental workforce are employed in the public health sector (Dental Council of New Zealand, 2010b; Health Workforce Australia, 2013; Veitch, 2006) and a much higher number of dental providers are private practice dentists. The issue of an unacceptably low number of dental providers in the Australian and New Zealand public health sector and particularly in rural and regional communities was highlighted in studies reviewed in this thesis (Brooks & Morgan, 2013; Krause, Mosca, & Livingston, 2003; Kruger et al;2010; Ministry of Health New Zealand, 2006; Schofield & Fletcher, 2007). This significant concern was the driving cause for the Australian Government to hold a formal enquiry in 2013 (Commonwealth of Australia, 2013b), and the official report emphasises the need for a primary care dental professional, naming the oral health therapy profession to be integral to improve oral health for rural and regional Australians. Parts of this thesis were presented as evidence at the official government hearing by the researcher, and recommendations from the government report are included in the end chapter ‘recommendations’ section of this thesis.

Findings obtained from participants who attended an international conference in Canberra Australia for oral health therapists are also presented and analysed in this thesis. The findings from both the postal questionnaire and conference proceedings showed very comparable results, that while a small dedicated oral health therapy workforce provides vital dental treatment in public health clinics, there are significant deficiencies in the preventive approach to care. The deficiencies were found to be partly due to a level of inadequate knowledge of most up-to-date health promotion competency which can be applied in a clinical setting, but most significantly due to inadequate workforce numbers
and a continual direction by public health managers to focus on a biomedical approach to dental care. While university courses in recent years continue to graduate oral health therapists who are competent in models of behaviour change and oral health promotion (Satur & Moffat, 2010; Yevlahova & Satur, 2009), the postal questionnaire and findings from the international conference show that the public health clinics where they work surveyed in this thesis, are unable to include or have a focus on a health promotion approach to care.

Evidence about dental workforce numbers is presented in this thesis (Health Workforce Australia, 2013) showing dentistry is developing a higher workforce number of general dentists and dental specialists who work in private practice over and above those who work in the public health sector. The number of dental practitioners employed in the public health sector including oral health therapists, continues to be a very small number in comparison, and health promotion skills of dentists have been recorded as very poor (Proctor, et al., 2003). So despite the inclusion of advanced health promotion knowledge and assessment in undergraduate dental degrees, the evidence shows that dental practitioners do not feel comfortable and do not practise health promoting skills on a regular basis, and choose to spend more time on clinical treatment. Proctor’s research (2013) found that maintaining clinical and dental treatment skills takes precedence over health promotion skills for the dental practitioner. It appears ‘informed’ consumer demand to provide a dental workforce responsive to the provision of the quest to have the smile most people aren’t naturally born with, is and continues to be, the focus of dental care. This phenomenon is occurring alongside the escalation of preventable oral health conditions (NSW Government, 2012), which are being recorded within identified high risk communities, of which the cost to treat continues to escalate. Fundamental to ideologies in
a public health system is the need to provide approaches to care which prevent disease, prolong life and promote health. The findings from this thesis present clear evidence from the literature reviewed, participant responses from postal questionnaires and conference proceedings that public oral health has not yet developed preventive approaches based on up-to-date health promotion approaches. Government reporting (Centre for Oral Health Strategy NSW, 2013; Commonwealth of Australia, 2013b; Government., 2012) shows a transformative model of care is desperately needed.

Evidence has been presented (Atherton Pickett, 2012; Ben-Shlomo & Kuh, 2002; Fearing Tornwall & Chow, 2012; Ide & Papapanou, 2013; Linden, et al., 2013) which shows the significant impact these preventable oral diseases have on human health and development. The time is long overdue to implement the preventive model of care within the public health sector, that which the oral health therapist was initially envisioned by visionary dentists many decades ago. The hypothesis of this thesis tested whether there has been effective health promotion ideologies implemented by the dental therapy and dental professions in the public health sector and the categorical finding was a definitive negative finding. This study did not investigate the existing barriers that impact on the implementation of health promotion practice, and it did not include a comparative study about the health promotion activity of other health professions. Further research in the public health sector is required to find out why a well developed preventive approach to care based on up-to-date health promotion approaches, is not a universal part of the public oral health system in Australia and New Zealand.
7. **Recommendations**

There must be immediate recognition that the current public oral health sector is not responsive to improving oral health for high-risk communities, which has an immediate negative impact on general health and wellbeing. The cost effectiveness of this biomedical approach to dental care is squandering scarce financial public health funding by focussing on a dental treatment modality of care. Attempting to improve health outcome without an emphasis on prevention and health promotion is futile and found in international studies (Harris & Sun, 2012; Leisnert, et al., 2012; Nash, et al., 2008; ; Robinson, et al., 2012) to be immoral and unethical. There are decades of accumulated further evidence to support this, the main points of which have been reviewed and discussed in this thesis. A comprehensive preventive approach to dental care has been introduced in other countries, where utilisation of the oral health therapists’ role has been expanded.

The recent government hearing which published the Australian ‘Bridging the Dental Gap Report’ (Commonwealth of Australia, 2013a) includes the following recommendations:-

1 Oral health therapists must be enabled to hold their own professional provider number. Without holding their own provider number, a dentist’s provider number needs to be used, imposing accessibility issues for patients. Providing therapists with their own provider numbers will eliminate a current barrier, especially in rural and regional regions where very few dentists are employed and also showing the true value of care therapists are undertaking.
2. Amending the scope of practice for oral health therapists to provide care, ‘independently’ in community clinics, creating easier access to care in high risk communities. This will enhance availability to care especially if a significant increase of oral health therapy numbers is employed to work in the public health sector.

3. Increase linkages between private and public health sectors in dentistry, to provide a greater team approach to care. This will be very important to allow easy referrals when patients have care outside the oral health therapists’ scope of practice.

The public oral health sector must realign the way oral health care is provided in public health clinics. An overriding recommendation from this study is the identified need to create a public oral health sector which mandates quality oral health promotion as a core competency. The focal point on treating dental disease must be reduced, with a reduction and movement towards eliminating expensive approaches to dental care. Clear incentive to incorporate health promotion approaches to care, which focuses on the causative factors of oral disease, must be implemented without delay. A higher portion of public health funds must be targeted towards employing a significantly higher number of oral health therapists who are tasked to provide an approach to care which prevents oral disease and promotes health for all age groups, creating a public oral health sector which is more likely to have an emphasis on a population approach to health care, one which epitomises public health ideologies.
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9. APPENDICES

9.1. Ethics Approval  page 148

9.2. Postal Questionnaires, Information letter & questions for conference delegates  page 151

9.3. Draft article for submission for peer review ADEA Journal  page 169

1 June 2011

Ms Helen Tane
School of Dentistry and Health Sciences
Wagga Wagga NSW 2678

Dear Helen,

Thank you for the additional information forwarded in response to a request from the Ethics Committee.

The Committee has now approved your proposal entitled "Oral Health Promotion in the Public Health Sector" for a twelve month period beginning 31 May 2011. The protocol number issued with respect to the project is 414201103. Please be sure to quote this number when responding to any request made by the Committee.

You must notify the Committee immediately should your research differ in any way from that proposed.

You are also required to complete a Progress Report form, which can be downloaded from www.csu.edu.au/research/forms/ehrc_annrep.doc, and return it on completion of your research.

Please don’t hesitate to contact Jo St John on telephone 02 6933 2874 or email jstjohn@csu.edu.au if you have any enquiries about this matter.

Yours sincerely

Xiaoming Zheng
Ethics Committee
Direct Telephone: 02 6933 2068
Email: xzheng@csu.edu.au

Cc Susan McAlpin
8 June 2011

Ms Helen Rose Tane
School of Dentistry & Health Services
CSU
Wagga Wagga
NSW Australia

Dear Ms Tane

Re: Ethics ref: MEC/11/EXP/046 (please quote in all correspondence)
Study title: Oral Health Promotion in the Public Health Sector
Investigators: Ms Helen Rose Tane

This expedited study was given ethical approval by the Chairperson of the Multi-region Ethics Committee on 8 June 2011.

Approved Documents

- Expedited Review of Observational Studies (for the above study)

This approval is valid until 20 December 2011, provided that Annual Progress Reports are submitted (see below).

Annual Progress Reports and Final Reports
The first Annual Progress Report for this study is due to the Committee by 20 August 2014. The Annual Report Form that should be used is available at www.ethicscommittees.health.govt.nz.
Please note that if you do not provide a progress report by this date, ethical approval may be withdrawn.

A Final Report is also required at the conclusion of the study. The Final Report Form is also available at www.ethicscommittees.health.govt.nz.

We wish you all the best with your study.

Yours sincerely

[Signature]

Awhina Rangiwa
Administrator
Multi-Region Ethics Committee
5 August 2011

Mrs Helen Tane
Boorooma Street
Wagga Wagga, NSW 2678

Dear Mrs Tane,

The School of Dentistry and Health Sciences Ethics Committee has reviewed your report advising of a significant variation to your research project "Oral Health promotion in the public sector", protocol number 414/2011/03, and is pleased to approve this variation.

You are required to complete a Progress Report form, which can be downloaded from www.csu.edu.au/research/forms/ehre_annrep.doc, and return it on completion of your research.

Please don’t hesitate to contact the Executive Officer: telephone 02 6933 4810 or email raplumridge@csu.edu.au if you have any enquirers about this matter.

Yours sincerely,

Rachel Plumridge
The School of Dentistry and Health Sciences Ethics Committee
**Project name:** Oral health promotion in the public health sector  
**Name of Investigator:** Helen Tane (PhD candidate)  
**Name of Supervisor:** Professor Patrick Ball  

Ph: +61 2 6933 4207 htane@csu.edu.au

**Purpose of Research:** I am a PhD candidate and would like to investigate how oral health promotion is conducted in the public health sector by the dental profession. I would like to ask you to join this research study.

**Procedures:** Could you please complete the attached questionnaire. This will take about ten minutes of your time. Please return by post in the addressed and postage paid envelope provided.

**Possible Risks:** There are no risks involved in this research study.

**Collected Data:** Once the questionnaire has been completed I will tabulate the data and present the findings in a thesis submitted for PhD candidature. I will also publish findings from the data. At no time will your identity be disclosed in any form.

**Confidentiality:** Any information or personal details gathered in the course of this research about you are confidential. Neither your name nor any other individual identifying information will be used for this study. The questionnaires will be held in a secure location, in which only principal investigators will have access too.

**Right of refusal:** You are free to participate in this study.
Consent: Return of the completed survey implies consent has been given to participate in this study.

The School of Dentistry and Health Science’s Ethics Committee has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the committee through the Executive Officer:

Name: Julie Hicks
Address: CSU: Office of Academic Governments
Telephone: 02 6338628
Fax: 02 6384 4194
Questionnaire about oral health promotion
(Please return in stamped addressed envelope within one month)

1. Year DT / OHT qualification obtained_______________________

2. Place of gaining qualification_______________________________

3. Date of most recent health promotion training________________

4. What do you consider is the most comprehensive health promotion training you have undertaken?__________________________________________

5. How do you personally rate the importance of health promotion? (please circle)
   Not at all important                      Important                      Very important

6. Does part of your current role include undertaking oral health promotion in your regular contact with your patients?        yes / no (please circle)

7. In your opinion, who should provide oral health promotion to individual patients within a clinical health care setting?

__________________________________________________________

8. Do you work with people who promote oral health for your patient group in the health care setting where you work?

__________________________________________________________

9. Does your management team support and encourage you to do oral health promotion in the health care setting?        yes / no (please circle)

10. How would you describe what promoting oral health is?

________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________

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11. Do you believe it is important for you to have a level of competency in oral health promotion?  
   yes / no (please circle)

12. How would you rate the importance of promoting oral health in relation to all of the other tasks you do in your daily contact with patients and the community you work in? (please circle)
   Not at all important  Important  Very important

13. The skill-set of new oral health therapy graduates is to have competence in dental therapy, dental hygiene and oral health promotion. Do you think these skills will be utilized equally in the setting you work in?  yes / no (please circle)

14. Please add any other comments you would like to make about this topic

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Your participation in this study is greatly valued and appreciated. Thank you.
The international conference workshop questionnaire

1. What does “primary oral health care” entail, and mean to you as a clinician?
2. Do you believe OHT’s are “primary oral healthcare providers”?
3. What are you doing in your role as a primary oral healthcare provider?
4. How do you measure your competency, know you are competent in these skills?
ABSTRACT

The purpose of this study was to investigate the role of prevention and oral health promotion in a selection of New Zealand and Australian dental clinics. **Design:** A questionnaire was designed using a mixed methods approach to collect data from oral health therapists working in regional and rural practices in New South Wales Australia, and comparative regional and rural practices in two New Zealand locations. A similar questionnaire was used to collect data from participants who attended an international conference. **Methods:** A comprehensive literature review was undertaken to give explanation to the evolution of oral prevention and oral health promotion at a local, national and international level. A selection of the literature was ordered into a written sequence and presented in a thesis, along with the results from the questionnaires. **Results:** Results demonstrated key influencing factors evident in practices, and effectiveness of prevention and oral health promotion in the selected New Zealand and Australian dental clinics. A significant finding was that while study participants identified that oral health promotion was important, a high number considered that oral health promotion is not their practising role definition, neither was it supported by dental management in most of the New Zealand and Australian dental clinics selected for inclusion in this study. Whilst there is significant interest in their clinical scope of practice and levels of competence in clinical tasks, the results showed that very little interest has been paid to competency in prevention and capabilities in oral health promotion. The most significant finding was that the “place of work” shows an impact on the currency of health promotion knowledge of the oral health therapists as well as their health promotion level of activity.

INTRODUCTION

Nearly one hundred years ago, a group of visionary New Zealand dentists identified the need for oral disease prevention and published the following words:

“To cure disease scientifically is a high attainment of the human art, and wins for the medical profession the well-deserved meed of public praise. To forestall disease, and thus obviate the necessity of cure, is nobler still. It is high ground of prevention that the dental profession is now called upon to occupy”. 

Draft article prepared for submission to ADEA Journal

Is the prevention and oral health promotion role of Australian and New Zealand oral health therapists being translated into action?  

Helen R Tane
This study investigated today’s role of prevention and oral health promotion from within Australia and New Zealand, the latter country which has since become world renowned for introducing a dental professional tasked with this specific role of prevention (Nash 2012), later to be named an oral health therapist. The role of prevention and the evolution of health promotion many years later, became one of the fundamental roles of primary health professionals (Cassell 1995).

The oral health therapy professions in dental therapy and dental hygiene were originally introduced with defined roles to prevent oral disease, having their beginnings fully embedded in a preventive role many years ago (Brooking, 1980; Milling, 2010). Over more recent decades, the modern-day discipline of health promotion has been introduced and significantly developed. This expansion of health promoting knowledge is included in oral health therapy degree courses offered in New Zealand and Australia today (Satur & Moffat 2010). Recently qualified oral health therapists have skills in early diagnosis, and core dental treatments with an emphasis on the prevention of oral diseases and timely referrals for specialist care when necessary. The current Australian and New Zealand registering bodies which regulate the oral health therapy profession, requires that oral health therapists promote and improve health of individuals and the community, by understanding and applying principles of primary health care, health promotion and disease prevention.

Skills in detection, prevention and protection from disease form an essential function in the public health sector, but the significance of this role within the public oral health sector has not received noticeable consideration, despite a long history of identifying this is an essential part of oral health care (Tane 2009). The oral health therapy profession has the capacity to improve health outcomes at an individual and wider community level. How oral health therapists go about implementing their approaches to oral health promotion was central to this study. The main aims of this study were to investigate whether 1; oral health therapists undertake oral health promotion practise in their routine day-to-day practice 2; they consider they hold competency in this scope of practise and 3; they have knowledge about and apply the most up-to-date methods in oral health promotion.

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6 The collective title ‘oral health therapist’ is a recent title (since 2000) given to dual qualified oral health therapists, who have clinical skills in dental therapy and dental hygiene. Oral health therapists and single scope dental therapists and dental hygienists are named ‘dental practitioners’ when they register to practice with AHPRA (AHPRA 2013), and their practising certificates state which scope of practice they hold. Although courses to qualify as single scope dental therapists no longer exist in either of these countries, it is still possible to qualify as single scope dental hygienists in Australia but no longer in New Zealand.
Materials and Methods

Ethical approval was granted by the New Zealand and Australian ethic committees to administer the postal questionnaires. The three public health areas selected for this study employed 78 oral health therapy professionals and 57 responded to the postal questionnaire, giving a 73% response rate. The low number of potential study participants is a result of the low number employed (Health Workforce Australia 2013), along with the transitional nature of working in country practices. Therefore, to increase the study participant number, information regarding issues and practices relating to oral health promotion was further sourced from 48 participants attending an international oral health therapy conference workshop, resulting in 100% response rate from this group. Both sets of questions for these participants were self-designed by the researcher.

To analyse the data, a mixed method approach was used. A statistical test of independence using a Fisher’s exact test was applied to questions one to nine in the postal questionnaire, and a test of independence was used and all relationships were found to be independent (P>0.05). A qualitative interpretation was applied to questions ten to fourteen. A Likert scale was used to gauge responses for some questions, but as respondents selected either “important” or “very important”, these are the ratings included in table one. A pure phenomenology approach was utilised in parts of the questionnaire and conference proceedings question design, and hermeneutic phenomenology utilised in both data interpretation as well as questionnaire and conference proceedings question design.

Results

A significant finding in this study was that while a high number of study participants considered that oral health promotion is very important, study participants who were delegates at an international conference stated that oral health promotion was not their current practising role definition, neither was it supported by management in most public health settings where they practiced.

Table 1. Results from the postal questionnaire on personally rating the importance of health promotion?

<table>
<thead>
<tr>
<th>Qualification Year</th>
<th>Number</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960-1969</td>
<td>6</td>
<td>3 (50%)</td>
<td>3 (50%)</td>
</tr>
<tr>
<td>1970-1979</td>
<td>19</td>
<td>5 (26.3%)</td>
<td>14 (73.7%)</td>
</tr>
<tr>
<td>1980-1989</td>
<td>21</td>
<td>5 (23.8%)</td>
<td>16 (76.2%)</td>
</tr>
<tr>
<td>1990-1999</td>
<td>4</td>
<td>1 (25%)</td>
<td>3 (75%)</td>
</tr>
<tr>
<td>2000-2009</td>
<td>7</td>
<td>1 (14.3%)</td>
<td>6 (85.7%)</td>
</tr>
</tbody>
</table>
Study participants who were delegates at the international conference further stated that while there is significant interest in the scope of practice and levels of competence in clinical tasks, very little interest has been paid to competency and capability in health promotion.

Another significant finding from the postal survey participants showed that the “place of work” had an impact on the currency of health promotion knowledge of the oral health therapists as well as their health promotion level of activity.

Table 2. Results from the postal questionnaire about most recent health promotion training.

<table>
<thead>
<tr>
<th>Qualification Place</th>
<th>AU</th>
<th>20</th>
<th>5 (25%)</th>
<th>15 (75%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiji</td>
<td>1</td>
<td></td>
<td>0 (0%)</td>
<td>1 (100%)</td>
</tr>
<tr>
<td>NZ</td>
<td>36</td>
<td></td>
<td>10 (27.8%)</td>
<td>26 (72.2%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Promotion during Training</th>
<th>no</th>
<th>43</th>
<th>13 (30.2%)</th>
<th>30 (69.8%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>14</td>
<td>2 (14.3%)</td>
<td>12 (85.7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Health Promotion Training</th>
<th>no</th>
<th>32</th>
<th>10 (31.3%)</th>
<th>22 (68.8%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>25</td>
<td>5 (20%)</td>
<td>20 (80%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Place of Employment</th>
<th>NZ</th>
<th>37</th>
<th>9 (24.3%)</th>
<th>28 (75.7%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riverina</td>
<td>20</td>
<td></td>
<td>6 (30%)</td>
<td>14 (70%)</td>
</tr>
</tbody>
</table>

| Total               | 57 | 15 (26.3%) | 42 (73.7%) |

Note: A test of independence using a Fisher’s Exact test was used and all relationships were found to be independent (P>0.05)

Published literature has highlighted some areas where effective oral health promotion capacity building has occurred (Centre for Oral Health Strategy, 2006, 2009, 2010, 2013) and study participants from these areas indeed did show a higher level of engagement in oral health promotion and prevention, and they had been supported by dental management to participate in courses to update their skills.

Another very important set of results in this study showed that although a significant number (74%) of participants surveyed via the postal questionnaire believe that health promotion is very important, only a small number (less than 16%) were able to provide
information about up-to-date health promotion knowledge in questions requesting this information. A large number of participants (84%) still hold fast to a belief held in the 1920’s, that for health professionals, health promotion is about instructing patients about rules to be healthy and treating the presenting disease (Terris 1996). For the early school dental nurses (and then renamed dental therapists), the known preventive role did involve dental health messages about tooth brushing, eating fruit, removing decay and restoring children’s teeth, but evolution of effective health promotion has developed significantly since then (Yevlahova & Satur 2009).

Therefore, caution needs to be applied to these results, as some study participants stated they still understood health promotion and health education to be the same, demonstrating their currency of knowledge about the discipline of health promotion is outdated.

DISCUSSION

The evidence gathered in this study shows there are significant and unacceptable gaps in the inclusion of a preventive and primary healthcare model in public health dentistry. The results show that while there is a dedicated but small dental workforce delivering valuable dental care in these rural and regional communities, the capacity to focus on prevention and health promotion is more often not achievable and significant gaps in the preventive approach to care is apparent. Less than one third of the entire dental workforce are employed in the public health sector (Dental Council of New Zealand, 2010b; Health Workforce Australia, 2013; Veitch, 2006) while a much higher number of dental providers are private practice dentists. The issue of an unacceptably low number of dental providers in the Australian and New Zealand public health sector, particularly in rural and regional communities, was highlighted in studies reviewed in this thesis (Brooks & Morgan, 2013; Commonwealth of Australia, 2013b; Krause, et al., 2003; Kruger et al., 2010; Ministry of Health New Zealand, 2006; Schofield & Fletcher, 2007).

The recognition of the importance of preventing oral disease, was initially established in 1880 (Milling 2010) when the American dental hygienist was introduced and then later in 1920 (The Editor 1917) when the New Zealand school dental nursing\(^7\) scheme was introduced. The justification for introducing these occupations embodied the ethos of public health within the field of dentistry, one of preventing disease and promoting health. Over the following decades, literature shows that the field of dentistry has developed and maintained a focus on

\(^7\) In New Zealand, the School Dental Nurse title was used from 1921 until 1989, at which time it was replaced by the title Community Dental Therapist.
dental treatment and largely ignored the development of health promotion ideology (Coburn, 2004; de Leeuw, 2009; Ericson, Kidd, McComb, Mjör, & Noack, 2003; Monajem, 2006; 2009; Proctor, Turner, Pirozzo, Wood, 2003). The ability to include an approach which focuses on the causative factors of oral disease continues to be neglected (Ismail, et al. 2013), even though numerous government reports continue to show that a number of individuals in identified at-risk communities continue to suffer from unnecessary pain and suffering from unacceptable levels of oral disease (Australian Institute of Health and Welfare Dental Statistics and Research Unit, 2008; Commonwealth of Australia, 2013b; Ministry of Health New Zealand, 2006; New South Wales Ministry of Health, 2012; NSW Ministry of Health, 2013). These reports also show that financial cost for high-end treatment and the impact on overall general health continue to increase in some identified communities, namely rural, regional and indigenous communities.

While a review of these government reports shows rigorous evidence of the determinants of poor oral health and very sound recommendations to approaches based on up-to-date evidence about how to improve oral health, there is an ongoing total lack of recognition and exclusion of the oral health therapy workforce in these documents. The significant role this dental workforce should have on prevention and primary health care continues to be overlooked. It is evident from the literature reviewed over the decades since the inception of the school dental nurse, dental therapist, dental hygienist and oral health therapist, that the effectiveness of utilising the preventive role of the oral health therapy profession has had deficiencies since the time of initial inception of these professions. This significant concern instigated the Australian Government to hold a formal enquiry in 2013 (Commonwealth of Australia, 2013b). The official report emphasises the need for a primary care dental professional, naming the oral health therapy profession as integral to improving oral health for rural and regional Australians, and parts of this study were presented as evidence at the official government hearing by the researcher.

CONCLUSION

While the overall findings of this study have identified there are significant and unacceptable gaps in the inclusion of a preventive and primary healthcare model in public health dentistry, the results can be used to guide practice, to better utilise the health promotion role of the oral health therapist, and to inform curriculum development on strengthening capacity building within undergraduate and continuing professional development courses. These include the exploration of implementing effective individual approaches to improve
health in dental settings and how ‘entry to practice’ oral health therapists can better utilise levels of health promotion competencies gained in their undergraduate degree courses, within the current understaffed public oral health system.

REFERENCES


Coburn, D (2004). Beyond the income inequality hypothesis; class, neo-liberalism, and health inequalities. Social Science & Medicine, 58(1), 41.


The Editor (1917) *Executive Meetings* New Zealand Dental Journal May 1929.

Thirteen priority areas were identified in the report, each labelled as recommendations. A summary of these recommendations are as follows:-

**Recommendation 1.**
The Australian Government include principles in the Adult Dental Services National Partnership Agreement which require state and territory governments to develop improved linkages with private providers of dental services and not-for-profit organisations to help deliver dental services to patients in need.

**Recommendation 2.**
The Department of Health and Ageing and Health Workforce Australia work with the Dental Board of Australia to amend the professional scope of practice registration standards to allow dental hygienists, dental therapists and oral health therapists to practice independently.

**Recommendation 3.**
The Department of Health and Ageing investigate enabling dental hygienists, dental therapists and oral health therapists to hold Medicare provider numbers so that they can practice independently as solo practitioners within the scope of practice parameters stipulated by their professional practice registration standards. The provision of Medicare provider numbers to these practitioners could be piloted.

**Recommendation 4.**
The Australian Government include principles in the Adult Dental Services National Partnership Agreement which require state and territory governments to develop improved linkages with private providers of dental services and not-for-profit organisations so that patients living in areas where public dental services are not available or are oversubscribed have better access to care.
**Recommendation 5.**
The Australian Government include incentives in the Adult Dental Services National Partnership Agreement to encourage state and territory governments to improve the focus on preventive dental services as a component of addressing overall dental and oral health.

**Recommendation 6.**
The Australian Government, in negotiation with state and territory governments, develop a formula for the allocation of funding to state and territory governments under the Adult Dental Services National Partnership Agreement based on the size and distribution of priority population groups, including:
- concession card holder population;
- geographic spread of the population;
- the Indigenous population; and
- other priority population groups such as people with disabilities, people with chronic diseases, people on low incomes or people who are homeless.

**Recommendation 7.**
The Australian Government include a ‘maintenance of effort’ clause in the Adult Dental Services National Partnership Agreement, similar to that included in the Dental Waiting List National Partnership Agreement. This clause should specify that state and territory governments must maintain public dental clinical activity for adults, so that additional funding provided under the Adult Dental Services National Partnership Agreement is used to increase current effort.

**Recommendation 8.**
The Australian Government develop a performance and reporting framework for the Adult Dental Services National Partnership Agreement that will accurately and objectively assess progress towards achieving agreed benchmarks for service delivery and clinical outcomes. In consultation with state and territory governments, and with private providers of dental services, consideration should be given to a range of key performance indicators that will allow for monitoring of:
- changes to the levels of clinical activity;
- preventive services as a proportion of all services delivered; and
- targeting of services to specific population groups.
In developing the performance and reporting framework, consideration must be given to making use of existing data collection and reporting systems to maximise administrative efficiency and minimise reporting burden.
**Recommendation 9.**
The Australian Government include provision in the Adult Dental Services National Partnership Agreement that requires all signatories to commence negotiations for a new National Partnership Agreement (or alternative funding model) at least 12 months prior to its expiration.

**Recommendation 10.**
The Department of Health and Ageing, in consultation with state and territory governments and other key stakeholders, examine the case to appoint a Commonwealth Chief Dental Officer or establish an independent advisory body to:

- improve coordination between the Australian Government, and state and territory governments;
- increase engagement with the private sector, particularly private providers of dental services; and
- provide independent policy advice on dental and oral health.

**Recommendation 11.**
The Australian Government commit to a robust dental policy framework that guarantees the long-term sustainability of the public dental sector as a provider of dental services through ongoing funding support.

**Recommendation 12.**

**Recommendation 13.**
The Australian Government adopt a strategic policy approach which supports deliberate and phased progress toward a universal access to dental services scheme for Australia.